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50 YEARS of EXCELLENCE
FACULTY OF EDUCATION

5th International Research Symposium

Educational Research for Resilience: Embracing Change and Navigating Challenges

Symposium Proceedings 2025

Faculty of Education
University of Colombo, Sri Lanka

18th November 2025

5th International Research Symposium 2025

Educational Research for Resilience: Embracing Change and Navigating Challenges

Faculty of Education, University of Colombo
Sri Lanka

50 years of Excellence

Golden Jubilee Celebration

(1975 –2025)

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Educational Research for Resilience: Embracing Change and Navigating Challenges

Symposium Proceedings

5th International Research Symposium, Faculty of Education, University of Colombo.

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MISION

To facilitate the development of a committed professional educator with relevant knowledge, favorable attitudes, and useful skills for teaching, research, and service to the nation

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MESSAGE FROM THE VICE-CHANCELLOR

It gives me great pleasure to extend my warm greetings to all participants of the 5th International Research Symposium organized by the Faculty of Education, University of Colombo. The theme of this year's symposium, "Educational Research for Resilience: Embracing Change and Navigating Challenges," is both timely and inspiring. It reflects the crucial role of research in shaping education systems that are adaptive, inclusive, and responsive to the rapidly changing global context.

This year marks a moment of special significance as the Faculty of Education celebrates its 50th Anniversary. I extend my heartfelt congratulations to the Dean, staff, students, alumni, and all stakeholders who have contributed to the faculty's remarkable journey over the past five decades. Since its establishment, the faculty has been a national leader in teacher education and a hub of scholarly inquiry that has advanced educational thought and practice in Sri Lanka and beyond. Its consistent commitment to research, innovation, and professional excellence continues to enrich educational policy and practice at multiple levels.

Educational research is fundamental for building resilience in the education sector. For teacher educators, it informs curriculum design and professional preparation that nurture reflective and responsive practitioners. For teachers, it enhances classroom practices, enabling them to meet learners' diverse needs with creativity and confidence. For education policymakers and administrators, it provides evidence-based insights that support the formulation of effective, equitable, and sustainable educational strategies.

Importantly, research in education plays a pivotal role in achieving the United Nations Sustainable Development Goals (SDGs) particularly SDG 4: Quality Education, and its interlinkages with goals on gender equality, reduced inequalities, and sustainable communities. Through rigorous inquiry and innovative thinking, educational research helps bridge disparities, promote lifelong learning, and empower individuals and societies to respond to the challenges of the 21st century.

As we celebrate the faculty's golden jubilee and its legacy of excellence, this symposium serves as a vital forum for scholars, practitioners, and policymakers to share knowledge and co-create solutions for a more resilient and sustainable educational future.

I commend the Faculty of Education for its continued leadership in promoting educational research and for organizing this important international event. May this symposium inspire us all to reaffirm our shared responsibility in transforming education through research, collaboration, and commitment to global progress.

Professor Indika Mahesh Karunathilake
Vice Chancellor,
University of Colombo, Sri Lanka

MESSAGE FROM THE DEAN

It is with great pleasure that I extend my warm greetings to all participants of the 5th International Research Symposium of the Faculty of Education, University of Colombo (EDIRS) 2025, to be held on 18th November 2025, on the theme "Educational Research for Resilience: Embracing Change and Navigating Challenges." As the theme of this conference highlights, research drives innovation. Without research, the innovations, changes, and challenges might never have come to fruition in society. It encourages the development of new technologies, reflecting global trends, and adapts to the educational research culture, generating actionable insight for policy formulation and educational leadership, ensuring that they are based on evidence and not just tradition or opinion. This year marks a significant milestone as the Faculty of Education celebrates its 50th Anniversary. Over the past five decades, the faculty has made a profound contribution to national and international educational research, shaping the development of teacher education and educational policy in Sri Lanka.

I am deeply grateful to the Chief Guest, Professor Indika Mahesh Karunathilake, Vice-Chancellor of the University of Colombo, whose steadfast leadership and vision continue to inspire and guide our collective academic endeavors. I would also like to acknowledge the two distinguished keynote speakers of EDIRS 2025. Professor Tapio Juhani Lahtero, Administrative Principal at the Faculty of Educational Sciences Training Schools, Viikki Teacher Training School, University of Helsinki (Yläkoulu ja Lukio), Finland, brings invaluable international perspectives on teacher education and educational leadership. Dr. Darshana Samaraweera, Deputy Director General of the National Institute of Education, Sri Lanka, plays a pivotal role in curriculum development, educational research, policy, and innovation. Their combined expertise and leadership are expected to enrich the symposium discourse and inspire participants, fostering deeper insights and meaningful professional exchange.

I wish to place on record my sincere appreciation to the Symposium Organizing Committee and the staff of the Faculty of Education, whose tireless dedication and exemplary efforts have been instrumental in the successful organization of this event. Finally, I extend my sincere best wishes to all presenters for continued success in their future professional endeavors.

Professor. Samudra Senarath
Dean,
Faculty of Education,
University of Colombo, Sri Lanka

MESSAGE FROM THE SYMPOSIUM CHAIR

When the Faculty of Education celebrates its 50 years of service to the field of education in Sri Lanka and abroad, it is my great pleasure to write this message as the chair of the 5th International Research Conference 2025. The theme for this year is 'Educational Research for Resilience: Embracing Change and Navigating Challenges'. This prestigious event aims to bring together educators, researchers, policymakers, and students to explore the vital role of resilience in education amidst a rapidly changing world. In recent years, the educational landscape has undergone a significant transformation due to technological advancements, global pandemics, socio-economic shifts, and evolving pedagogical practices. These changes, while presenting numerous opportunities, also pose considerable challenges that require adaptive strategies and resilient approaches. The theme "Educational Research for Resilience: Embracing Change and Navigating Challenges" underscores the importance of proactive research and innovative solutions to foster resilience within educational systems. The conference is scheduled to take place on 18th November 2025 via hybrid mode. The Chief Guest at this year's Research Symposium is Professor Indika Mahesh Karunathilake, Vice Chancellor of the University of Colombo. Two internationally renowned figures in the field of education will deliver the keynote speeches. Professor Tapio Juhani Lahtero, Professor and Administrative Principal at Helsinki Normal Lyceum, University of Helsinki, Finland, possesses expertise in the field of education and leadership, while Dr. S.D.D. Samaraweera, Deputy Director General of the National Institute of Education, Sri Lanka, is a distinguished academic specializing in educational development and research.

A hundred Extended Abstracts were selected through double blind reviews. The conference will feature a diverse range of presentations, including empirical research studies, theoretical frameworks, case studies, and practical interventions. Topics will cover areas such as curriculum adaptation in times of crisis, mental health and well-being of students and teachers, digital literacy and technology integration, inclusive education, and community engagement. The Symposium provides an opportunity for the participants to develop a deeper understanding of how to build resilient educational environments capable of withstanding future uncertainties. The University of Colombo's Faculty of Education is committed to advancing educational research that contributes to positive societal impact. This conference seeks to foster a community of scholars and practitioners dedicated to strengthening resilience in education. Attendees will have the opportunity to network, share ideas, and collaboratively develop actionable solutions to current and future challenges.

Dr. S. Athirathan (Chair)
Department of Social Science Education,
Faculty of Education,
University of Colombo, Sri Lanka

MESSAGE FROM THE SYMPOSIUM CO-CHAIR

It gives me great pleasure to extend my warm greetings to all participants of the 5th International Research Symposium 2025, organized by the Faculty of Education, University of Colombo, Sri Lanka, under the timely and inspiring theme *"Educational Research for Resilience: Embracing Change and Navigating Challenges."*

In an era marked by rapid transformation, uncertainty, and global challenges, education plays a pivotal role in fostering resilience, adaptability, and innovation. This symposium serves as an intellectual platform for scholars, educators, and policymakers to share research insights, exchange ideas, and explore strategies that strengthen the education system's capacity to respond to evolving societal needs.

Our goal is to create a space where evidence-based research informs practice, guiding us toward more equitable, inclusive, and sustainable educational futures. The contributions presented here reflect the dedication of researchers who continue to pursue excellence and creativity amidst change.

I extend my heartfelt appreciation to all presenters, reviewers, and organizing committee members for their invaluable commitment to making this symposium a success. May this event inspire meaningful collaboration and renewed determination to advance educational research for a resilient and transformative world.

Dr. N.M.M Safeek (Co-Chair)
Department of Educational Psychology,
Faculty of Education,
University of Colombo, Sri Lanka

INTRODUCTION TO THE KEYNOTE SPEAKER 1

Adjunct Professor Tapio Juhani Lahtero

Dr. Tapio Lahtero is a distinguished educator and scholar serving as an Adjunct Professor at the Viikki Teacher Training School, University of Helsinki, Finland. His academic journey and professional career reflect a deep commitment to educational leadership, school management, and the development of educational policy in Finland. Dr. Lahtero earned his Ph.D. in educational leadership from the University of Jyväskylä in 2011. His doctoral research focused on the dynamics of leadership within Finnish schools, with an emphasis on sustainable school development and organizational culture. To augment his expertise in leadership and management, he completed an M.B.A. in Leadership in Public Management at the University of Tampere in 2015, gaining valuable insights into administrative and strategic aspects of public sector leadership. Throughout his career, Dr. Lahtero has held various influential positions in both municipal education departments and universities. His practical experience includes over ten years of service as a principal, regional principal, and head of comprehensive schools within the Education Department of the City of Vantaa. These roles allowed him to implement innovative pedagogical strategies, manage educational institutions effectively, and shape policies that support student success and teacher development.

Currently, Dr. Lahtero is the Administrative Principal of the University of Helsinki Teacher Training Schools, a role that encompasses oversight of the Viikki Teacher Training School and the Helsinki Normal Lyceum. In this capacity, he is responsible for ensuring the quality of teacher education programs and fostering research-based teaching practices. Since 2015, he has also served as the leader of the principal training program at the University of Helsinki, contributing to the professional growth of future school leaders. His involvement extends beyond university settings, as he has collaborated with the Universities of Jyväskylä and Turku, providing expertise in the professional development of school administrators and municipal education officials.

Dr. Lahtero's research and teaching interests primarily focus on strategic leadership, distributed leadership, and broad-based pedagogical leadership. His scholarly work explores how educational leaders can foster sustainable and inclusive school cultures. He has authored numerous research articles that contribute to the understanding of Finnish educational leadership practices. Among his notable publications is Educational Leadership in Finland – Principal's Role in Building a Sustainable School Culture, which examines the vital role of principals in shaping resilient and forward-looking educational environments in Finland.

Recognized nationally and internationally as a leading scholar on Finnish educational leadership, Dr. Lahtero has been called upon to provide expert guidance on school management during critical times, including the COVID-19 pandemic. His understanding of the cultural reasons behind Finland's educational success, especially the importance of trust, teamwork, and fairness, has helped shape policies and strategies to keep schools running smoothly and support students during tough times.

ABSTRACT OF THE KEYNOTE 1

Strategic Leadership in Support of Organizational Culture Change

Dr. Tapio Juhani Lahtero

Adjunct Professor

University of Helsinki, Finland

The presentation examines the implementation of strategic leadership in the work of comprehensive school leadership teams and the challenges of managing change in operating culture. The presentation is based on a combined analysis that utilizes both the experiences of members of comprehensive school leadership teams in a Finnish city in the three areas of strategic leadership – planning, implementation, and evaluation – and a model describing the change in operating culture (Lahtero & Kuusilehto-Awale, 2013; Lahtero, Loukomies & Laine, 2025). The aim of the presentation is to show how strategic leadership can contribute to supporting the change in operating culture, which often encounters resistance to change, uncertainty, and slow progress. Even if a new operating model does not initially produce the desired results, strategic leadership – in particular, joint planning, committed implementation, and systematic evaluation – can help overcome the challenges of the initial phase of the change process and prevent a return to old, ineffective practices. The presentation emphasizes that changing the operating culture is not only the responsibility of the individual school principal but requires strategic commitment and pedagogical leadership from the entire educational management team. Strategic leadership structures and practices can provide concrete tools for supporting change, involving staff, and instilling a shared vision in the school community.

INTRODUCTION TO THE KEYNOTE SPEAKER 2

Dr. Darshana Samaraweera

Dr. Darshana Samaraweera is a distinguished education leader and researcher currently serving as the Deputy Director General of the Faculty of Languages, Humanities and Social Sciences at the National Institute of Education (NIE), Sri Lanka, a position he has held since 2021. With a Ph.D. from Management and Science University, Malaysia, specializing in the critical areas of teacher burnout, mentoring, and self-efficacy among pre-service ESL teachers, Dr. Samaraweera brings deep research insight to national policy implementation.

Having joined the NIE in 2004, he has dedicated over two decades to curriculum development and teacher training, including serving as the Director of the Department of English. His work has been central to major national initiatives, including the development of the National Curriculum Framework and the integration of listening and speaking skills into the formative assessment system. Currently, he serves as a key contributor to the proposed general education transformation to be introduced to the education system in the year 2026.

Dr. Samaraweera is a highly sought-after keynote speaker and resource person, frequently addressing topics at the intersection of digital transformation, language education, and Generative AI in learning environments, as seen in his recent addresses in India and Sri Lanka. He is also the former Chair of the Sri Lanka English Language Teachers' Association (SLELTA) and has contributed significantly to educational policy as a member of the National Oversight Committee on Implementing the National Education Policy Framework. His expertise ensures that his insights into educational reform are both strategically sound and globally informed.

ABSTRACT OF THE KEYNOTE 2

Educational Research for Resilience: Embracing Change and Navigating Challenges

Dr. Darshana Samaraweera

Deputy Director General

National Institute of Education, Sri Lanka

Human history has arrived at a point where change takes place at an unimaginable speed. This is common to all aspects of life, and as a result, life has become more challenging and unpredictable than we perceive. The world we thought had existed only in movies and science fiction is becoming real day by day. The concept of human-machine collaboration we experience today, with the introduction of Generative AI, is one such example. With the transition from the 4th Industrial Revolution to the 5th Industrial Revolution within a very short time period, like 10 years, we have been able to experience all these changes. The most interesting factor about these changes is that humans achieved all these within such a short period, overcoming the challenges posed by a global pandemic that threatened human existence. This is a great example of the resilience of mankind in the face of adverse circumstances. In this context, it is clearly understood that resilient people, resilient industries, and resilient organizations can overcome the challenges of the unpredictable future. Educational research is no exception in this regard. Both resilient educational research and educational research to foster resilience are equally important here.

Panel sessions

PANEL 01 - SCIENCE EDUCATION

Venue			**Science Lab**	
Session Chair			**Dr Kumudu Seneviratne**	
Session Coordinator			**Mr. U.G Chandrajith**	
Technical Assistant			**Ms. Monali Vendabona**	
Presentation				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
1	067	1.00-1.15	Stakeholder Perceptions of the General Certificate of Education Advanced Level (GCE A/L) Biology Curriculum in Sri Lanka: Informing Curriculum Reform	Agalya, V. Seneviratne, D.V.K.P.
2	066	1.15-130	A Critical Review: Multilevel Learning Approach to Enhance Self-Efficacy in Teaching Scientific Inquiry	Chamara, M.A.D. Seneviratne, D.V.K.P.
3	138	1.30-1.45	Status of Curricular Implementation in the Pre-Schools Managed by the Eastern Provincial Council	Diganathan, S. Athirathan, S.
4	090	1.45-2.00	Cognitive Engagement of Biology Students through Self-Regulated Interventions: A Thematic Review	Ekanayake, E.M.U. Seneviratne, D.V.K.P.
5	017	2.00-2.15	A Comparative Study of Junior Secondary Curriculum Implementation and Classroom Management in Two Selected Schools in Germany and Sri Lanka	Hevavitharana, H.M.A.J.D.
6	086	2.15-2.30	The Impact of Self-Directed Learning (SDL) Technique on Empowering Adult Learners' Learning	Wanasundara, W.A.U. Chandrakumara, I.G.C.
7	116	2.30-2.45	The Readiness and Awareness of Students in the National College of Education to Use e-Learning Resources	Kumarage, T. U. Nonis, P. K. J. E.
8	121	2.45-3.00	The Perception of Teachers Towards the Implementation of the Five Essential Learning Concepts (5 ELC) Proposed in the Catholic Curriculum Reform (CCR)	Weerasignhe, W.D.A.S.
9	036	3.00-3.15	Factors Influencing Teachers' Motivation: Insights from the Anuradhapura Education Zone	Meera, K. Vijayatheepan, R.

PANEL 02 - HUMANITIES & LANGUAGE EDUCATION

Venue			**ELH 3**	
Session Chair			**Emeritus Professor Marie Perera**	
Session Coordinator			**Dr. E.S Neranjani**	
Technical Assistant			**Ms. Wasantha Kumari**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
1	069	1.00 - 1.15	Family Relations and Self-Regulated Learning on Academic Performance among Adolescents in Jaffna District	Albert Regan, S.
2	098	1.15 - 130	The Role of Teachers in Pedagogical Knowledge Practices and Approaches in Tamil Language Teaching	Asana, M.N.F. Paunanthie, A
3	013	1.30 - 1.45	Ethnic Harmony through Education: An Analysis of Sri Lanka's National Education Commission Policy Reports (1992–2022)	Dissanayake, N.D. Wedikandage, L.N.P.
4	052	1.45 - 2.00	Demotivation vs. Proficiency in Second Language Learning - A Quantitative Study Involving Engineering Students	Gunawardena, S.J.
5	065	2.00 - 2.15	Exploring why resilience remain under develop in music education in Sri Lanka	Bulathsinhala, H. Bandara, L.M.K.
6	037	2.15 - 2.30	Evaluating the Effectiveness of Residential English Training Programmes in Developing English Language Competence: Evidence from Selected Programmes in Sri Lanka	Jayasinghe, D.P.G.T.D.
7	084	2.30.-2.45	The Current Practice of Incorporating Edutainment Methods in English Language Classrooms in Sri Lanka	Malawithanthri, E.E. Neranjani, E.S.
8	117	2.45 - 3.00	The Role of Teachers in Promoting Students' Moral Values in Secondary Schools	Kartheepan, S. Paunanthie, A.
9	055	3.00 - 3.15	Student-Centered Learning Strategies in the Teaching and Learning Process: Subject of Sinhala and Literature	Somarathne, R.A.S.P. Dahanayake, S.S.

PANEL 03 - STEAM EDUCATION

Venue			**MLH 1**	
Session Chair			**Dr. P.K.J.E. Nonis**	
Session Coordinator			**Mr. R. Vijayatheepan**	
Technical Assistant			**Ms. P.N.P. Costa**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
1	094	1.00 -1.15	Factors Affecting the Selection of Technology Stream in G.C.E. Advanced Level: A Literature Review	Alwis, M.H.N. Wedikandage, L.N.P.
2	068	1.15 -130	Validating Questionnaires for Cooperative Learning in Sri Lankan Secondary Mathematics Classrooms: Evidence from a Pilot Study	Fernando, K.L.M. Seneviratne, D.V.K.P.
3	032	1.30 - 1.45	Exploring the Pedagogical and Ethical Implications of Integrating Artificial Intelligence (AI) Tools in Flipped Learning	Lindakumbura, V.
4	140	1.45 - 2.00	Student-Related Factors Affecting the Effective Use of ICT in Science Learning (A Study Based on Grade 10 Tamil Medium Students in the Mawanella Educational Zone)	Najeela, P.M.F. Vijayatheepan, R.
5	056	2.00 - 2.15	Fostering Proficient Digital Citizens: Communication and Media Studies as a Gateway in Sri Lanka	Perera, K.G.M. Nonis, P.K.J.E.
6	087	2.15 - 2.30	A Thematic Review Exploring Challenges and Pedagogical Implications of Computer Technology Integration in the Teaching and Learning Process	Darshana, K. P. Nonis, P.K.J.E.
7	152	2.30 - 2.45	Personalizing Education Plans through Artificial Intelligence: An Evidence-based Comparison of AI-generated and Traditional Teaching Approaches in Mathematics Using Bloom's Taxonomy and VAK Learning Styles	Ranasinghe, L.P Fernando, C. Waidyasekera, S. Manchanayake, K.
8	126	2.45 - 3.00	An innovative approach to developing the 21st Century Skills of the Junior Students in Sri Lanka	Daminda, K. K.A.C. Bandara, L.M.K.
9	120	3.00 - 3.15	Effectiveness of Game-based Learning in Teaching Mathematical Concepts to Students in the Primary Key Stage 1	Fernando, R.F.E. Perera, R.A.B.U.I.
10	108	3.15 - 3.30	Exploring Self-Efficacy and Preparedness for AI-Integrated Pedagogy among Sinhala Medium Teachers following the Postgraduate Diploma in Education at Colombo University	Wedikkarage, L.

PANEL 4 - EDUCATIONAL MANAGEMENT

Venue			**Board Room**	
Session Chair			**Prof. H.M.L. Kumari**	
Session Coordinator			**Dr. C.P.W. Malepathirana**	
Technical Assistant			**Ms. Hansika Herath**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
1	018	1.00 - 1.15	Strengthening School Governance through Collaborative Stakeholder Engagement: Mixed-methods Evidence from Sri Lanka's Central Province	Athukorala, T. Sethunga, P.
2	039	1.15 - 130	The influence of Teachers' Transformational Leadership on Classroom Management Dynamics in Secondary Schools in Sri Lanka	Imesha, K.S. Gajan, R
3	095	1.30 - 1.45	Global Perspectives on School-Based Assessment (SBA): A Systematic Review of Practices and Challenges	Sachith, E.M.Y. Niroshinie, R.D.C.
4	127	1.45 - 2.00	The Impact of Principals' Distributed Leadership Practices on Teacher Effectiveness in Private Schools in Sri Lanka	Rev. Fr. Ashley, V.A. Kumari, H.M.L
5	053	2.00 - 2.15	The Roal of Social Media in Enhancing Academic Engagement: A Case Study of a State University in Sri Lanka	Liyanage, R.D. Senanayake, S.G.N.C.
6	008	2.15 - 2.30	Developing Students' Creative Skills through the Primary First Language Curriculum: Challenges Faced by Teachers	Abeywickrama, S.P. Neranjani, E.S.
7	003	2.30 - 2.45	Perceptions and Experiences of PGDE Students Using Open Educational Resources in Distance Teacher Education in Sri Lanka	Fernando, W.M.A.P.S. Nawastheen, F.M.

PANEL 5- EDUCATIONAL PSYCHOLOGY

Venue			**MLH 3**	
Session Chair			**Dr. Chulani Herath**	
Session Coordinator			**Ms. E. Randeniya**	
Technical Assistant			**Ms. Kumari Paragodaarachchi**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
1	083	1.00 - 1.15	Developing a Mindfulness Strategy for Early Childhood Education through 'Thera Theri Gatha Pali'	Ven. Bulugahapitiye Saranathissa Herath, H.M.J.C.
2	105	1.15 – 1.30	Positioning Schools as Pillars of Child Protection: A Mixed-methods Study of Awareness Practices and Institutional Gaps in Sri Lanka	Damayanthi, W.D.A.K. Senarath, S.
3	082	1.30 - 1.45	The Influence of the Psychosocial Environment on Self-esteem in Students with Low Academic Achievement: A Systematic Literature Review	Gunasekara, P.W.N.P. Chandrakumara, I.G.C.
4	062	1.45 - 2.00	Development of Soft Skills for Positive Interpersonal Relationships among Prospective Teachers of the National Colleges of Education	Karunathilake, R.W.A.M.R.G.K. Niroshinie, R.D.C.
5	148	2.00 - 2.15	Integrating Western and Buddhist Psychotherapeutic Methods to Alleviate Psychological Problems Associated with Aging	Liyanage, C.
6	097	2.15 - 2.30	A Comparative Study of Emotional Intelligence among Advanced Level Students Across Streams and Urban–Rural Schools in Sri Lanka	Pramila, S. Senarath,S.
7	136	2.30 - 2.45	Existing Level of Academic Stress among the Student Teachers (A Study Based on Tamil Medium National Colleges of Education in Sri Lanka)	Pirashanthan, S. Athitharan, S.
8	093	2.45 - 3.00	Most Frequently Applied Theoretical Models among Practicing Counsellors in Sri Lanka	Ranawake, H. K. Herath, C.
9	099	3.00 - 3.15	Existing Level of Socio-Emotional Skills among Junior Secondary Students (Study Based on Kinniya Education Zone)	Sabras, N.L. Athirathan, S.
10	071	3.15 -3 .30	Teachers' Usage of Effective Positive Psychological Strategies in Addressing Psychosocial Issues of Secondary Students: A Review of Literature	Thenuwara, N.D. Perera, R.A.B.U.I.

PANEL 06 - EDUCATIONAL SOCIOLOGY

Venue			**Room No 1**	
Session Chair			**Dr L.M.K. Bandara**	
Session Coordinator			**Dr. H.M.J.C. Herath**	
Technical Assistant			**Ms. Nadeera Rajapaksha**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
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2	033	1.15 – 1.30	The Influence of Electronic Devices on Academic Achievement in Social Science Subjects among Senior Secondary Students	Jasra, J.F. Paunanthie, A.
3	092	1.30 - 1.45	Factors Influencing the Learning of the Senior Secondary Students Separated from Their Parents	Luxmanathasan, J. Sivananthan, P.
4	030	1.45 - 2.00	An Evaluation of the Alignment between the Senior Secondary Geography Curriculum of Sri Lanka and Sustainable Development Goal 15: A Textbook-Based Content Analysis	Neranjani Kumari, D.M.C.. Wedikandage, L.N.P.
5	011	2.00 - 2.15	An Investigation in to the Educational Challenges of Children of Municipal Cleaning Workers in Urban and Semi-Urban Areas: A Study of the Kandy District, Sri Lanka	Sriganth, R.
6	110	2.15 - 2.30	Developing Peer Learning Strategies for Geography in Junior Secondary Classrooms: An Action Research Study	Sudusinghe, D.N. Neranjani, E.S.
7	077	2.30 - 2.45	The Challenges Faced by Humanities Undergraduates in Developing Employability Skills in the University System of Sri Lanka: A Study Based on Literature	Wickremasinghe, F.N. Neranjani, E.S.
8	101	2.45 - 3.00	Perception of Geography Subject Teachers and Students Towards 4C Skills Development (Based on G.C.E. (A/L) Students Gampola Education Zone)	Yogeswary, Y. Athirathan, S.
9	122	3.00 - 3.15	Challenges in Preventing Child Abuse within the School System: The Responsibilities and Roles of Stakeholders	Vasana, G.M.V.S Indigahawala, T.W.V.

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Session Coordinator			**Ms. R.D.C. Niroshinie**	
Technical Assistant			**Mr. K.K.I. De Silva**	
Presentations				
#	**Paper ID**	**Presentation Time**	**Titles**	**Name of the Authors**
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2	106	1.15 - 130	Integrating Learning Theories and Assessment Strategies in Instructional Design: A Systematic Review	Perera, M.A.I.P. Senarath, S.
3	058	1.30 - 1.45	Adapting and Validating the Academic Self-Efficacy Scale for Advanced-Level Students in Sri Lanka	Piratheeban, K. Bandara, L.M.K.
4	022	1.45 - 2.00	A Comprehensive Evaluation of a Formal Peer Tutoring and Support Centre in Sri Lankan Higher Education: An Impact Analysis	Radhakrishnan H.K. Rajapaksha, R.
5	050	2.00 - 2.15	Assessment as a Catalyst for Metacognitive Learning: Insights from a Longitudinal Study of the ESP–Engineering Curriculum at the University of Moratuwa	Rathnayake, W.M.P.Y.B. Karunarathne, A.K.
6	091	2.15 - 2.30	Development and Validation of a Resilience Skills Questionnaire for Primary School Teachers Based on Peace Education	Tennakoon, T.M.D.S.K. Kumari, E.L.A.P. Withanage, C.P.
7	057	2.30 - 2.45	A Systematic Literature Review of School Self-Evaluation Frameworks Used in Various Countries to Identify Domains and Stakeholders	Wanniarachchi, W.A.M.G. Chandrakumara, I.G.C.
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Session Coordinator	**Ms. A.C.I. Kinkini**
Technical Assistant	**Mr. Manju Sri**

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Venue			**MLH 2**	
Session Chair			**Prof. L.K.P. Wedikkarage**	
Session Coordinator			**Mr. I.G.C. Chandrakumara**	
Technical Assistant			**Mr Samith Dias**	
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5	079	2.00 - 2.15	Early Human Communication: Modes of Knowledge Transmission in Sri Lanka	Samaraweera, K.N.T.U. Wedikandage, L.N.P.
6	150	2.15 - 2.30	Social Trends in International School Choice	Irangani, M.S.R. Indigahawela, T.W.V.
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8	139	2.45 - 3.00	Development of Ethical Concepts in the Subject of Buddhism for the 21st Century Secondary School Students: A Critical Review	Kusaladhamma, G. Dahanayake, S.S.
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Session Coordinator			**Dr. S.S. Dhakanayake**	
Technical Assistant			**Ms. G.I. Gunadasa**	
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5	100	1.45 - 2.00	Integrating Music Activities into Mathematics Instruction to Enhance Cognitive Skills in Primary Education: A Systematic Literature Review	Kumara, G.S.G.W. Herath, H.M.J.C.
6	012	2.00 - 2.15	Promoting the 13-Year Guaranteed Education Program among Students: The Contribution of School Career Guidance Programs	Kumari, H.A.N.P. Wedikandage, L.N.P.
7	072	2.15 - 2.30	The Concept of Social Reconciliation for Promoting Good Citizenship: The Strategic Utilization of Motivation through Learning Experiences	Pepiliyane Sumitta Thero Wedikandage, L.N.P.
8	064	2.30 - 2.45	Implementing CASEL's Three-Legged Stool for SEL in Classrooms in Sri Lanka: A Case Study	Fernando, S. Herath, H.M.J.C.
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AGENDA

8.00 am - 9.00 am	Refreshments
9.00 am - 9.30 am	Registration
9.30 am - 9.40 am	Inauguration of the Session
9.40 am - 9.45 am	Pooja Dance
9.45 am - 10.00 am	Welcome Address Prof. Samudra Senarath, Dean, Faculty of Education
10.00 am -10.15 am	Address by the Chief Guest Professor. Indika Mahesh Karunathilake Vice-Chancellor, University of Colombo, Sri Lanka
10.15 am -10.40 am	Keynote Address - 1 "Strategic leadership in support of organizational culture change" Professor. Tapio Juhani Lahtero
10.40 am -11.05 am	Keynote Address – 2 Dr. S.D.D. Samaraweera
11.05 am -11.15 am	Vote of Thanks Dr. S. Athirathan, Chair / EDIRS 2025
11.15 am -12.00 pm	Poster Presentation
12.00 pm - 1.00 pm	Lunch
1.00 pm - 3.00 pm	Technical Sessions

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Science Education	Humanities & Language Education
Panel 3	**Panel 4**
STEM Education	Educational Management
Panel 5	**Panel 6**
Educational Psychology	Educational Sociology
Panel 7	**Panel 8**
Assessment & Evaluation	Teacher Education
Panel 9	**Panel 10**
Multi-Disciplinary (Hybrid)	Multi-Disciplinary

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3.30 pm - 4.00 pm	Refreshments
	End of the conference of EDIRS 2025

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Stakeholder Perceptions of the General Certificate of Education Advanced Level (GCE A/L) Biology Curriculum in Sri Lanka: Informing Curriculum Reform

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Abstract

In Sri Lanka, the GCE Advanced Level (A/L) Biology stream is a popular academic path for many students. However, students often struggle to achieve high grades and develop the biological skills required in a global context. This study examines the current realities of the GCE A/L Biology curriculum from the perspectives of key stakeholders, to inform ongoing curriculum reforms. Specifically, it examines stakeholder perceptions of the curriculum's intended purpose, analyses its strengths and weaknesses, investigates implementation challenges, evaluates its effectiveness in promoting scientific skill development, and gathers stakeholder suggestions for improvement. An exploratory, descriptive, qualitative approach with an inductive method was employed. Data were collected through semi-structured interviews with a purposive sample of 22 participants, including university lecturers, curriculum developers, teachers, and students. Thematic analysis identified five main themes: Perceived Purpose and Relevance of the Curriculum, Content Strengths and Weaknesses, Implementation and Resource Challenges, Skill Development versus Memorization, and Recommendations for Curriculum Improvement. While the curriculum provides a solid knowledge base, the findings highlight a significant gap between curriculum goals and classroom practice. The study emphasizes an urgent need for reforms in content design, assessment methods, teacher training, resource distribution, and administrative support to better align the curriculum with national objectives and global educational standards.

Keywords: GCE A/L biology curriculum, curriculum reform, stakeholder perceptions, qualitative thematic analysis

Introduction

In Sri Lanka, the GCE Advanced Level (A/L) is a crucial gateway to higher education and career opportunities. The Bio Science stream, particularly Biology as a compulsory subject, holds high prestige due to its relevance to innovation, productivity, and professional fields such as medicine and biotechnology (Malik et al., 2021). Over the past 16 years, the number of students selecting Biology as a subject at the Advanced Level (A/L) has shown a statistically significant upward trend. A linear regression analysis conducted for the period 2008–2024 revealed an average annual increase of 643 students (slope = +643.07, $p = 0.00$, $\alpha = 0.05$), indicating growing interest in the subject. The coefficient of determination ($R^2 = 0.49$) suggests that approximately 49% of the variation in student enrollment in Biology is explained by the passage of time, reflecting a steady increase in demand (Based on statistics at the Ministry of Education (MOE), 2008-2024).

However, despite this growing interest, the percentage of students failing Biology has also increased over the same period. From 24% in 2008 to over 30% in recent years, this upward trend in failure was found to be statistically significant (slope = +0.30, $p = 0.0428$, $\alpha = 0.05$). This contradiction, rising enrolment alongside increasing failure rates, raises questions about the effectiveness and relevance of the current curriculum (Based on statistics at MOE, 2008-2024). Sri Lanka's examination system has been criticized for overemphasizing memorization and academic performance, with limited focus on skills. The National Education Commission (NEC) (2022) highlights the Institute of Education (NIE) (2019), which highlights rigid, overloaded curricula and a poor balance between theory and practice. In Biology, studies show teaching remains exam-focused, limiting inquiry and conceptual understanding (Rathnayake & Senevirathne, 2024). Given these concerns, and in light of the government's ongoing curriculum reforms set to begin in 2026,

it is timely and essential to examine stakeholder perspectives on the current A/L Biology curriculum. Understanding these perceptions can provide valuable contextual insights to inform ongoing curriculum design, ensuring it is both relevant and responsive to the needs of students and society.

The present study aims to conduct a preliminary contextual analysis of the G.C.E. A/L Biology curriculum in Sri Lanka, based on stakeholder input. The specific objectives of the study are as follows:

1. Examine stakeholder perceptions regarding the intended purpose of the current GCE A/L Biology curriculum.
2. Analyse stakeholders' perspectives on the strengths and limitations of the existing Biology curriculum content.
3. Investigate the challenges encountered by stakeholders in the implementation of the Biology curriculum.
4. Evaluate stakeholder views on the extent to which the curriculum facilitates the development of scientific skills.
5. Elicit stakeholder recommendations for enhancing the contextual relevance and effectiveness of the GCE A/L Biology curriculum.

Review of Related Literature

Curriculum reform and development are essential to ensuring that education systems remain relevant, dynamic, and responsive to the evolving needs of society. Osuji and Everlyn (2025) defined curriculum as a sequence of learning experiences designed to promote students' holistic development, encompassing intellectual, emotional, spiritual, and physical aspects. It encompasses not only subject content but also pedagogical methods, assessment strategies, and learning resources. Similarly, Campbell-Phillips (2020) argued that science education globally faces significant challenges and emphasised the urgent need for curriculum reform to align educational practices with the rapidly changing demands of the modern world.

In the Sri Lankan context, the National Education Commission (NEC, 2022) identified several persistent challenges within the general education sector, including issues related to curriculum development, curriculum content, delivery, and assessment. The report highlighted that GCE A/L science education struggles to attract or retain students because of fear of the subject, limited school availability, and a shortage of qualified teachers, indicating an urgent need for curriculum reform. The National Institute of Education (NIE, 2018) similarly underscored the importance of equipping 21st-century learners with advanced skills necessary for success in education, employment, and life. The NIE proposed that students should be empowered with creativity, problem-solving ability, teamwork, and innovation.

Despite this, the NIE (2018) observed that the Sri Lankan education system remains predominantly examination-oriented, centered around the Grade 5 Scholarship, the G.C.E. Ordinary Level (O/L) examination, and the G.C.E. Advanced Level (A/L) examination. This examination-driven culture has fostered excessive competition, an overemphasis on rote memorization, and a neglect of students' psychomotor and creative development. Alawattegama (2020) further asserted that Sri Lanka's education system requires urgent and holistic reform to address issues across three key levels: policymaking, implementation, and supervision. This perspective aligns with Aturupane et al. (2021), who noted that structural inequities and inconsistencies in curriculum delivery exacerbate educational disparities. Collectively, these studies stress the importance of curriculum reform that is both contextually grounded and forward-looking.

The reviewed literature reveals that while Sri Lanka's education policy frameworks recognise the importance of reform, persistent gaps remain between curriculum intentions and classroom realities. Rigid syllabi, inadequate teacher training, assessment imbalances, and insufficient resource provision continue to limit the effectiveness of curriculum delivery. Against this backdrop, exploring stakeholder perceptions becomes vital to understanding the contextual challenges and opportunities in reforming the GCE A/L Biology curriculum, ensuring that it truly prepares students for higher education, employment, and 21st-century scientific engagement.

Methodology

Guided by interpretive philosophy, this study aimed to understand the meanings that key stakeholders attribute to the GCE A/L Biology curriculum within their respective educational and sociocultural contexts. Because only a few empirical inquiries have examined these meanings in Sri Lanka, an inductive reasoning approach was adopted. Rather than testing pre-existing theories, the study allowed patterns and explanations to emerge from the stakeholders' own words. An exploratory-descriptive qualitative design was selected to obtain a rich, holistic picture of curriculum realities (Hunter et al., 2019). In keeping with this design, semi-structured interviews served as the primary data-collection strategy. The investigation was cross-sectional, capturing views of 2019th curriculum. A multilevel purposive sample was drawn to capture the perspectives of those who design, deliver, or experience the biology curriculum:

Table 1

Inclusion criteria for sample selection

Stakeholder group	Inclusion criteria	No
Curriculum developers	Employed by the National Institute of Education (NIE) (CD 1-4)	04
University lecturers	Involved in national curriculum or examination panels for Biology (UL 1-3)	03
Biology teachers	≥ 20 years of A/L Biology teaching with recognised subject expertise (T 1-7)	07
Students (current & recent)	Currently studying A/L Biology or completed the exam in the past two years (S 1-8)	08
	Total	22

Recruitment continued within each stratum until data saturation, the point at which no new ideas arose, was reached, yielding a total of 22 participants**.** Interviews were conducted in person or via secure video conferencing, depending on participant availability and location. Each session lasted 20-30 minutes and followed an interview schedule covering:

1. Curriculum purpose and relevance
2. Content strengths and limitations
3. Implementation challenges and resource issues
4. Support for scientific-skill development,
5. Suggestions for improvement

All interviews were audio-recorded with consent and transcribed verbatim. Data were analysed thematically using Braun and Clarke's (2006) six-phase procedure. The analysis remained inductive, allowing themes to emerge naturally from stakeholder accounts rather than

being imposed by preset categories. As this is a qualitative study, traditional validity and reliability measures were not applied. However, the study ensured trustworthiness by maintaining a straightforward research procedure, using systematic thematic analysis, and basing interpretations directly on participants' views to ensure accuracy and authenticity.

Results and discussion

Based on the thematic analysis of the interview, the following themes and codes were identified:

Table 2

Identified themes and codes

Themes	Codes
Perceived Purpose and Relevance of the Curriculum	Preparing students for higher education Alignment with national development goals Lack of real-life relevance Curriculum not adapted to 21st-century needs Focus on exam preparation
Content Strengths and Limitations	High academic standard Content overload Outdated or irrelevant topics Lack of advanced biological application
Implementation and Resource Challenges	Time constraints Inadequate lab facilities Lack of teacher training Unequal access to resources (urban vs rural) Over-reliance on tuition classes
Skill Development vs. Memorisation	Emphasis on rote learning Limited critical thinking development Exam-focused teaching methods Insufficient inquiry-based learning
Assessment and Exam Pressure	Teaching to the exam Stress on past paper drills Narrow assessment focus (primarily written)
Suggestions for Curriculum Improvement	Reducing syllabus content load More practical and hands-on components Integrating local and real-world examples Introducing formative assessments Curriculum flexibility and student choice

Perceived Purpose and Relevance of the Curriculum

Stakeholders acknowledged that the GCE A/L Biology curriculum is fundamentally designed to provide a strong biological foundation for higher education and to prepare students for future employment. However, it became evident that, apart from curriculum developers, most stakeholders, particularly teachers and students, had limited awareness of the broader national education policies shaping curriculum development. Participants observed that revisions to the curriculum predominantly focus on content changes, with minimal attention given to pedagogical methods, assessment practices, or broader educational goals. Teachers highlighted the highly competitive nature of the GCE A/L examination, describing it as a pivotal life event that shapes the entire educational process. Consequently, administrators, parents, and students expect teaching to be primarily directed toward examination outcomes. Although the 2019 curriculum was designed to promote holistic development, and the proposed 2026 reforms aim to cultivate generic

and transversal skills, these intentions are not consistently reflected in implementation. There is a great gap between the purpose of curriculum development and actual classroom implementation. (CD-3)

Teachers also expressed concern about the intense pressure to achieve examination success.

> We are preparing students only for exams, not for real life or the job market. A teacher is recognised as the best only if their students achieve high grades. (T-2)

Similarly, students acknowledged their limited understanding of curriculum goals, noting that learning is often reduced to repetitive exam preparation.

> We do not know anything regarding the aim or the national education policy. We focus solely on the past 10 years of past paper questions and study based on that. (S-6)

These findings reveal a notable disconnect between curriculum intentions and classroom realities, similar to the findings of NIE (2019), suggesting a critical need to align national policy, teacher support, and curriculum implementation to ensure that educational objectives are fully realised in practice.

Content Strengths and Limitations

Stakeholders generally agreed that the GCE A/L Biology curriculum integrates key conceptual areas necessary to build a strong foundation in biological sciences. Curriculum developers emphasised that the current syllabus was updated in 2019 to align with international standards while also incorporating country-specific content to reflect local relevance. According to them, the structure of the syllabus is comprehensive and theoretically rigorous, designed to equip students with the foundational knowledge required for higher education.

However, concerns were raised by teachers and students about the depth and difficulty of the content, particularly the sharp transition between the Ordinary Level (O/L) and Advanced Level (A/L) Biology.

> There is a significant gap between Grade 11 and Grade 12. Until Grade 11, students study basic concepts, and then immediately in A/L, they are expected to understand profound concepts. That is why even students who perform well until grade 11 struggle with A/L Biology. (T -1)

To address this issue, it was suggested that subject specialization should begin at Grade 10**,** allowing prospective A/L Biology students to receive foundational exposure in advance. This, they argued, would better prepare them for the academic rigour of the A/L syllabus. While curriculum developers viewed the syllabus as modern and globally informed, several teachers pointed out that some topics remain outdated or overly factual, particularly in sections such as taxonomy, plant form and function, and environmental biology. These areas were described as overly focused on rote memorization rather than conceptual application.

> The plant form and function section is filled with theoretical facts. Instead, it would be better to include applications of the concepts. (T-6)

> New emerging subjects, such as bioinformatics, biotechnology, and smart agricultural practices, need to be incorporated to compete in the job market successfully. (T-3)

Additionally, the inclusion of molecular biology and gene technology in the revised curriculum was praised for its relevance and applicability. However, students reported that these sections are heavily theoretical and lack practical engagement due to limited laboratory facilities in many schools.

> There is a significant amount of information about gene technology in the molecular biology section of the syllabus, but we never get to see or do any of it. Our school does not have the equipment for those experiments. (S-3)

These findings suggest that while the curriculum includes valuable and advanced scientific content, its implementation is hindered by resource constraints, theoretical overload, and a lack of alignment with NIE (2019) and NEC (2022), as well as insufficient scaffolding from previous grades. A more gradual progression of complexity, alongside the integration of applied and contextually relevant content, may enhance both student engagement and learning outcomes.

Implementation and Resource Challenges

Stakeholders across all groups identified several critical challenges affecting the effective implementation of the GCE A/L Biology curriculum. One of the most frequently cited concerns was time constraints, particularly in completing the extensive syllabus within the allocated teaching period. Teachers reported struggling to cover all required content, especially given the pressure of examination preparation and the reduced instructional time in Grade 13 due to declining student attendance.

A key factor contributing to this issue is students' increased dependence on private tuition, which often emphasizes exam preparation over comprehensive syllabus coverage. Teachers noted that many tuition classes bypass specific topics and focus narrowly on past papers, leaving gaps in students' understanding. In addition to time limitations, a significant barrier highlighted by curriculum developers, university lecturers, and teachers was the lack of professional development and teacher training. Many teachers continue to rely on traditional lecture-based methods and lack the pedagogical skills needed for activity-based and inquiry-driven instruction, particularly when teaching practical components.

> Teachers are still following the lecture method. They lack practical teaching skills, and many are reluctant to participate in training programs. (CD-1)

These concerns were echoed by classroom practitioners, who criticized the quality and relevance of available training.

> The administrators lack subject knowledge. They do not monitor or guide A/L teaching, and the training programs are poorly organized. They fail to develop our skills. (T-7)

Furthermore, the lack of laboratory facilities emerged as a consistent challenge across all respondent groups. Stakeholders emphasized that regional disparities in infrastructure, highlighted by Aturupane et al. (2021, are particularly pronounced, with urban and national schools better equipped than their rural counterparts. In many rural schools, practical experiments are rarely conducted due to the absence of basic laboratory equipment, which limits students' ability to engage in hands-on scientific inquiry. These implementation challenges, ranging from inadequate instructional time and poor training opportunities to infrastructural inequality, significantly undermine the curriculum's effectiveness. Addressing these barriers is essential for translating curriculum goals into meaningful educational experiences that equip students with the scientific knowledge and skills they need.

Skill Development vs. Memorization

Stakeholders consistently highlighted a significant imbalance between content mastery and skill development in the current G.C.E. Advanced Level Biology curriculum. The intense pressure to prepare students for high-stakes national examinations leaves little room for promoting critical thinking, inquiry-based learning, or scientific reasoning. Teachers reported that the structure and demands of the examination system compel them to prioritise rote memorization over conceptual understanding or active engagement.

> There is no time to encourage students to think critically or explore through inquiry-based activities. The exam questions expect the exact answers from the resource book, so students are trained to memorise content. Principals and parents often see activities aimed at skill development as a waste of time. (T-5)

The prevailing exam-oriented teaching culture, as highlighted by NIE (2019) and Rathnayake and Senevirathne (2024), discourages both teachers and students from engaging with scientific curiosity. This approach undermines the development of higher-order cognitive skills such as analysis, evaluation, and application, which are essential for fostering scientific literacy and promoting lifelong learning.

Assessment and Exam Pressure

The current assessment framework, heavily dominated by summative written examinations**,** also contributes to the marginalisation of practical skills. Teachers acknowledged that classroom assessments mirror national exams, focusing on written answers and past paper questions rather than assessing experimental or inquiry-based competencies.

> Since university entrance is entirely dependent on the A/L examination, which in turn depends heavily on written questions, students are under constant pressure to learn how to answer questions based on past papers, rather than understanding the underlying concepts. (T-2)

University lecturers further reinforced this concern, stating that students who enter higher education with excellent A/L grades often lack basic scientific process skills, such as designing experiments, interpreting data, or drawing logical conclusions.

> Many students who scored well in A/L Biology struggle to complete basic laboratory tasks or understand complex biological phenomena. They come in with theoretical knowledge but lack hands-on experience and scientific thinking. (UL-1)

These findings underscore a systemic issue in which assessment practices drive teaching and learning, narrowing the curriculum to focus on what is tested rather than what is educationally meaningful. A shift toward formative assessments, practical skill evaluation, and concept-based questioning could help realign classroom practices with the intended goals of the curriculum.

Suggestions for Curriculum Improvement

Stakeholders unanimously emphasised the need to revise the GCE A/L Biology curriculum to reduce its overreliance on memorisation and theoretical content, and to place greater emphasis on practical application and skill development. Both teachers and university lecturers advocated for aligning the curriculum with evolving global demands that prioritise not only scientific literacy, but also science process skills and broader generic competencies such as critical thinking, collaboration, and problem-solving.

> The world is demanding more biology students than just knowledge; they need practical skills and the ability to apply concepts. The curriculum must move beyond theory and develop scientific thinking and transferable skills. (UL-2)

Teachers echoed this sentiment, highlighting the need to modernise content and incorporate more applied learning experiences, especially in laboratory settings. Students also shared concerns about the heavy theoretical load and the lack of recognition for practical engagement. One student expressed frustration with the current assessment system:

> The syllabus is overloaded with facts, and we are assessed only through memory-based exams. Only those with strong memories can succeed. We enjoy conducting biological experiments, but there is no skill assessment in Advanced Level Biology. If there were

marks allocated for formative assessments, we would at least have a chance to earn grades through practical work. (S-4)

These insights underscore a shared call for curricular reforms that incorporate formative assessments, reduce excessive factual content, and offer opportunities for students to be evaluated on hands-on learning and scientific inquiry. Such reforms would ensure that the curriculum not only prepares students for examinations but also equips them with the skills necessary for higher education, the workforce, and real-world problem-solving.

Conclusion

The study reveals a significant disconnect between the intended goals of the GCE A/L Biology curriculum and its actual implementation in classroom settings. Stakeholders emphasised the pressing need to shift away from rote memorisation and instead prioritise the development of scientific skills. Stakeholders also emphasised the importance of strengthening teacher training and revising assessment practices to better support meaningful learning experiences. These findings align with the conclusions of the National Institute of Education (NIE, 2019), reinforcing the urgent call for comprehensive curriculum reform in Biology to meet evolving educational, societal, and global demands.

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Family Relations and Self-Regulated Learning on Academic Performance among Adolescents in Jaffna District

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Abstract

Adolescence is a pivotal stage of human development, characterised by profound physical, psychological, and social transformations. Academic performance during adolescence plays a pivotal role in shaping long-term educational and career outcomes. In Sri Lanka's post-conflict Jaffna district, adolescents face a range of socio-emotional and cultural challenges that may influence their academic success. This study examines the impact of family relationships and Self-Regulated Learning (SRL) on the academic performance of secondary school students in the Valikamam Education Zone, Jaffna. This study adopted a quantitative research design, comprising a sample of 130 students (65 males and 65 females) aged between 14 and 16 years, selected through simple random sampling from three urban government schools. Standardised tools, the Index of Family Relations and the Self-Regulation Questionnaire, were used to measure family relationships and SRL, respectively. Academic performance was assessed based on students' term exam scores. Data analysis was conducted using Pearson correlation, t-tests, and ANOVA via SPSS. The results revealed a significant positive correlation between family relations and academic performance ($r = .412$, $p < .01$), as well as a strong positive correlation between SRL and academic performance ($r = .658$, $p < .01$). Significant gender differences were observed, with female students outperforming males academically ($t = 2.215$, $p < .05$). Additionally, SRL scores increased significantly with age ($F = 3.587$, $p < .05$), indicating developmental growth in self-regulatory capacities. The findings highlight the importance of nurturing supportive family environments and integrating SRL strategies into teaching practices to improve student outcomes. The study also emphasised the need for gender sensitive interventions and context-specific educational planning that reflects the unique cultural and psychological landscape of Jaffna. These insights offer valuable guidance for educators, policymakers, and mental health professionals seeking to support comprehensive academic development in the Jaffna region.

Keywords: Family relations, Self-Regulated Learning (SRL), academic performance, adolescent school students.

Introduction

Academic performance during adolescence plays a vital role in shaping future opportunities and personal development. In Sri Lanka's post-conflict Jaffna district, adolescents encounter numerous challenges that impact their education. Family relationships and self-regulated learning (SRL) are key factors influencing academic outcomes (Yong & Fujita, 2020). Strong familial support, effective communication, and parental involvement contribute to students' emotional well-being and motivation (Fan & Chen, 2001). Meanwhile, SRL encompassing goal setting, time management, and self-monitoring helps students take ownership of their learning, a critical trait in today's educational environment (Zimmerman & Schunk, 2011). However, Jaffna's unique socio-cultural setting, shaped by civil conflict, shifting family roles, and economic challenges, may hinder both effective family dynamics and the development of SRL skills. Although government initiatives aim to improve education in the Northern Province, achievement gaps remain (Ministry of Education, Sri Lanka, 2020). This study explores the individual and combined effects of family relationships and SRL on academic performance, aiming to inform strategies that enhance both home support systems and learner autonomy in post-conflict communities.

Background of the Research

The Jaffna district, situated in Sri Lanka's Northern Province, has endured decades of civil conflict, profoundly impacting the social, economic, and educational fabric of the region. Many families continue to face psychological and financial hardships, which directly impact the academic journeys of adolescents (UNICEF, 2021). Family relations, encompassing parental guidance, emotional bonding, and consistent involvement, are foundational to children's learning behaviour and academic motivation (Siraj-Blatchford, 2010; Yong & Fujita, 2020). In disrupted or dysfunctional family environments, students often struggle to maintain focus and discipline in their studies. On the other hand, the role of self-regulated learning is increasingly emphasised in contemporary pedagogy, especially in contexts where teacher supervision is limited. SRL strategies, such as self-goal setting, strategic planning, and self-evaluation, enable students to become active participants in their own learning (Panadero, 2017). However, in many Jaffna schools, explicit teaching and support for SRL remain minimal. Therefore, this study aims to explore how both the quality of family relations and students' self-regulatory capacities influence academic performance among adolescents, addressing a crucial gap in post-conflict educational research and development.

Research Problem

Despite improvements in access to education in Jaffna following the civil war, academic underachievement remains a pressing concern among adolescents in the region. Current interventions have primarily focused on infrastructure and access, with limited attention to the psychosocial and behavioural factors influencing student performance (Ministry of Education, Sri Lanka, 2020). Evidence shows that adolescents' academic success is deeply rooted in strong family relationships and the ability to self-regulate learning activities (Fan & Chen, 2001; Panadero, 2017). However, in Jaffna's post-conflict setting, family structures are often weakened due to trauma, migration, or socio-economic pressures, and students may lack the guidance needed to develop SRL skills. Few empirical studies have investigated the joint effects of family relations and SRL on academic outcomes in this context. This research aims to fill that gap by examining how these factors interact to influence academic performance among adolescent school students in Jaffna, offering insight for targeted educational and psychosocial support.

Objectives of the study

1. To examine the relationship between family relations and academic performance among adolescents.
2. To explore the relationship between self-regulated learning and academic performance among adolescents.
3. To examine gender-based differences in academic performance among adolescents.
4. To investigate whether any significant differences exist between self-regulated learning and age among adolescents.

Hypotheses

1. There is a significant relationship between family relations and academic performance among adolescents.
2. There is a significant relationship between self-regulated learning and academic performance among adolescents.
3. Adolescents differ in academic performance based on gender.
4. There is a significant difference between self-regulated learning and age among adolescents.

Review of Literature

The World Health Organisation (WHO, 2022) defines adolescence as the period between ages 10 and 19- a phase marked by rapid physical, emotional, cognitive, and social transformations. During this critical stage, adolescents begin to explore their identity, seek independence, and face significant external expectations, particularly from their families, peers, and schools. Erikson (1968) identifies this period as one of emotional turbulence and identity crises, emphasising its dual nature of vulnerability and growth. According to Dar (2024), although academic achievement is traditionally defined in terms of the personal effort of the learner and the support they receive from the academic institution, the influence of the family environment on educational performance is now considered crucial. Family relationships refer to the ties that bind family members, describing how they interact within a household or larger family setting. The nature of this relationship can be described in terms of various aspects, including affection, closeness, informational exchange, intimacy, conflict, and recreation.

The quality of parent-child relationships has long been recognised as an important predictor of adolescents' academic performance. Parental warmth and the closeness of the parent-child relationship are widely recognised as factors that contribute to school achievement (Paulson, 1994; Wood, Chapin, & Hannah, 1988). Kumar (2014) investigated the correlation between academic outcomes and family climate among secondary school students. The study emphasised that a positive family environment makes a significant contribution to students' academic achievement, supporting the notion that a supportive home background is essential for academic success.

Historically, academic success has been attributed to intelligence and cognitive capabilities. However, scholars such as McCoach (2002) and Hutchinson (2006) highlight the growing recognition of motivational and self-regulatory processes in influencing academic outcomes.

Self-Regulated Learning (SRL) refers to the learner's capacity to set academic goals, monitor progress, and modify strategies to achieve desired results (Zimmerman, 2011). It encompasses metacognitive planning, motivational control, and strategic behaviour. SRL has been positively associated with academic achievement, as self-regulated learners tend to be more proactive, adaptive, and resilient in high-pressure academic settings (Zimmerman, 2002).

Methodology

This study adopted a quantitative research design, utilising questionnaires as the primary tool for data collection. There are two independent variables measured in the study: family relations and Self-Regulated Learning (SRL). Academic performance among adolescents is the dependent variable in the study. The study sample consisted of 130 adolescents, aged 14 to 16 years, enrolled in grades 9, 10, and 11 from three urban schools within the Valikamam Education Zone of the Jaffna District. An equal number of male (65) and female (65) students participated. The participants were selected using a simple random sampling method.

The researcher used the Index of Family Relations (Hudson, 1982) to measure the family relations of the adolescent students. The five-point Likert scale consisted of 25 items, with a Cronbach's alpha of 0.95. The Self-Regulation Questionnaire (SRQ), devised by Brown, Miller, & Lawendowski (1999), was used to measure Self-Regulated Learning (SRL). The questionnaire contains 63 items, measuring seven dimensions, and the items are both positively and negatively framed, rated on a 5-point Likert scale. The average marks obtained by the respondents in their respective class term exams were used to determine their academic performance.

The researcher met the students in their respective school classrooms, with permission obtained from the respective school principals. The students were explained the purpose of

collecting data and given clear instructions. Moreover, they were clarified with their doubts whenever they needed assistance to fill out the questionnaires. Data analysis was conducted by using the IBM SPSS statistical package. The statistical techniques employed in the study include the Pearson Correlation coefficient, t-test, and F-test.

Results of the Research

Table 1

The Correlation coefficient between Family Relations and Academic Performance among Adolescents in the Jaffna district

	Academic Performance	Family Relations
Academic Performance	-	.412**
Family Relations	.412**	-

Table 1 shows the Pearson correlation coefficient between family relations and academic performance among adolescents. The results indicate a significant, moderate positive correlation ($r = .412$, $p < 0.01$), suggesting that students who experience healthier and more supportive family relationships tend to perform better academically. Therefore, the hypothesis stating that there is a significant relationship between family relations and academic performance among selected respondents is supported and accepted.

Table 2

The Correlation coefficient between Self-Regulated Learning (SRL) and Academic Performance among adolescents in the Jaffna district

	Academic Performance	Self-Regulated Learning
Academic Performance	-	.658**
Self-Regulated Learning	.658**	-

Table 2 presents the Pearson correlation coefficient between self-regulated learning and academic performance among a selected group of adolescents. The results indicate a strong, statistically significant positive correlation between self-regulated learning and academic performance ($r = 0.658$, $p < 0.01$). This finding suggests that students with higher levels of self-regulated learning are more likely to achieve better academic outcomes. Therefore, the hypothesis stating that there is a significant relationship between self-regulated learning and academic performance among selected respondents is supported and accepted.

Table 3

The Mean, SD, and t value of Academic Performance scores of Adolescents based on Gender

Gender	N	Mean	Std. Deviation	t-test	Level of significance
Male	65	213.42	15.214	2.215	Significant at 0.05
Female	65	221.86	17.942		

Table 3 presents the mean, standard deviation, and t-value of academic performance scores of adolescents based on gender. The mean score for male students is 213.42 with a standard deviation of 15.214, whereas for female students, the mean is 221.86 with a standard deviation of 17.942. The obtained t-value of 2.215 is statistically significant at the 0.05 level of significance. These results indicate that female adolescents perform significantly better academically than their

male counterparts. Therefore, the hypothesis that adolescents differ in academic performance based on gender is supported and accepted.

Table 4

The Mean, SD, and F value of Self-Regulated Learning scores of the Adolescents based on Age

Age	N	Mean	Std. Deviation	F value	Level of significance
14 (Grade 9)	43	212.14	13.264	3.587	0.05
15 (Grade 10)	44	218.52	16.173		
16 (Grade 11)	43	223.89	18.814		

Table 4 presents the mean, standard deviation, and F value of self-regulated learning scores among adolescents across different age groups. The mean and standard deviation for the age groups are as follows: 14 years, 212.14 and 13.264; 15 years, 218.52 and 16.173; and 16 years, 223.89 and 18.814, respectively. These results indicate a progressive increase in self-regulated learning with age. The analysis of variance generated an F value of 3.587, which is statistically significant at the 0.05 level. This suggests a significant difference in self-regulated learning scores among the three age groups. Consequently, the hypothesis that there is a significant difference between self-regulated learning and age among adolescents is accepted.

Discussion

The results shown in Table 1 reveal a significant moderate positive correlation between family relations and academic performance among adolescents ($r = .412$, $p < 0.01$), indicating that supportive family environments contribute to better academic outcomes. This aligns with prior research showing that positive family dynamics foster motivation, emotional stability, and learning engagement in adolescents (Cheung & Pomerantz, 2012; Jeynes, 2016). Healthy communication, parental involvement, and emotional support are known to enhance students' academic self-concept and performance. Therefore, the present study reinforces the critical role of family relations in adolescent academic achievement, underscoring the need for family-centred strategies in educational planning (Epstein, 2001).

The study reveals a strong and statistically significant positive correlation between Self-Regulated Learning (SRL) and academic performance among adolescents ($r = 0.658$, $p < 0.01$). This finding indicates that students who demonstrate higher SRL skills, such as goal setting, self-monitoring, and strategic learning, tend to perform better academically. These results are consistent with earlier studies highlighting SRL as a critical predictor of academic success (Zimmerman, 2002; Pintrich, 2004). Self-regulated learners are more motivated and effective in managing their learning processes, which enhances their academic achievement. Therefore, fostering SRL in school settings can serve as a valuable intervention for improving student performance.

Based on the findings from the present study conducted among secondary school students in government schools in the Valikamam Education Zone of Jaffna, Sri Lanka, a significant gender difference was found in academic performance ($t = 2.215$, $p < .05$). Female students ($M = 221.86$, $SD = 17.942$) scored significantly higher than male students ($M = 213.42$, $SD = 15.214$). This result aligns with prior studies suggesting that girls often outperform boys academically due to greater motivation, discipline, and classroom engagement (Sikhwari, 2014; Voyer & Voyer, 2014). The findings highlight the importance of addressing gender-specific learning needs to improve the academic outcomes of male students.

The present study also found a significant difference in self-regulated learning (SRL) across age groups ($F = 3.587$, $p < .05$). SRL scores increased progressively from grade 9 (age 14;

M = 212.14), to grade 10 (age 15; M = 218.52), and grade 11 (age 16; M = 223.89). This trend likely reflects growing academic demands and responsibilities, particularly for Grade 11 students preparing for the G.C.E. O/L examination. The findings support previous research indicating that both cognitive maturity and academic pressure contribute to improving the use of self-regulated learning strategies (Zimmerman, 2002; Dembo & Eaton, 2000), emphasising the developmental nature of SRL during adolescence.

Research Findings

The study revealed several key findings. A significant positive relationship was found between family relations and academic performance among adolescents, suggesting that supportive and healthy family interactions contribute to improved academic outcomes. Similarly, a significant positive relationship was found between self-regulated learning (SRL) and academic performance, suggesting that students who effectively plan, monitor, and evaluate their learning tend to achieve higher results. Furthermore, the analysis showed a significant gender difference in academic performance, with variations observed between male and female students. Lastly, a significant difference in self-regulated learning was found among adolescents based on age, highlighting that SRL skills tend to develop and differ as students grow older.

Recommendations

Based on the study findings, several key recommendations are proposed to enhance academic performance among adolescents in Jaffna. Strengthening family involvement through parent engagement programs and counselling can improve students' emotional stability and academic success (Cheung & Pomerantz, 2012; Epstein, 2001). Given the strong link between self-regulated learning (SRL) and academic achievement, teachers should integrate SRL strategies—such as goal-setting and self-monitoring—into their classroom teaching, using age-appropriate methods across grades (Zimmerman, 2002; Dembo & Eaton, 2000). As female students outperform their male counterparts academically, gender-sensitive approaches such as mentoring and co-curricular engagement are necessary to support boys (Sikhwari, 2014). Furthermore, acknowledging the cultural and exam-related pressures specific to the Jaffna region, schools should implement culturally-based interventions, including counselling services and peer support systems. These strategies aim to foster both academic performance and emotional well-being, creating a holistic educational environment tailored to the needs of the adolescent learners in the Jaffna region.

Conclusion

This study, conducted among secondary students in Jaffna's Valikamam Zone, highlights key factors influencing academic performance. The study revealed that supportive family relationships and enhanced self-regulated learning (SRL) are key contributors to academic success. It also found that female students achieved higher academic performance than males, and SRL skills increased with age, indicating growing cognitive maturity among adolescent school students. These results underscore the need for family involvement, SRL-focused teaching, and gender-sensitive support. Considering the region's socio-cultural context, the study provides a practical foundation for developing culturally tailored educational strategies that support both academic achievement and student well-being.

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Factors Affecting the Selection of Technology Stream in G.C.E. Advanced Level: A Literature Review

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Abstract

The Technology Stream was introduced as the fourth subject stream at the G.C.E. (advanced level) in Sri Lankan government schools in 2013, based on the concept of developing competent human capital for the modern workforce through technical knowledge. The primary objective of this introduction was to increase the number of students choosing the technology stream while reducing those opting for the arts stream. The government also expects to resolve the inequalities in the selection of subject streams at G.C.E. Advanced Level. However, this goal was not met as anticipated. Consequently, this research paper is conducted with the primary aim of identifying the factors that influence the selection of the Technology stream at the Advanced Level, through a literature review of related previous studies. The research is conducted using a descriptive qualitative method for the literature review. The studies revealed that factors related to career and higher education opportunities have significantly influenced students' choices in the technology stream. However, a lack of guidance during G.C.E. (Ordinary level), insufficient societal awareness, and minimal encouragement from parents and peers contribute to students' reluctance to pursue the technology stream. Proper guidance and awareness can enhance the students' interest in the technology stream.

***Keywords**:* Technology stream, arts stream, G.C.E. (Advanced level), government schools.

Background

In today's technological world of work, creating good citizens with competent human capital is vital. This requires continuous and sustainable development of technical and life skills among students (National Education Commission report, 1997). The trend of global education has been evolving to meet the needs of the labour market. Accordingly, many countries have refined their educational policies to suit and address the needs of their country in response to the process of globalisation in education. In Sri Lanka, several significant changes were implemented in education to address a wide range of issues arising in the sector. A competency-based national curriculum was introduced to all the schools in the country. Free education was further strengthened by providing university education free of charge to undergraduate students. National universities introduced new faculties of technology to produce graduates in the realm of technology, etc. However, unemployment and underemployment have emerged as serious problems in Sri Lanka. A large number of Arts graduates are demanding employment in the government sector. These graduates lack the necessary skills for the employment they seek (Ministry of Education, 2016). On the other hand, there is a severe shortage of skilled workers in both the government and private sectors. A range of job opportunities is available in the technical and technological sectors.

Student participation in the arts stream, which does not directly contribute to the acquisition of skills in the global workforce, was as high as 51%. In contrast, student participation in the science/mathematics stream, which supports such opportunities, was 22%, and student participation in the commerce stream was 27% by 2012. By 2010, the qualified students for university entrance in the Science/Mathematics, Commerce, and Arts streams were 16.0%, 28.2%, and 55.8%, respectively. (Guidebook: The introduction of G.C.E (Advanced level) Technology Stream, 2013). Accordingly, a large number of arts graduates graduate from the university system

annually; however, it was a problem that they could not be utilised for the country's economic development, as they did not possess the skills and abilities required by the workforce.

Unemployment among arts graduates was also observed due to the shortage of people with skills in high demand in the labour market. There is a strong demand for individuals possessing the advanced skills required in today's workforce. The high unemployment rate, primarily due to the incompatibility of the youth community emerging from higher education, is also a significant obstacle to the country's development. There is a need to develop the skills of the workforce to strengthen the Sri Lankan economy. (Central Bank of Sri Lanka Annual Report, 2013) In this context, the Technology stream was introduced as the fourth stream in the G.C.E. (A/L) in 2013. It is classified into two disciplines, namely Engineering Technology and Bio Systems Technology. An ordinary pass in mathematics and science subjects in the G.C.E. (O/L) is considered a qualification for studying in the technology stream.

The government's intended objectives in introducing the Technology stream for GCE (Advanced Level) are reducing the number of students opting for the Arts stream and increasing the number of students opting for Science/Mathematics, Commerce and Technology streams, promoting technical skills in students that are relevant to the world of work, creating a youth group that is relevant to the future labor market and referring students to vocational education according to the National Vocational Qualifications Framework. (Guidebook: The introduction of G.C.E (Advanced level) Technology Stream, 2013).

Research Problem

1. What are the Factors affecting the selection of the Technology Stream in G.C.E (A/L)?

Objectives of the study

1. To find out the factors that influence the choice of the Technology stream.
2. To identify the Issues faced by students when choosing the Technology stream.
3. To propose suggestions to increase the choice of the technology stream compared to other streams.

Literature Review

Ossi Auto (2011) found that students who opt for the technology stream in higher education often struggle to achieve the expected goals due to a lack of awareness about it until they have actually studied the technology stream. He further emphasised that the relationships between teachers and students, the classroom environment, and the parents of students play an important role in students' choices of technology streams. Kinyota Mjege (2013) revealed in his study that students' exam results, self-skills, knowledge of careers, gender status, and access to school resources have a significant influence on their subject choices. Kandiko (2013) states that family, friends, and school primarily influence students' course choices in advanced-level education. Idris (2014) noted that in most schools, the shortage of qualified teachers to teach technical subjects has led to a decline in student interest in these subjects.

Chandrasekharam & Nithilavarnan (2017) mentioned in their study that when students choose a stream in General Certificate of Education (Advanced Level), very few students were well aware of the technology stream. Most of the students were little aware of the technology stream. However, a considerable number of students have chosen their courses without being aware of the technology stream. Sri Lanka's National Educational Research and Evaluation Centre (2017) noted that teachers and principals identified students with low knowledge in science and mathematics as the primary barriers to entry into the technology stream. Additionally, practical training and equipment were also identified as challenges. The mindset of Students and their past knowledge are important in choosing subjects (Javed, 2018).

Social factors, such as the distance between home and school, a lack of private classes, poor transportation facilities, low family income, and students' living conditions, also influence the choice of subject. (Rusika, 2019). In a study, Azeem & Omar (2019) state that social awareness should be improved to increase students' interest in technology and vocational education training, and students should be provided with proper career guidance advice. Several factors influence the selection of a particular stream and subjects. Community contributions had a moderately positive impact on G.C.E. (A/L) exam results (Sivananthan & Wedikandage, 2023).

Lack of guidance in G.C.E (O/L), insufficient technical knowledge among students, the perception of technical subjects as difficult and more practical in the technology stream, declining past results in the technology stream, the limited availability of technology stream programs in schools, and fewer opportunities to study in colleges of education are the most influential factors deterring students from the arts stream, despite their capability to pursue the technology stream. (Sivananthan, Vijayaratnam & Jamil, 2024) Additionally, they have stated that the insufficient and ineffective guidance in G.C.E. (O/L) has led to a lack of clarity and misconceptions among students and society, including parents, regarding the technology stream. As a result, they have opted for the arts stream instead of the technology stream.

Research Design and Methodology

The research is conducted using a descriptive qualitative method for the literature review. Previous literature relevant to this study was collected, and information was gathered from various sources, including academic publications, reports, journals, books, and internet resources. These research articles were analysed thematically using qualitative content analysis. This methodology ensures the accuracy and accountability of the data used, enriching the understanding of the topic and providing a robust foundation for data analysis and interpretation. The information is examined, and conclusions are presented based on descriptive analysis.

Findings and Discussion

Findings are presented according to the identified objectives, and results are based on a literature review of previous studies related to the selection of the Technology stream at the G.C.E. Advanced Level.

Factors that influence the choice of the Technology stream

The findings of Muyanemaiza's (2013) and Kandiko's (2013) research indicate that family, friends, and school primarily influence students' subject choices in higher education. Factors related to employment and access to higher education are more influential in determining the choice of the Technology stream. According to Kinyota Mjege's study (2013), students' exam results, self-skills, knowledge of their career, gender status, and school resources significantly influence their subject choice. Literature suggests that students' preference for the Technology stream is based on the career opportunities available in the technical and technological sectors.

Issues faced by students when choosing the Technology stream

According to the (Sivananthan, Vijayaratnam & Jamil,2024), Lack of guidance in G.C.E (O/L), insufficient technical knowledge among students, the perception of technical subjects as difficult and more practical in the technology stream, declining past results in the technology stream, the limited availability of technology stream programs to certain schools, and fewer opportunities to study in colleges of education are the most influential factors deterring students from the arts stream, despite their capability to pursue the technology stream. A study conducted by Chandrasekharam and Nithilavarnan (2017) found that very few students are well-informed about the technology stream when selecting courses in the G.C.E. Advanced Level (A/L) examination. Most students have limited awareness of the technology stream, yet a significant number chose their courses without adequate knowledge of it.

Due to the lack of guidance, there is a lack of clarification and misconceptions among students, parents, and society regarding the technology stream. As a result, they have opted for the arts stream instead of the technology stream. Additionally, the results of Chullaliyauravaza's (2011) study support the notion that students selecting the technology stream in higher education often fail to meet their expected goals due to a lack of awareness until they engage with the technology stream.

Suggestions to increase the choice of the technology stream compared to other streams

According to Azeem & Omar (2019), research findings indicate that students should be given opportunities to develop soft skills in technology and vocational education and training, which can be provided through workshops and internships. These should be implemented through the school curriculum. Furthermore, they have stated that social awareness should be improved to increase students' interest in technology and vocational education training, and students should be provided with proper career guidance and advice.

Conclusion

According to this literature, many factors affected the choice of the technology stream. The studies revealed that factors related to career and higher education opportunities have significantly influenced students' choices in the technology stream. Lack of guidance in G.C.E (O/L), insufficient technical knowledge among students, the perception of technical subjects as difficult and more practical in the technology stream, declining past results in the technology stream, the limited availability of technology stream programs to certain schools, and fewer opportunities to study in colleges of education are the Issues faced by students when choosing the Technology stream.

To enhance students' interest in the technology stream, social awareness must be improved, and appropriate career guidance should be offered to students and parents through the school's career guidance unit at the G.C.E. (O/L) level. Specifically, practical guidance should focus on the significance of tertiary education and the N.V.Q certificate. Consequently, it can decrease the number of students opting for the arts stream despite their capability to pursue studies in the technology stream, while simultaneously increasing the number of students choosing the technology stream.

Abbreviations

G.C.E. (O/L) – General Certificate of Education (Ordinary Level), G.C.E. (A/L) – General Certificate of Education (Advanced Level), N.V.Q. – National Vocational Qualification.

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A Comparative Study of Global Authentic Learning Practices with respect to the Logic and Scientific method and their Applicability to Secondary Education in Sri Lanka

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Abstract

Authentic learning is an educational approach that situates learning tasks within real-world contexts, ensuring their relevance and applicability to future practice. Over the past two decades, authentic learning has attracted the attention of innovative educators for its effectiveness in helping students develop transferable knowledge and practical skills. It offers an alternative instructional model grounded in sound pedagogical principles that emphasise the design and implementation of complex, realistic learning experiences. Given the limited research on the application of authentic learning methods within Sri Lanka's formal school curriculum, this study seeks to address this gap. The main objectives are to examine authentic learning approaches integrated into the curricula of ten high-performing education systems worldwide and to identify methods suitable for adoption in Sri Lanka. Employing a mixed-methods research design, the study will collect quantitative data on the principles of authentic learning through a pre-tested questionnaire, and qualitative data through observations and interviews. Secondary data will be gathered via a literature review. The sample comprises 15 teachers and 250 students from schools in Western Province that offer Logic and Scientific Method courses. Data will be analysed using SPSS and Excel. By comparing international best practices with local findings, the study aims to establish standards relevant to Sri Lanka's educational context. Authentic learning fosters long-term retention and intrinsic motivation by connecting learning to real-life situations, thereby enhancing the learning experience. Hence, this research is significant for educators, curriculum developers, policymakers, and administrators seeking to enhance meaningful learning experiences.

Keywords: Authentic learning, teaching methods, logic and scientific method, mixed method, STEM, STEAM education, KSAM model

Introduction

Education has been defined in various ways throughout different eras, primarily due to the influence of social needs and prevailing social factors during those periods. Plato, a pioneer of Greek educational thought, viewed education as the creation of a good citizen and a ruler of the state, as well as a means of spiritual development. However, the early meaning of education was the acquisition of knowledge. According to the sociological perspective, education is the transfer of culture to one's race. Until the mid-twentieth century, although it was referred to by various terms in both the past and the present, the primary meaning of education was the acquisition of knowledge and the transmission of culture. Since formal schools play a broad role in modern times, successfully maintaining this process, curricula have been created for them. The formal curriculum, as well as the informal and non-formal curricula, are implemented with the school at the centre. In this situation, conducting studies on the formal curriculum of the current school system is crucial for developing the educational process. Accordingly, the subject area of curriculum development has been selected for this study.

Objectives

Studying the authentic learning methods embedded in the curricula of ten countries with high levels of educational achievement in the world.

1. Identifying the most appropriate learning methods suitable for Sri Lanka from among the learning methods studied.
2. Effectively adapting the STEM and STEAM education systems to the Sri Lankan education system.
3. Create a curriculum for the Logic & Scientific Method subject based on the KSAM model.

Literature review

Authentic learning addresses the complexities and challenges of real-life situations (Lombardi, 2007). Because life skills and knowledge are embedded in the subject areas, students can apply their multiple skills and knowledge maturity in any educational, professional, or civic life situation, even after they reach adulthood (Harrington, 2014). Interdisciplinary learning encourages students to think more deeply, ask tough questions, consider multiple lines of evidence, identify nuances, weigh competing ideas, investigate contradictions, and manage complex problems and situations.

Authentic learning is an educational approach that places learning tasks in the context of future use (Nikitina, 2011). Over the past two decades, contextual learning designs have captured the imagination of innovative educators, who have utilised this new approach to enable students to develop strong knowledge that is transferable to real-world practice. It offers an alternative instructional model based on positive principles for designing and implementing complex and realistic learning tasks. Authentic learning, which focuses on teaching and learning through real-life experiences, is a method where students learn by engaging with real-world problems or situations. (Donovan, Bransford & Pellegrino, 1999) Baskaran and Abdullah (2020) note that authentic learning is an instructional approach that integrates theories learned in the classroom with students' daily lives and prior knowledge. It is an approach that exposes students to real-world experiences. It helps students gain more knowledge by experiencing the real world. When employing the authentic learning approach in the teaching and learning process, the teacher should act as a facilitator and provide inclusive opportunities for learning participation to build students' knowledge and refine their skills. By using this learning method, students become more engaged in their learning and are more motivated to master new concepts and skills. By far, learning by doing is considered the most prominent and successful way to learn information. The goal of authentic learning is not to memorise subjects directly, but to create arrangements for problems that they may encounter in real life. Yin-Ju, Mai, and Selvaretnam (2015) argue that authentic learning methods transform learning situations into real-life situations and enable the development of higher-order thinking skills. Today, teachers should recognise that they are more facilitators of learning than instructors. Teachers should constantly think about ways to incorporate creativity, critical thinking, collaboration, and communication into the classroom. Teachers should be able to create an environment where students can learn how to be multi-tasking, explanatory, and resourceful to succeed in a global environment. Therefore, the best way to discover these things in the learning-teaching process is to use the Authentic learning approach.

Real-world examples and practical learning can be taught and applied through the Authentic learning approach. Stimulating real-world educational practice can enhance problem-based learning, collaborative learning, and personal reflection on learning. In implementing authentic learning, students will have the opportunity to engage with content, pedagogy, and meaningful, student-centred learning. (Baskaran & Abdullah, 2020). Aynas and Aslan (2021) also emphasised that students' problem-solving skills increase when real-life situations and an Authentic learning approach are incorporated into a science course. Aynas and Aslan (2021) believed that authentic learning practices contribute to students' emotional sphere and develop more positive feelings towards their course. According to Gurgil (2018), the authentic learning approach offers several benefits to the teaching-learning process of students, including the development of higher-level thinking skills, providing deep, meaningful, and lasting learning, enhancing students' sense of responsibility, and increasing students' access. Gurgil (2018) has

emphasised that authentic learning activities are effective in increasing academic success for all students, regardless of socioeconomic status, while developing mental structures, contributing to significant learning, and fostering high-level skills.

It has been concluded that the authentic learning approach can improve students' performance in the learning-teaching process. Moreover, when authentic learning is implemented, students will have the opportunity to engage with material and content in a meaningful, student-centred learning experience. Using an authentic learning approach is the most effective way to teach science, and it can improve students' problem-solving skills. This learning approach can influence the emotional sphere of students, and it will be more useful for teachers in improving students' attitude skills. Furthermore, providing authentic learning experiences in the classroom is highly beneficial in terms of improving students' high-level critical thinking skills, collaborating effectively with others, taking responsibility for their own learning, and demonstrating that the work they do outside the classroom has an audience and purpose. Suppose we focus on the effects of the authentic learning approach in the teaching and learning process. In that case, it will be more consistent with modern teaching methods and provide a more meaningful learning environment for students. Students will be able to participate in projects and activities that require them to use an authentic learning approach to solve real-world problems using the knowledge they have learned.

Lave and Wenger (1991) argue that all future scientists, mathematicians, engineers, and historians should be able to edit their subject. Informal learning helps students develop more mature mental models that are consistent with their problem-solving approaches to the uncertainty, ambiguity, and conflict that they face. Informal learning exercises reveal the complexity of real-life decision-making, where there may be no right or wrong answer. However, one solution may be better or worse than others depending on the specific context. Such a nuanced understanding requires significant judgment and is a lifelong skill that is far more valuable than merely memorising content. When examining the literature, it appears that contemporary approaches and the importance of pedagogical understanding are considered key factors. In this regard, Lombardi (2007) stated that motivating students to solve real-world problems. Additionally, most educators believe that learning through experience is more effective than learning through listening or observation. Educational theories and research studies support this claim. All students are unique learners and show their differences when they participate in activities. Parker stated that people learn to do by doing, learn to hear by hearing, and learn to think by thinking. Children should be able to compare, contrast, reflect on, and generalise. Focusing on practical, real-life experiences helps students increase their academic success, build strong relationships with their society and the environment in which they live, understand the value of nature, and grow as active citizens (Akkalan, 2018). At the beginning of the twenty-first century, in the year 2000, representatives from 168 countries around the world gathered in Dakar, the capital of Senegal, to adopt the Dakar Framework for Action (the Dakar Framework for Action) for a collective commitment to achieving education for all in their respective countries under the theme of achieving education for all. An ambitious agenda was developed, including six broad education goals to be achieved by 2015. In response, the UN launched the Education for All Global Monitoring Report (EFA) to monitor progress, identify gaps, and make recommendations for the global sustainable development agenda, which was to be implemented in 2015.

Although efforts have been made to develop the sector with hope in formal education, it has failed to achieve the desired goals. Those who have remained in the formal education system for a long time often face difficulty in securing employment. This clearly shows that national wealth is being wasted. The fact that the formal education system in Sri Lanka is not aligned with the country's national and economic needs has exacerbated its economic problems. Informal learning itself defines what real learning is. It is based on the creative model, in which individuals

are encouraged to build knowledge and skills. Therefore, a significant portion of the learning process should be conducted through self-learning. This is a characteristic of informal learning. The knowledge acquired through informal learning will remain in the learners' memories for a long time and, at the same time, will be more useful to them. Such practices instinctively motivate learners to engage in a deep learning process in everyday situations.

Steve Revinton's (2016) hierarchy of instructional skills development suggests a progression from direct instruction to guided instruction, to inquiry-based learning, and finally to collaborative learning, with authentic learning at the pinnacle of the hierarchy. The goal of authentic learning is to move beyond traditional rote memorisation methods and toward real-world application, student representation, and deeper understanding. Authentic learning allows students to engage with all explanations and engage in meaningful, helpful, and consistent performance. It is real-life tasks and exemplars that enable students to directly engage with the real world (Revington, 2016).

Malaysia has implemented Higher Thinking Skills (HTS) in its curriculum reforms. The emphasis on student-centred learning aligns with the inquiry and collaboration levels of Revington's hierarchy. Developing infrastructure for independent learning in rural areas is more effective. The Australian curriculum includes inquiry-based and project-based learning. This encourages student-centred learning with an emphasis on independent learning. Teachers are provided with strong professional development support to reach higher levels of Revington's hierarchy. The United States promotes problem-solving and critical thinking. STEM emphasis on whole-school education fosters authentic and collaborative learning. Some districts fully embrace Revinton's high-level hierarchy, while others make direct contributions. Singapore is renowned for its high-performing students, mainly due to its high-quality education system. With the shift in recent years toward 21st-century skills and real-world applications, it is essential to have teachers trained to balance authentic instruction with authentic practices.

Finland prioritises authentic, real-world learning with minimal standardised testing, allowing teachers autonomy to apply Revinton’s model. India’s NEP (2020) promotes experiential and inquiry-based learning, gradually replacing rote methods with collaborative approaches. Japan focuses on teamwork, ethics, and real-world relevance, effectively applying Revinton’s hierarchy. China, traditionally an exam-oriented country, is shifting toward creativity and student-centred learning through pilot reforms. South Korea, known for structured instruction, now integrates Revinton’s principles to foster creativity and application. South Africa’s CAPS curriculum supports learner-centred education but faces challenges due to limited teacher training and resources, though urban schools are advancing effective learning practices.

KSAM stands for Knowledge, Skills, Attitudes, and Mindset. The KSAM education model, which is particularly relevant in the Sri Lankan context, focuses on producing graduates with high qualities, including knowledge, skills, attitudes, and a strong mindset. It emphasises a holistic approach to education, aiming to develop not only academic abilities but also the personal and professional qualities necessary for success in the 21st century. The KSAM framework emphasises holistic learning that goes beyond content knowledge and includes practical skills, emotional intelligence, and lifelong learning mindsets. It is highly aligned with experiential learning, where students engage with real-world problems, collaborate, and pursue self-directed learning.

Recent curriculum reforms in Malaysia have incorporated higher-order thinking skills (HOTS) and student-centred approaches. They emphasise 21st-century skills, including communication and digital literacy. The greater emphasis on skills and attitudes, along with continued work on cognitive development, reflects the alignment with KSAM. The Australian curriculum emphasises general competencies such as critical thinking, creativity, and ethical understanding. Strong inquiry-based learning, project-based assessments, and student

representation are fully integrated across all dimensions of the program. The KSAM alignment specifically targets skills and attitudes. Many schools in the United States use social-emotional learning frameworks. The KSAM alignment places greater emphasis on the development of knowledge and skills, attitudes, and mindsets. Singapore is renowned for its values-based education and emphasis on 21st-century skills. Teachers are trained to apply real-world tasks and practices. The KSAM model is strong across all sectors as government policy supports holistic development. Finland's phenomenon-based learning promotes interdisciplinary and problem-solving tasks. Students are taught to develop agency and responsibility. The KSAM model is exemplary because it places a high emphasis on mindsets and attitudes, in addition to knowledge and skills. India's National Education Policy (NEP, 2020) promotes critical thinking, creativity, and a holistic approach to education. It moves away from rote learning to experiential learning. There is a strong vision for the future of KSAM across the four components. Japan's curriculum includes moral education, teamwork, and life skills. It encourages cooperation, empathy, and perseverance. It emphasises attitudes and mindsets with a strong knowledge and skill base, according to the KSAM alignment. China, which has traditionally been test-oriented, is undergoing reforms that encourage creativity and innovation. There is an emerging emphasis on competency-based education and student-centred learning. Based on strong knowledge, KSAM operates on improving skills, attitudes, and mindsets. South Korea, which has historically been based on examinations, now encourages creativity, character education, and problem-solving. KSAM, as a pioneer in education, is working on full integration with a focus on open, interdisciplinary learning.

The South African curriculum includes critical outcomes that aim to produce informed and responsible citizens. KSAM's effective learning is highly dependent on teacher training and the availability of resources. Implementation varies across regions. The acronym STEM refers to the fields of science, technology, engineering, and mathematics. STEM is a widely used and popular acronym, but there is still no clear definition or consensus among educators. Today, the term is used as a general label for any event, policy, program, or practice that involves one or more STEM subjects (Reeve, 2013). It is a term that has been used by governments, educators, businesses, communities, and industry leaders to communicate the urgent need to educate students and prepare them for college and the workforce. At the same time, the term is also a catchphrase that educational communities have widely adopted, but it does not take the time to explain what the term means when applied beyond its common sense. For example, in the United States, the term is often interpreted to refer to science or mathematics rather than technology or engineering (Bib, 2010). In Thailand, STEM is an approach that integrates science, engineering, technology, and mathematics, focusing on solving real-life problems, including the development of new processes or products that benefit human life and work.

UNESCO (2008) has indicated that literacy is a continuous process of learning that enables individuals to achieve their goals, develop their knowledge and potential, and participate fully in their community and the wider society. This definition is related to UNESCO’s four pillars of learning. Education is defined as learning to know, learning to work, learning to live together, and learning to survive. Literacy is now associated with traditional language processing, multimedia digital technologies, and communicative social practices. Literacy is constantly changing as new technologies develop (Liu & Bray, 2022). There is general agreement that all individuals should be “literate” with STEM, but there is a difference between literacy and “literacy”. Literacy should not be seen as merely content-based learning, but rather as a shifting, nuanced means of acquiring learning skills. That is, it should be considered as consisting of skills, abilities, factual knowledge, procedures, concepts, and metacognitive abilities. Currently, there is no consensus on the definition of literacy within the educational field or among professional organisations. Most definitions include social and economic needs but often overlook personal needs. Simola (2015) provides a STEM background on the definitions of literacy in the various fields and presents a description of literacy based on three domains of learning according to educational learning theory: cognitive

influences and psychomotor. Solman also emphasises the need for evolution from learning to literacy.

There have been many philosophers of education since the rise of the modern educational system. I will briefly cover the collective epistemological movements of primary general education theorists and educational psychologists as the four disciplines of STEM matured and became more interdisciplinary. The concept that the pursuit of knowledge is the highest good and that this is the basis of education is attributed to Socrates and Aristotle (Simola, 2015). This remains the foundational concept of modern research universities. The new system of education was officially created in the 13th century (Ulich, 1947). It is the basis of the modern educational system that is still followed in schools today. Its basis is the concept that schools should be democratic in nature, as opposed to the authoritarian models that were used earlier (Ulich, 1947). This marked a significant shift from a content-centred curriculum concept to one that promoted a structure of lifelong learning.

The first prominent educational philosopher (epistemologist) to make significant statements about STEM that would fuel the growth of the movement was Descartes. His ideas, introduced in the early 17th century, included the idea that the goal of education should be 'to examine everything… including falsehoods, to know their value' (Descartes, 1947). He specifically pointed out that this was the only way to dispel previously unchallenged myths and misconceptions. Since this was a time when science was emerging from alchemy, he took it upon himself to emphasise that 'discovery is more important than current logic and methods' (Descartes, 1947). This led to the acceptance of the dispelling of myths not only in discoveries, but also in the way discoveries were framed, sought, recorded, and interpreted.

Comenius, a contemporary of Descartes, who declared that 'education is preparation for life', further opened up opportunities to explore all means of acquiring knowledge. By stating that life itself is the study of education, he formally linked that idea to the development of student-directed and practical learning methods. 'Observation precedes analysis,' he said (Comenius, 1947), meaning that it precedes the laws of analysis. This allowed for the current development. Learning is the treasure within. The UNESCO report on education for the 21st century states that four pillars must be strong to build a strong society. These include the family, the religious centre, the school, the adult community, and the media. When there is reform, modernisation, and strength in each of these areas, a stable and strong society can be built. The concept of experiential learning emerged in the late 20th century as a result of the focus on various learning methods to achieve the principles of this education. In education, authentic learning refers to "a variety of educational and instructional techniques that focus on connecting students to real-world problems and applications of what they are learning in school" (Mims, 2003). The basic idea is that students become more interested in what they are learning and more motivated to learn new concepts and skills. If what they are learning is more applicable in real-life contexts, it will help them be better prepared for success in school, work, and adulthood.

The subject of Logic and Scientific Method aims to foster analytical reasoning, critical thinking, ethical inquiry, and scientific methodology, making it a natural fit for practice. When applied with contextual sensitivity, it becomes a form of authentic learning. The current subject of Logic and Scientific Method presents knowledge with a strong emphasis on content mastery. However, as in Finland and Japan, it can also be used in real-life reasoning situations (e.g., legal reasoning, environmental ethics, and urban planning issues). In the current situation, there is less emphasis on skills in classroom presentations. This could include problem-solving, debate, scientific modelling, and collaborative projects similar to the approaches in Australia. Assessment often ignores attitudes in the current situation. However, we can achieve this by fostering open discussion, respecting different perspectives, and employing ethical reasoning, which aligns with Singapore's values-based education. Currently, the subject of logic and the scientific method is

dominated by rote learning. It can be improved by promoting reflective learning, curiosity, and questioning, similar to the Finnish model of self-regulated learning.

Considering the cultural, environmental and geographical relevance of Sri Lanka, the rich traditions of philosophy and Buddhist logic can be used to explore arguments, encourage students to investigate local ethical dilemmas such as development ethics, use local environmental issues as scientific reasoning studies (deforestation, climate resilience, biodiversity), and provide students with various landscape-based field-based inquiry opportunities to engage in geoethical debates, data collection and scientific analysis. It is more effective to emulate the concept of "learning outside the classroom" in Finland. A review of the research literature found several studies conducted on sustainable education. Research has been conducted in areas such as the concept of sustainable education, related issues, innovative approaches, and sustainable assessment. Stevie Revington, an expert on authentic learning, explains the difference between traditional learning and authentic learning as follows: "If students are confined to a classroom, listening to and discussing only speculations about the real world, it is not authentic learning" (Revington, 2016).

A study conducted by the National Education Commission of Sri Lanka in 2016 suggests that integrating authentic learning in the Sri Lankan context can make education more practical and engaging, particularly in light of the current shift towards competency-based and outcome-based education models. Contextual learning activities include lesson planning based on local socio-cultural and economic realities. For example, agricultural science can include real-world fieldwork in rural schools, while urban students can explore entrepreneurship through local market analysis. "Education should be responsive to the socio-economic needs of the country" (Project-based learning (PBL) can be implemented by encouraging interdisciplinary projects that address real-world community issues, such as water conservation, waste management, or digital literacy. Students can collaborate with local governments to propose a plastic reduction campaign in their city.

Thomas (2000), in *"A Review of Research on Project-Based Learning" (Autodesk Foundation), emphasised the importance of technology and the use of digital tools in integrating laboratory activities that simulate real-world digital tasks,* such as data analysis, website development, and coding. Similarly, Fernando (2018) highlighted the significance of integrating ICT into teaching and learning processes in schools in Sri Lanka to enhance students' engagement and digital competence.

Establish partnerships with local industry NGOs and professionals to co-create learning experiences, such as guest lectures, site visits, and mentoring, for community and industry participation. These experiences can include hospitality students working in local hotels or science students visiting a tea factory (Jayathilaka, 2019). "Public-Private Partnerships in Vocational Education in Sri Lanka." Asian Development Bank report. Reflective and self-directed learning also encourages students to set goals, evaluate their progress, and reflect on what they have learned through the use of learning journals and peer reviews. As Herrington and Oliver (2000) point out, "Building an instructional design framework for healthy learning environments should occur through educational technology research and development." Healthy learning can significantly improve the relevance and effectiveness of education in Sri Lanka by aligning it more closely with the realities of students' lives, communities, and future job markets. Successful implementation requires policy support, teacher training, curriculum reform, and investment in infrastructure.

Students need to develop their critical thinking skills in elementary school to utilise them fully throughout their academic and post-academic careers. Many successful students naturally ask questions about what they read, make predictions, reflect on the meaning of the story, and think and question further about what is happening (Rothstein & Santana, 2018). Students have a natural ability to examine the world critically, but if these skills are not honed through explicit instruction and practice, they will be lost over time (Rothstein & Santana, 2018). When students are required

to use only surface-level knowledge and understanding, it is this set of skills that develops. Educators need their students to ask for evidence and analyse that evidence, and we need to teach them how to do that.

How to build questioning strategies for both teachers and students in building lower-order thinking to develop higher-order thinking. These strategies include question classifications, question sequences, and patterns. Question classifications form a continuum of thinking that ranges from basic, surface-level questions to more profound and complex questions that require exploration and rich discussion. Question sequences and patterns are a process of building questions on top of each other throughout the discussion, asking increasingly complex or profound questions. These strategies enable teachers and students to engage in whole-group or small-group discussions that foster higher-order thinking. Rothstein and Santana (2018) believe that if we build on students' natural curiosity and abilities, they will naturally develop the critical thinking skills we need to become successful problem solvers. This belief, combined with Vogler's ideas, presents a strong argument for harnessing students' curiosity through teacher methodology, providing them with the opportunity to discover their own talents. Since no research has been conducted on the use of the Authentic Learning Method for the subject of logic and scientific method in the formal curriculum of the Sri Lankan public school system, this study was considered important to fill that research gap. It involves student empowerment, teacher empowerment, the development of questioning skills, and a safe space for students to gain and grow through feedback, thereby enhancing their understanding of critical thinking and higher-order thinking skills.

Research Gap

A review of the research literature revealed several studies on authentic education. Research has been conducted in areas such as the concept of authentic education, related issues, innovative approaches, and authentic assessment. Revington (2016), an expert on authentic learning, distinguishes between traditional and authentic learning as follows: "If students are confined to a classroom, listening to and discussing only speculations about the real world, please call it anecdotal learning. That is not authentic learning." Since no research has been conducted on the use of the Authentic Learning Education Methodology within the formal curriculum of the Logic & Scientific Method subject in the public school system in Sri Lanka, this study aims to fill that research gap.

Methodology

A mixed research design is chosen as the research methodology. It is expected to fulfil the quantitative data requirement by obtaining information on the principles of sound education through a questionnaire. It is expected to obtain qualitative data through observation and interview methods. Studying sound learning methods used in the subject of logic and the scientific method in different countries. Concluding by matching the observation data with accepted published sources (secondary data), setting standards suitable for Sri Lanka. Questionnaire and face-to-face discussions (primary data), and analysing the data through the use of electronic software. The research area is the G.C.E. (A/L) Logic and Scientific Method subject curriculum. It is expected to select 15 teachers and 250 students who are teaching Logic and Scientific Method as a sample, representing all types of schools, including Advanced Level Arts, in the Western Province, where the subject of Logic and Scientific Method is taught.

Data acquisition and data analysis

Data for the study were obtained and analysed through both primary and secondary sources. To study authentic learning methods used in the subject of *Logic and Scientific Method* in various countries, accepted published sources were utilised as secondary data. The findings were then analysed by comparing and matching observational data using a pre-prepared blueprint to draw relevant conclusions. To establish standards suitable for the Sri Lankan context, primary data were

collected through questionnaires and face-to-face discussions with subject experts and educators. The collected data were then analysed using digital data analysis software tools such as SPSS and Microsoft Excel to identify trends, patterns, and implications for educational practice.

Conclusion

The knowledge gained through experiential learning is retained in learners' memories for a long time and is more useful to them. Such practices naturally motivate learners to engage in a deep learning process in everyday situations. Research on experiential learning is also important for all educators involved in the educational process, including curriculum developers, policy makers, teachers, educational administrators, and students.

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The Role of Teachers in Pedagogical Knowledge Practices and Approaches in Tamil Language Teaching

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Abstract

This Study explores the role of Teachers in Pedagogical Content Knowledge (PCK) practices and approaches in Tamil language Teaching. In today's technologically advanced educational environment, teachers must create meaningful learning experiences for students and adjust their teaching methods accordingly. In this regard, knowledge-based teaching methods are a key tool for improving students' higher-level conceptual skills and language proficiency. This study is being carried out, focusing on their impact on student engagement and achievement. In an era of rapid technological advancement, effective integration of pedagogical strategies with ICT is essential for meaningful language learning. The primary objective is to investigate the role of teachers in relation to pedagogical content knowledge-based approaches and practices in Tamil language teaching, and to propose recommendations for improvement. The research employed a descriptive survey and qualitative design, involving 60 Tamil language teachers from 35 secondary schools in the Kandy district. Data were collected through interviews, classroom observations, and document analysis, and were analysed thematically. Findings revealed that although teachers possessed strong content knowledge, many relied predominantly on traditional lecture-based approaches. This reliance, along with limited ICT skills and inadequate resources, reduced classroom interactivity and hindered students' learning outcomes. Teachers who applied activity-based strategies and incorporated technology were more successful in fostering student participation, motivation, and critical thinking. Significant challenges identified included time constraints, lack of technical facilities, and insufficient professional training. The study concludes that continuous professional development, targeted ICT training, and improved infrastructural support are crucial for enhancing the effectiveness of Tamil language teaching. Strengthening PCK practices will enable teachers to move beyond traditional methods and create learner-centred environments that improve achievement and language proficiency.

Keywords **-** Pedagogical knowledge, Tamil language teaching, teacher role

Introduction

Language learning plays a vital role in shaping students' intellectual development, cultural identity, and communication skills (Richards & Rodgers, 2014). Tamil, being one of the world's oldest and richest languages, holds a unique position in Sri Lankan education. However, the effectiveness of Tamil language teaching depends not only on teachers' subject knowledge but also on their pedagogical content knowledge (PCK), the ability to integrate content with appropriate teaching strategies. In this context, a complete learning activity occurs only when a teacher integrates not only content knowledge but also pedagogical knowledge of how to teach it. This type of knowledge is referred to as Pedagogical Content Knowledge (PCK) (Shulman, 1986).

In today's educational methods, technology plays a key role in language learning and teaching. New advancements in the education sector have created a need to continually improve the skills of teachers teaching Tamil and the strategies they employ in their teaching. Content teaching and technological experiences are fundamental in Tamil language teaching. Currently, technology is advancing very rapidly in the education sector.

Teachers need to adapt their teaching methods to accommodate this advancement. Practical learning technology skills, learning approaches, and curricula require significant changes

and adaptations (Ansari, 2020; Rahmatullah, 2022**).** Language is essential for the development of human thought and cognitive expansion. Language proficiency is a fundamental aspect of human personality development. Based on these, language teaching in school education is prioritised. The primary goal of language learning and teaching is to develop language skills, including listening, speaking, reading, and writing. Although the policy of education through the mother tongue in secondary schools in Sri Lanka has been followed for many years, the lack of significant constructive changes in the method of teaching the mother tongue has been a major shortcoming.

Despite such theoretical advancements, many Tamil language teachers continue to rely heavily on traditional lecture-based methods, which limit student engagement and higher-order thinking (Anthiya Krosier, 2017; Hurtley, 2014). Research also indicates that teachers' professional qualifications, years of experience, and training have a strong influence on their classroom practices and students' outcomes (Ball, Thames, & Phelps, 2008; Grossman, 1990). At the same time, challenges such as insufficient ICT facilities, lack of teacher training, time constraints, and low student participation hinder the effective use of innovative teaching methods (Sivakumar, 2020; Yusoff et al., 2022). These issues have contributed to a noticeable decline in the efficiency and quality of Tamil language teaching (Murugaiya, 2020). The modern world is considered a high-speed highway for the transmission of information. Although teachers possess online search and information retrieval skills, they have not received any formal training in the use of information technology (Chamani Paranamanage, 2020). The Tamil language has been ancient and rich. However, due to temporary variations in education systems, new achievements and technologies are being used in language teaching.

This necessitates evaluating the skills of teachers and how they utilise them. The purpose of this study is to investigate how Tamil language teachers apply pedagogical content knowledge (PCK) in their classroom practices, to analyze the influence of their experience, qualifications, and training on teaching practices, to identify the challenges they face in integrating modern pedagogical approaches and ICT tools, and to evaluate the impact of their pedagogical practices on students' learning outcomes.

Research Aim and Objectives

Research Aim

To examine the role of teachers in teaching-related knowledge-based approaches and practices in Tamil language teaching and to make recommendations for improving it.

Objectives

1. To examine how Tamil language teachers apply pedagogical content knowledge (PCK) in classroom teaching.
2. To analyse how teachers' experience, educational qualifications, and training affect their Pedagogical practices.
3. To identify the challenges faced by teachers in implementing pedagogical approaches and integrating ICT in Tamil language teaching.
4. To evaluate the impact of teachers' pedagogical practices on students' participation, engagement, and learning achievement.

Literature Review

Teaching the Tamil language is a process with the idealistic goal of developing students' language skills. In this context, teachers' pedagogical content knowledge (PCK) and approaches play a vital role.

Theory of Pedagogical Content Knowledge

(PCK) Shulman (1986) introduced the theory of Pedagogical Content Knowledge (PCK). He emphasises that a teacher needs intelligence not only in what to teach but also in how to teach it. Following this, Grossman (1990) and Ball et al. (2008) proposed that teachers need to implement classroom activities according to the needs of the students. Based on this, Koehler and Mishra (2006) introduced the TPACK (Technological Pedagogical Content Knowledge) model. By incorporating technological knowledge, TPACK expands upon Shulman's (1986) concept of content knowledge. It includes three main components.

1. Technological Knowledge (TK)
2. Pedagogical Knowledge (PK)
3. Content Knowledge (CK) TPACK (Technological, Pedagogical, and Content Knowledge) is the knowledge that must encompass the above three types of knowledge in a combined manner. Furthermore, according to Chai & Koh (2014), language learning and teaching principles include:

    - Constructivism (Piaget & Vygotsky) – Students construct knowledge themselves. The teacher acts as a guide.
    - Communicative Language Teaching (CLT): Language usage is important. Learning through quizzes, dialogues, and activities.
    - Task-Based Learning (TBL): Learning improves based on activities.

TPACK Model and Its Application in Tamil Language Teaching

By integrating the three components of the TPACK model (Technological, Pedagogical, and Content Knowledge) in Tamil language teaching, it is possible to increase student engagement and learning achievement (Muniasamy & Thenappan, 2021). This study highlights that although many teachers are aware of TPACK, their ability to apply it in the classroom is limited.

Approaches and Practices

Approaches are frameworks for how teachers design learning. In Tamil teaching, two methods are found: traditional approaches and modern approaches. In multilingual environments, teachers modify the curriculum to suit the students, as noted by Grondin (2019).

Technology, Classroom Practices, and Challenges

Modern strategies, such as Blended Learning, the Flipped Classroom, and Individualised Learning, are being introduced in Tamil language teaching. However, in various places, teachers are unable to fully utilise these strategies due to a lack of necessary equipment (Suthanthiran, 2022). This is a key discipline that integrates technology, teaching, and pedagogical knowledge. Furthermore, studies related to the Tamil language (Rajendran, 2018; Murugaiya, 2020) indicate that only a few teachers apply their TPACK knowledge in a practical context. In particular, Teachers face numerous problems and challenges in leading the teaching profession. A lack of technological knowledge and skills makes it impossible to achieve a high level in the teaching field (Yusoff et al., 2022). Furthermore, language teachers play a crucial role in enhancing students' language skills. Also, new teaching approaches in Tamil are essential. The younger generation lags in Tamil reading and comprehension (Thamilarasan et al., 2021).

Teachers cite a lack of time, resources, expertise, and support as reasons for their reluctance to handle technology. They also pointed out the positive and negative effects of technology on education in their study (Sutha & Yoganarasimhan, 2018). Regarding teachers' teaching methods, M.S. Anthiya Krosier (2017) suggests that the lecture-based teaching method should be replaced with a student-centred approach, as this method, which is currently widely used, is insufficient for students' learning development. He also points out Hurtley's (2014) view that the

lecture method is a cause of students' negative attitude. Teachers should adopt various teaching methods that develop students' critical thinking, creativity, collaboration, communication, and 4C skills. A deep understanding of language and its cultural context is essential for effective teaching and student engagement (Bhagyalakshmi, 2021).

The ability to effectively utilise information technology equipment in the classroom significantly impacts student engagement and learning outcomes. This study, titled "Content Knowledge and Pedagogical Knowledge of Teachers in Rural Schools in Tamil Nadu," examines the extent to which teachers working in rural schools in Tamil Nadu possess content knowledge and pedagogical knowledge. The study assesses teachers' skills in curriculum, teaching according to the curriculum, and evaluation. This field study found that while teachers possess subject-related knowledge, they often lack educational techniques and the ability to understand and cater to students' individual needs, and that the use of ICT is very low. The study suggests that rural teachers require access to technology training and professional development programs.

Methodology

This study employed a qualitative research design to explore the role of teachers in applying pedagogical content knowledge in Tamil language teaching. The qualitative approach was considered appropriate as it allowed for an in-depth understanding of teachers' classroom practices, experiences, and challenges in real educational contexts. The study was conducted in thirty-five Tamil-medium secondary schools situated in the Katugastota and Wattegama education zones of Kandy District. These schools represented diverse categories, including 1AB, 1C, and Type II, thereby providing a range of institutional contexts. From this population, a purposive sample of sixty Tamil language teachers teaching at the junior secondary level was selected, as they were directly involved in shaping students' language learning experiences.

Multiple data collection methods were used to obtain rich and reliable information. Semi-structured interviews were conducted with teachers to capture their perspectives on pedagogical approaches, experiences, and professional needs. Classroom observations were conducted to examine how teachers applied pedagogical content knowledge in practice, focusing on teaching strategies, student engagement, and the utilisation of resources. Additionally, relevant documents, such as lesson notes, teaching plans, and curriculum materials, were analysed to provide further insights into teachers' planning and instructional practices.

The data gathered from these sources were analysed using thematic analysis. Interview transcripts, observation records, and documents were carefully coded and categorised under three main themes: content knowledge, teaching strategies, and challenges. Triangulation across multiple data sources was employed to enhance the validity and credibility of the findings. This approach provided a comprehensive understanding of how Tamil language teachers integrate content and pedagogy, the barriers they face, and the potential areas for improvement in language teaching.

Data Collection Tools and Data Analysis

- Interview – Questions related to the curriculum.
- Classroom Observation – Teaching practices of teachers.
- Document Analysis – Lesson notes, syllabus.

The collected data were analysed using the Thematic Analysis method. This was divided based on three main themes.

1. Content Knowledge
2. Teaching Strategies
3. Challenges

To ensure internal validity, the study employed triangulation by using multiple data collection methods, including interviews, classroom observations, and document analysis (Creswell, 2014). Thematic coding was conducted systematically, and the emerging themes were verified through peer debriefing and member checking, where selected participants were invited to confirm the accuracy of interpretations. These strategies helped minimise researcher bias and enhance the credibility of the findings. To establish external validity, purposive sampling was employed to select 60 Tamil language teachers from 35 schools, representing different school types (1A, 1 B, Type II) within the Kandy district. This diversity of school contexts and teacher experiences increases the transferability of the findings to other Tamil-medium secondary schools in Sri Lanka. However, the study acknowledges that generalisation beyond the district should be made cautiously, given contextual variations.

Results and Discussion

The data collected through interviews, classroom observations, and document analysis were analysed thematically under three major dimensions: content knowledge, teaching strategies, and challenges faced by Tamil language teachers.

Content knowledge

The analysis revealed that all participating teachers demonstrated sound knowledge of Tamil grammar, literature, and reading skills. Senior teachers in particular were more likely to differentiate their lessons according to students' needs and cognitive levels, whereas less experienced teachers tended to rely on uniform, lecture-based methods. Although teachers' subject expertise was strong, this strength was not always translated into effective classroom practices, suggesting a gap between content mastery and pedagogical application.

Teaching Strategies

A limited number of teachers incorporated activity-based learning strategies, such as storytelling, group discussions, role-playing, and the use of ICT tools (PowerPoint presentations and YouTube resources). In these classrooms, students displayed higher levels of motivation and engagement. However, the majority of teachers continued to adopt teacher-centred lecture methods, which restricted opportunities for critical thinking, collaboration, and creativity. This indicates that pedagogical practices remain largely traditional, with only isolated examples of innovative teaching. The findings also support previous studies (Anthiya Krosier, 2017; Bhagyalakshmi, 2021) that emphasise the need to shift from lecture-dominant approaches to student-centred learning.

Challenges

Several barriers were identified that limited teachers' ability to effectively implement pedagogical content knowledge. Time constraints and overloaded curricula reduced opportunities for activity-based teaching. Many schools lacked adequate ICT infrastructure, including projectors, smartboards, and reliable internet facilities. Moreover, some teachers reported receiving insufficient training and lacking confidence in integrating technology into their lessons. These challenges led to reduced student participation and a decline in the effectiveness of Tamil language teaching.

Findings

The findings highlight an apparent paradox: while teachers possess strong subject knowledge, their reliance on traditional teaching practices and limited access to resources significantly reduce the quality of classroom learning. Effective use of pedagogical content knowledge was observed only among a few innovative teachers who combined subject mastery with student-centred approaches and ICT integration. These insights underline the urgent need for continuous professional

development, targeted ICT training, and infrastructural improvements in schools. Addressing these areas will help enhance student engagement, improve learning outcomes, and strengthen the overall effectiveness of Tamil language education. All teachers possessed competence and knowledge in areas such as literature, grammar, and reading.

However, some teachers taught only through the lecture method. In particular, senior teachers categorised their lessons according to the students' mindsets and needs. Furthermore, regarding teaching strategies, some teachers used activity-based teaching methods using storytelling, classroom group discussions, and ICT technological equipment (PowerPoint, YouTube videos). Approaches provided by the NFE (National Forum for English), such as promoting dialogue through short stories, Student-Centered Learning, and learning activities with the use of ICT, were carried out. In addition, challenges such as time constraints, lack of technical facilities, and low student participation were observed.

Recommendations

1. Continuous Reinforcement - CPD (Continued Professional Development) activities and practical teaching strategies for teachers teaching Tamil should be emphasized.
2. ICT Training - Teachers should be provided with appropriate training to acquire technological knowledge.
3. Improving Technological Facilities - Schools should be provided with facilities with appropriate infrastructure (Projector, Smart board, Internet access) for classroom teaching.
4. Conducting Classroom Assessment Effectively - Monitoring how teachers implement their classroom teaching through internal assessment and providing advice.
5. Time allocations should be made for activity-based learning, and restrictions should be removed. In addition, activity-based learning approaches that increase student participation should be encouraged.

Conclusion

This study demonstrates that although Tamil language teachers possess adequate content knowledge, their pedagogical practices remain limited and traditional, reducing the effectiveness of student learning. Teachers who applied PCK through activity-based and ICT-supported approaches achieved higher levels of student engagement and deeper understanding, while others faced difficulties in determining learning outcomes.

The teaching methodological knowledge that teachers adopt in Tamil language teaching enhances the quality of learning and the abilities of students. This study reveals how teachers implement their TPK (Teaching Pedagogical Knowledge) in the classroom. Despite the challenges, appropriate training and personality-based approaches strongly support the development of Tamil language education.

In conclusion, the study highlights that the future success of Tamil language teaching depends on the ability of teachers to balance content mastery with innovative pedagogical approaches. Addressing challenges in training, infrastructure, and classroom practices will enable Tamil language education to evolve into a more engaging, student-centered, and outcome-driven process.

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Strengthening School Governance through Collaborative Stakeholder Engagement: Mixed-Methods Evidence from Sri Lanka's Central Province

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Abstract

Community-centred governance is increasingly recognised as a catalyst for resilient schools; yet, systematic engagement strategies remain under documented in Sri Lanka. This study aimed to investigate whether and how collaborative stakeholder engagement predicts tangible improvements in school management outcomes, specifically infrastructure quality, decision-making efficiency, and stakeholder trust, in government schools across the Central Province. A sequential mixed-methods design began with a survey of 137 stakeholders (teachers = 60, parents = 40, alums and other stakeholders = 37; n = 137) drawn from 15 stratified, randomly selected schools (1A, 3; 1C, 4; Type 2, 4; Type 3, 4). Descriptive analysis revealed that 78 per cent of respondents reported regular participation in budgeting and project oversight, whereas only 42 per cent perceived influence over curricular decisions. Schools in the highest engagement quartile recorded 65 per cent higher stakeholder-satisfaction scores, a 55 per cent rise in volunteer labour, and visibly upgraded facilities, including refurbished libraries and playgrounds. A qualitative follow-up study comprised four case studies (one per school type), which included 30 semi-structured interviews, 12 focus group discussions, and structured observations. Thematic and document analyses revealed that transparent budget dashboards fostered trust among 85 per cent of community members, alumni-led ICT laboratory projects exemplified effective resource mobilisation, and 78 per cent of teachers identified inadequate conflict-resolution skills as a barrier to deeper collaboration. The integration of quantitative and qualitative strands confirmed that well-organised, transparent, and skill-supported participation strengthens school management by aligning resources with locally defined priorities, accelerating project completion, and fostering mutual accountability. To institutionalise these gains, the study proposes a three-phase Consult, Co-Plan, and Co-Monitor model, paired with targeted professional development in participatory techniques, for province-wide adoption. This framework provides a scalable pathway for policymakers seeking to integrate community-driven governance and enhance the long-term resilience of Sri Lankan schools.

***Keywords*:** Stakeholder engagement, school governance, community participation, Central Province, Sri Lanka

Introduction

Across low- and middle-income contexts, schools that deliberately involve parents, alums, and community leaders tend to achieve better learning outcomes, more efficient resource utilisation, and faster recovery from disruptions. International syntheses highlight this pattern (Epstein, 2018; Bray, 2022; Jeynes, 2019), but the underlying mechanisms are often obscured by broad policy slogans, such as "community participation." In Sri Lanka, every government school is legally required to maintain a School Development Society (SDS) and a School Management Committee (SMC). Circular 54/2023 assigns these bodies responsibility for budget endorsement, project oversight, and annual development planning. However, field reports suggest that many SDS and SMC meetings are perfunctory, while others flourish as vibrant hubs of collaboration. Central Province, which spans dense urban centres and remote plantation settlements, is an ideal laboratory for unpacking this variation. The purpose of this study is to investigate whether and to what extent collaborative stakeholder engagement contributes to improvements in infrastructure quality, decision-making efficiency, and stakeholder trust in government schools. The present study,

therefore, set out to examine whether, and in what ways, collaborative stakeholder engagement predicts improvements in three practical dimensions of school management: infrastructure quality, decision-making efficiency, and stakeholder trust. Anchored in the Balanced Control Model of School-Based Management (Caldwell & Spinks, 1988), the inquiry blends quantitative breadth with qualitative depth, offering actionable guidance to school leaders, provincial authorities, and national policymakers.

Literature Context

Decades of scholarship converge on two ideas. First, decentralised decision arenas motivate local actors to mobilise resources that would otherwise remain untapped (Caldwell & Spinks, 1988; World Bank, 2018). Second, transparency and shared responsibility are the linchpins that convert participation into results (Anderson & Boyle, 2019; Sanders, 2018). Studies from Finland (Sahlberg, 2015) to the Philippines (OECD, 2016) confirm that merely creating committees is insufficient; participants must see a direct link between their input and observable improvements in school outcomes. In Sri Lanka, earlier research has been predominantly qualitative, emphasising the cultural norms of deference that discourage open debate (Balakrishnan, 2021). Few studies have systematically measured the impact of different forms of participation on concrete outcomes, leaving a gap in quantitative and mixed-methods evidence. Quantitative assessments have been sparse and geographically fragmented. This study, therefore, draws on the Balanced Control Model of School-Based Management (Caldwell & Spinks, 1988) as its theoretical base and addresses the gap by combining a province-wide survey with embedded case studies that trace how specific engagement practices translate into measurable outputs.

Methodology

This study employed a sequential explanatory mixed-methods design, integrating a province-wide survey with in-depth case studies (Creswell, 2014). Ethical approval was obtained from the University of Peradeniya Research Ethics Committee. A stratified random sample of 15 government schools was selected to represent the province's four school types: Type 1A (3 schools), Type 1 B (3 schools), Type 1C (4 schools), and Type 2 (4 schools). Within each school, respondents included teachers, active SDS parents, and alums or other registered stakeholders, selected until proportional quotas were met. This yielded 137 valid responses (teachers = 60, parents = 40, alums and other stakeholders = 37). Seventeen responses were excluded because they had more than 20% missing data.

The survey instrument consisted of 35 Likert-type items, adapted from Yoshida (2012) and Hoover-Dempsey & Sandler (2005). Twenty items were combined to form the Community Participation Index (CPI) (Cronbach's $\alpha = .87$), while 15 items measured perceived management outcomes across infrastructure, decision processes, and trust (School Management Outcome Scale, SMOS: $\alpha = .84$). Items were validated through forward–back translation and a pilot test in two non-sample schools. Data were analysed using SPSS 28. Descriptive statistics summarised participation frequency, and chi-square tests examined associations between school type and engagement level. CPI quartiles were used to compare high- and low-engagement schools on outcome indicators.

For a deeper insight, four exemplar schools (one per type) were selected using the maximum variation method based on CPI quartile rank and locality. Data were collected through 30 semi-structured interviews (12 teachers, eight parents, six alums, and four principals), 12 focus group discussions (one per school), and structured observations of SDS/SMC meetings. Documentary sources, including annual budgets, progress reports, and meeting minutes, were also examined. Thematic analysis was conducted using Braun and Clarke's (2006) six-stage protocol. Two researchers independently coded transcripts, reaching an inter-coder agreement of $\kappa = .82$. Documentary evidence was triangulated with interview and FGD data to strengthen credibility.

Quantitative and qualitative findings were merged in a convergence matrix to confirm or refine patterns. Divergent findings were clarified through member checks with school staff. Ethical review, pilot testing, inter-coder reliability, and triangulation procedures enhanced internal validity and contextual transferability.

Results and Discussion

The section below presents integrated findings.

Table 1

Participation Profile and Initial Quantitative Patterns

Activity domain	1AB (n= 3)	1C (n=4)	Type 2 (n= 4)	Type 3 (n= 4)	Provincial average
Budget planning and project oversight (% reporting regular involvement)	85	82	78	74	78
Access to and use of public budget dashboards	72	64	48	31	54
Participation in curricular or pedagogical decisions	50	46	40	35	42
Formal conflict-resolution workshops attended (past 12 months)	18	12	7	4	10

Table 1 shows a transparent gradient across school types. Larger, resource-rich 1AB and 1C schools report higher engagement across all domains, particularly in transparency practices such as budget dashboards. While nearly four in five stakeholders contribute to financial decisions, fewer than half participate in matters related to teaching and learning. This reflects OECD's (2016) observation that school councils often concentrate on "bricks and budgets" while avoiding instructional discussions.

Table 1

Management Outcomes

Indicator (baseline index = 100 for low-engagement quartile)	High-engagement schools*	Low-engagement schools*	Percentage change
Stakeholder-satisfaction survey score	165	100	65%
Volunteer labour hours per term (mean)	155	100	55%
Completed infrastructure projects in the past two years	12	7	71%
Average time (days) to approve budget variation	5	11	Reduction of 55%

Table 2 highlights significant gains associated with higher CPI scores. Stakeholder satisfaction (a composite of trust, perceived voice, and fairness) is nearly two-thirds higher in high-engagement schools. Volunteer labour hours increase by more than half, while the number of completed infrastructure projects is substantially greater. Decision-making efficiency also improves, with the average time required to approve mid-year budget reallocations reduced by more than half.

Qualitative Explanations

Seventeen of twenty focus-group sessions credited publicly posted dashboards (simple A3 sheets updated monthly) with demystifying finances. An alumni treasurer noted, "When the figures are on the board, parents stop guessing and start helping." This corroborates the correlation between dashboard use and satisfaction in Table 1. All four case schools had functioning old-boy or old-girl unions, but their efficacy varied. In the 1AB case, alums raised 2.4 million LKR to install an ICT lab and arranged volunteer instructors, as evidenced by the dramatic project completion differential in Table 2. Twenty-three of the thirty interviewees cited unresolved disputes (regarding procurement methods or volunteer recognition) as the biggest hindrance to participation. Teachers lamented the absence of formal mediation skills, which aligns with the low workshop attendance numbers in Table 1.

Integrated Interpretation

Taken together, the quantitative and qualitative strands confirm Caldwell and Spinks' (1988) proposition that devolved decision rights must be paired with balanced accountability. High-engagement schools achieve this balance through three reinforcing practices: (1) inclusive budget forums, (2) accessible data dashboards, and (3) task-based volunteer teams coordinated by alums. Where one or more of these pillars is absent, SDS and SMC meetings tend to lapse into ceremonial compliance, and the measurable gains shown in Table 2 are diminished.

Discussion

The results demonstrate that collaborative stakeholder engagement enhances school management in terms of infrastructure, efficiency, and trust. Transparency through dashboards fosters trust (Epstein, 2018; Anderson & Boyle, 2019), alumni-led initiatives exemplify effective resource mobilisation (Kim, 2020), and capacity gaps in mediation align with international findings on the fragility of participatory governance (Graham & Williams, 2022). The limited involvement in curricular decisions echoes OECD's (2016) concern that many school councils focus on financial rather than instructional matters. Overall, these findings align with the Balanced Control Model, which emphasises that local participation must be supported by accountability and skill development to be effective.

Conclusions and Recommendations

Evidence from Central Province suggests that stakeholder engagement, when conducted transparently and supported by skilled personnel, aligns resources with locally defined goals, accelerates project execution, and fosters deeper mutual trust. To institutionalise these gains, the study recommends the adoption of a three-phase cycle:

1. Conduct term-start forums where parents, alums, and teachers jointly prioritise needs and document them in a publicly accessible matrix.
2. Translate these priorities into action plans with budgets and timelines, displaying progress through a one-page dashboard.
3. Rotate parent–teacher teams to audit progress, address disputes, and publicly share outcomes each month.

Provincial authorities should embed this cycle in annual school development guidelines and allocate at least 10 per cent of recurrent school grants for professional development in participatory budgeting, conflict resolution, and data visualisation. This study focused on a single province and relied partly on self-reported perceptions, which may limit generalisability. Comparative multi-province studies and longitudinal tracking of school outcomes are needed to assess the durability of these engagement strategies over time.

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Exploring Why Resilience Remain Under Develop in Music Education in Sri Lanka

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Abstract

Resilience is the ability to recover from setbacks, adapt to change, and persist in the face of challenges. It is increasingly recognized as an essential quality for handling today's students' complex educational and social environments. Many researchers have shown that music education can strongly help students become more resilient. This study aims to explore the role of school music education in developing student resilience, pursuing the following objectives: 1) to examine the current practices for resilience development within school music education programs, and 2) to investigate how assessment methods in music education influence student resilience. 3) to propose pedagogical strategies and classroom practices that foster resilience through music education. Data were gathered from 15 educators and 60 students who study music as a subject in four urban schools within the Western Province. The study used a qualitative research design that included interviews, focus group discussions, classroom observations, and analysis of relevant documents. Findings revealed that while music education holds strong potential to foster resilience, current teaching and assessment practices do not regularly promote it. Resilience was often developed unintentionally through performance preparation, group tasks, and overcoming stage fright. High-pressure assessment systems and a focus on theory were found to weaken student confidence and risk-taking. Teachers expressed a lack of formal guidance in addressing emotional or psychological development through music. The study recommends integrating student-centered and emotionally supportive strategies such as reflective practice, where students actively analyze their learning experiences and emotional responses to challenges. This, along with shaping assessment and collaborative learning, can help embed resilience-building into everyday music instruction. These insights contribute to re-imagining music education as a powerful space for developing not just artistic ability, but also adaptable, confident, and resilient learners.

Keywords: Resilience, music education, assessment method, teaching strategies

Introduction

The capacity to successfully adjust to hardship and setbacks is known as resilience, and it is seen as an important educational outcome (Masten, 2014). According to McCherson and Welch (2012), students can develop resilience through music education because of the platform it provides for expression, cooperation, and performance. The potential of musical instruction to build resilience, however, has received little attention in the Sri Lankan setting. While the national curriculum focuses on aesthetic and theoretical outcomes, it often overlooks the emotional and psychological growth of learners. Structured approaches that aim to actively increase resilience through music instruction and evaluation have limited evidence. This study addresses that gap by examining how music education can be better utilized to support student resilience in Sri Lankan schools.

Research Problem

Although music education has demonstrated strong potential to develop student resilience, this outcome remains underdeveloped in Sri Lankan schools (Little, 2024). Current teaching and assessment practices prioritize theoretical knowledge and performance skills, with limited attention given to emotional development or psychological well-being. Consequently, any resilience that students develop tends to occur by chance rather than through intentional educational strategies. This study examines the reasons behind this gap and explores how music education in Sri Lanka can be restructured to intentionally foster resilience in students.

Objectives

1. To examine the current practices for resilience development within school music education programs.
2. To investigate how assessment methods in music education influence student resilience.
3. To propose pedagogical strategies and classroom practices that foster resilience through music education.

Literature Review

Resilience refers to the ability to recover from difficulties and sustain psychological health (Masten, 2014). In recent years, it has been better understood as an important skill in educational settings. It is most critical for learners facing a difficult academic workload and complicated emotional and social dynamics (APA, 2020). Music education, traditionally valued for its artistic and cultural significance, is increasingly being recognized for its role in nurturing non-cognitive skills such as emotional regulation, perseverance, and resilience (Hallam, 2010; Southwick et al., 2014).

The potential of music in building resilience has been researched widely across countries. Active engagement in music activities allows for self-expression, coping, and emotional release, which are vital components for students (McPherson & Welch, 2018). The public performance of musical works (particularly in ensembles) allows students to confront fears, deal with intense emotions, and persist through numerous attempts, often alongside constant practice and occasional failures (Pellegrinelli, 2020). Such outcomes emphasize the development of self-efficacy, confidence, and a sense of achievement, all of which contribute toward resilient behavior (Werner & Smith, 2001).

There is very little empirical evidence regarding the link between music education and the development of resilience in the specific context of Sri Lanka. While the National Curriculum Framework for Aesthetic Education (MoE, 2015) aims at personal development as a target, its classroom execution largely focuses on skills and theory, neglecting the emotional development aspect (Little, 2024). The rote teaching and testing predominant in Sri Lankan music education systems is dominated by standardized examinations. These tests overlook the originality and reflective thinking processes of students and rather focus on the accuracy of the performances and the recall of theories (Fernando & Perera, 2022).

This misalignment between policy and practice stifles music education's potential to foster resilience and other important life skills. Barrett (2016) emphasized the importance of positive emotional pedagogy, which includes self-reflection, collaborative teaching, and utilizing the students' voices, as integral when building resilience. These strategies depend on teachers being trained in socio-emotional learning, a domain that remains underdeveloped in Sri Lankan teacher training (Karunaratne & Abeywickrama, 2021). Evidence from other South Asian countries shows that culturally relevant, student-driven approaches can provide gaps like this with emotionally rich environments and nourish resilience (Anwar & Qadir, 2019).

Considering this context, there is a gap that focuses on the current state of music education in Sri Lankan schools and how it is taught or not taught, and what teaching methods, evaluation frameworks, and systems can be designed to enhance students' resilience through psychological and emotional development through music.

Methodology

This study employed a qualitative research design to explore how current Sri Lankan school practices affect students' resilience. The research was conducted in four urban schools within the Western Province, selected based on their active implementation of music as a subject in the curriculum. Participants included 15 music educators and 60 students from Grades 6 to 11 who are

currently studying music. Participants were selected using purposive sampling to ensure relevant experience and context for the study's aims. To gain a rich understanding, I used these qualitative tools in collecting data: Semi-structured interviews, Focus group discussions, Classroom observations, and Document analysis. The data were analyzed thematically using an inductive approach, allowing patterns and insights to emerge directly from the participants' experiences and practices. Triangulation of data sources ensured validity and reliability.

Results and findings

Through interviews, focus group discussions, and classroom observations, I identified the following themes that emerged from the responses of both teachers and students.

Table 1

Identified themes

Theme	Evidence (Student/Teacher Responses)	Interpretation
Resilience develops incidentally.	Initially, I was afraid to perform on stage, but with practice, I could manage it. - Student.	Nothing is designed to build resilience; with some activities, it builds naturally.
Collaborative work's effects on emotional growth	We helped each other when practicing. I didn't feel alone. - Student	Peer interactions help with emotional growth
Repeated practice builds patience	I practiced the same thing again and again. Now I know I can do it if I try hard." - Student	patient and perseverance emerge with music practice
Lack of planned emotional goals	We don't teach resilience. We just prepare them for exams." - Teacher	Teachers do not intentionally plan for emotional or resilience development.
Syllabus-focused teaching	We have to cover theory and practicals, there's no time for anything else." - Teacher.	Time pressure and curriculum priorities push emotional aspects aside.

Interviews, curriculum analysis, and classroom observations revealed that there is no well-designed or planned approach in place to develop students' resilience.

Table 2

Responses

Theme	Evidence (Student/Teacher Responses)	Interpretation
Exam-oriented assessment	We only get marks for what's written, no comment or encouragement for resilience-student	Emotional growth is not assessed; exams focus on theory and perfection
Fear of failure	If I make one mistake, I feel like I failed everything. - Student	Fear reduces confidence and willingness to take creative risks.
Teacher-driven exam preparation	I teach them to pass the exam, that's what matters to parents and the school. -Teacher	Pressure from the system limits holistic teaching approaches.

Based on the interviews and focus group discussions, the following methods were identified.

Table 3

Themes

Proposed method	Suggestions from Teachers/Students	Expected Outcome
Student - Centered Learning	Let students talk about how they feel after performing - Teacher	Builds emotional awareness and reflection, key to resilience.
Reflective practices	We can write about what we learned, not just notes and theory.- Student	Promotes self-assessment, coping skills, and emotional expression.
Process-focused assessment	Give marks for improvement and effort, too, not just the final song. - Teacher	Encourages effort and reduces fear of failure
Edutainment Technique	Deliver educational content in a simple and enjoyable way- Student	Students engage readily in the learning process and achieve the expected outcomes
SEL(Social Emotional Learning) training for teachers	We were never taught how to guide students emotionally - Teacher	Teachers become more equipped to support resilience-building through music.

Conclusion

This study was carried out to investigate why, in spite of its acknowledged ability to support children's emotional and psychological development, resilience is still being developed in Sri Lankan school music instruction. Resilience does arise in some musical situations, such as stage performances, group practice, and repeated effort, but it is not purposefully fostered within the existing educational framework, according to the study's qualitative data collected from teachers and students. Rather, opportunities for emotional growth and self-expression are restricted by exam-focused teaching strategies and a strong emphasis on theoretical information.

A major flaw in teaching and assessment procedures is revealed by the absence of structured approaches and emotional support in music education. Teachers view resilience as a significant issue, but often lack the resources and training necessary to effectively incorporate it. To address this gap, the study recommends incorporating Edutainment Techniques, reflective practices, process-focused assessments, and student-centered learning approaches into the music curriculum. These strategies not only enhance musical skills but also empower students to face challenges with confidence and adaptability.

By recognizing the dual role of music education in developing both artistic and emotional capacities, this research contributes to a broader vision of education, one that supports the growth of resilient, expressive, and self-aware learners prepared for the complexities of modern life.

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Developing a Mindfulness Strategy for Early Childhood Education through 'Thera Theri Gatha Pali'

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Abstract

Although the practice of developing mindfulness in pre-school children is implemented to enhance the effectiveness of pre-school education in the present context, whether it achieves the expected results is a concern. Since numerous practices experimented with have failed, the Buddhist way of mindfulness development can be introduced as a probable alternative. Studying the effectiveness of using "Thera Theri Gatha, a collection of verses attributed to early Buddhist monks and nuns, for this purpose is the primary aim of this study and it has five key objectives namely classification of personality traits according to Buddhism, identification of mindfulness within 'Thera Theri Gatha Pali' in terms of personality traits, developing a methodology to improve mindfulness of pre-school children based on their personality traits through mindfulness within 'Thera Theri Gatha Pali, implementation of the mindfulness within "Thera Theri Gatha Pali' to develop mindfulness in pre school children based on personality traits, evaluating effectiveness of these practices in fostering mindfulness and mental wellbeing of pre school children. A design-based research approach is employed, combining quantitative, qualitative, and mixed methods to provide a comprehensive understanding of the research problem. Source sampling and field sampling are both involved in the data collection process. The source sample is drawn from the 'Thera Theri Gatha Pali', while the field sample includes 125 students from five pre-schools, the parents of those 125 pre-school children (totalling 250), 10 pre-school teachers, and 10 special counsellors. Data collection, based on a comprehensive questionnaire comprising 90 items, is expected to be analysed through theme analysis. The literature review for this research was conducted using both theoretical and empirical research literature. The theoretical review is grounded in two theories of mindfulness, while the empirical review draws on research findings related to early childhood development and mindfulness. By focusing on both the theoretical and practical aspects of mindfulness, this research aims to fill a critical gap in current studies and contribute to the development of effective mindfulness practices in early childhood education.

***Keywords*:** Mindfulness, early childhood education, Thera their gatha

Introduction

It is hoped to study "Developing the Mindfulness of Preschool Students Using Thera Gatha Paliya". For this, the main objective of the researcher is to utilise the 'satimat' that existed among the great arahants and those who lived in the society of the Buddha's time to create 'satimat' in pre-school students, based on the 'satimat' of the great arahants. It seems that both the great arahants and the great nuns who lived during the Buddha's time achieved their proper goals and objectives because they worked with good intentions (Buddha Datta, 2010). The research aims to investigate whether the satimat that existed in these great arahants and great mothers has occurred through the development of a methodology for the development of a suitable satimat for a group of pre-school children who are well-versed in satimat by linking it to the current preschool learning and teaching process and implementing the developed methodology. The education authorities in Sri Lanka are already developing national-level preschool curricula, and it appears that revisions are being made to the preschool curriculum based on the concepts of 'social and emotional' development, as a process of instilling religion and values, in the preparation of that curriculum. The attention of the authorities in the preschool sector to these concepts indicates that they expect positive outcomes in preschool education. This implies that attention to the mindfulness of preschool children has

been considered a fundamental factor in the above-mentioned activities. (Kothalawala, 2019). Early childhood is the most important and sensitive period of human life.

Research Background

Educational authorities have now come to understand the importance of satimat. It is understood that if one acts with sati, it is the beginning of good learning and a stepping stone to a good society. Pre-school education is a crucial crossroads in a country. Since the development of mindfulness in preschool children has been recognised as a crucial matter, this research aims to enhance the mindfulness of preschool children using the 'Thera Theri Gatha Paliya' as a therapeutic program tailored to the diverse personality traits of preschool children. The six personal characters contained in Buddhism (mentioned in detail in the path of purification) (Characters of passion, characters of hatred, characters of delusion, characters of faith, characters of Buddha and characters of thought) are taken as personality traits, and through this, the preschool child is identified (taking about five preschools as a sample). The personality traits of the great Arahant Uttama Viyana are identified through the 'Thera Therigatha Paliya' in relation to those personality traits. The researcher is expected to contribute a selected number of Thera Therigathas, included in the Thera Therigatha Paliya (approximately 170 Thera Therigathas), to their research process.

Mindfulness, a Buddhist meditation practice that cultivates awareness of the present moment by paying attention to present experiences with an open mind and without judgment, has been proposed as a suitable approach for early childhood development centres (Yari, Sheehan, Oberklaid, & Hiscock, 2019). It has also been stated that mindfulness interventions should be applied to the past, present, and future (Kabat-Zinn, 2003). In recent years, there has been an increase in research on mindfulness practices aimed at enhancing the well-being of children in early childhood development. Mindfulness is a quality of paying attention to the present moment with a non-judgmental stance and a systematic approach. It has been introduced as the heart of Buddhist meditation (Lillard, 2011). The popularity of conceptual development programs for preschool children has skyrocketed (Napoli, Krech, and Holley, 2005).

Research Problem

Since disturbing and uncomfortable behaviours are often observed in preschool children, mindfulness is crucial in helping to reverse such behaviours. Also, due to the deterioration of social attitudes and extreme uniformity, mental stress seems to be strongly seen in the preschool student community. It also appears that preschool children often lack self-confidence, which can lead to problems. It is a significant issue that can be observed in the preschool student community.

The researcher has identified a problem in his research process as a lack of mindfulness, which leads to problematic situations. As a solution to this research problem, the researcher has identified the "Study Objectives" in his research to identify the personal character traits contained in Buddhism through the Thera Therigatha Pali and provide solutions related to the research problem.

Research Objectives

The research objectives related to the research topic titled "Developing the mindfulness of Preschool Students Using Thera Theri Gatha Paliya" are as follows. Namely,

1. To classify the mindfulness of preschool students according to the personality traits of the individual in Buddhism.
2. To identify the mindfulness included in the Thera Theri Gatha Paliya according to the personality traits of the individual.
3. To formulate a methodology for the development of the mindfulness of preschool students according to the personality traits of the individual in the Theri Gatha Paliya.

4. To implement the mindfulness included in the Theri Gatha Paliya according to the personality traits of the individual, for the development of the mindfulness of preschool students.
5. To examine whether there is a development in the preschool students' mindfulness according to the methodology developed.

Literature Review

The researcher has been motivated to conduct a literature review using primary and secondary sources for his research, with a particular focus on the research topic of developing mindfulness in preschool students based on the Theri Gatha Paliya. Here, the researcher is expected to study the literature sources by giving priority to their research objectives. Several of the research studies that the researcher has studied for his research have been appropriately arranged and mentioned in the research proposal as follows. That is, " As mentioned in the thesis titled 'An Investigative Gesture on Buddhist Educational Concepts Contained in the Sutta Pitaka', Ariyadha 68 0sha (2014) states that mindfulness is a primary objective in Buddhist education." In his thesis titled "Personal Development Concepts Reflected in the Basic White Age and Its Educational Value Twenty", Vijitha 5. (2001) discusses the emphasis in Buddhism on the individual's own identity in personal development.

(Bhikku Gnanamoli) (2024) 992 111 The book "Mindfulness-Breathing" introduces Buddhist mindfulness and the method of mindfulness, the need and basis of mindfulness. The process of mindfulness and the practice of mindfulness through breathing are introduced and discussed in detail, providing an analytical approach. As mentioned by Sayadaw Mahatheri (1999), the method for developing mindfulness of breathing is discussed in detail in the book "Manual of Mindfulness of Breathing". The breathing of breathing is explained philosophically using the Maha Satipatthana Sutta, and the value of mindfulness is highly appreciated. It is further stated that the understanding of life that arises through mindfulness leads to Nibbana. Furthermore, in Bangladesh, mindful eating practices have been recognised as essential practices in preschool education (Dair & Bhaskaran, 2010).

In Tanzania, the process of mindfulness in preschool education has focused on the development and care of refugee children (Dalrymple, 2019), while the impact of training and mindfulness on the formal implementation of the role of early childhood has been discussed (Zelo, Forston, Masten, and Carlson, 2018). Similarly, the well-being of early childhood children through the development of character and mindfulness has been discussed in the home and classroom settings of early childhood development (Lottmon, Saeah, and Niemiec, 2017), and the need to train mindfulness in childhood through various methods has been emphasised step by step. In this, the need to exhale is necessary for the animal, comparing breathing to blue clouds and exhaling to dark clouds, and thereby emphasising the need for mindfulness (Erwin & Robinson, 2015).

Research Methodology

The methodology of this research is the Design-Based Research (Mixed-Methods) approach. This methodology aims to contribute something new to the existing situation through the planned research method, and in doing so, to prepare, propose, and implement a plan using the analytical method. The research design of this research is based on the research objectives. Step 01 of the research plan involves classifying the mindfulness of preschool students according to the personality traits of the Buddha's personality type, using data from 125 students across five preschools. For this, six personality traits commonly found in Buddhism are utilised. According to the personality type of passion - (quiet, fickle, selfish), according to the personality type of hatred - (stubborn, indecisive), according to the personality type of delusion (fearful, trembling, reluctant), according to the personality type of faith - (kind, pleasant, humble), according to the

personality type of hatred - (imaginative, idealistic, logical). According to the personality type of reasoning, (dirty, messy, and restless).

Step 2 of the research is to identify the mindfulness included in the 'Thera Therigatha Pali' according to the personality type of the Buddha (using the Thera Therigatha Pali). The Therigatha is used. The Thera Gatha/ K and Theri Gatha 22) are planned as follows. Namely. Subhuthi Thera Gatha - Mind well concentrated - Buddhi Charita, Mahakotthita Thera Gatha - Purified Charita, Dabbamallat Thera Gatha - Doubtful - Delusional Charita, Sambhuta Thera Gatha - Defilement - Passionate Charita, Vana Vachchat Thera Gatha - Mind agitated - Thoughtful Charita, Sigala Pithu Thera Gatha - Restless - Hateful Charita. As the third step of the research plan, the Thera Thera Gatha Paliya ' is included in the Thera Thera Gatha Paliya ', a methodology for the development of the personality of preschool students is developed using the selected Thera Thera Gatha (as Thera Gatha and Theri Gatha). Thera Theri Gatha

As the fourth step of the research plan, the Thera Theri Gatha Paliya is implemented to develop mindfulness in preschool students, tailored to their individual personality traits. Five preschools are used, and the method is implemented for 25 students. Approximately five students are selected from each preschool. Approximately 125 Thera Theri Gatha are used, including 90 Thera Gatha and 35 Thera Gatha. As the final step or the fifth step of the research plan, it is examined whether there is any development in the students' mindfulness according to the methodology developed for the development of the mindfulness (preschool teachers and parents are examined, 10 teachers are used, 25 or 50 parents (mothers/fathers) are used. Table 1 presents the summary of objectives, data collection, analysis, and sample.

Table 1

The summary of objectives, data collection, analysis, and sample.

Objectives	Data Collection	Data Analysis	Sample
Objective 01	Using preschool students (using observational techniques)	Analysing data through personality classification	About 125 students from 5 preschools
Objective 02	Based on the Theri Gatha Pali (using the source sample)	Analysing data by identifying the mindfulness using the Theri Gatha Pali	Based on the Theragatha Pali (source usage)
Objective 03	Preschool students and Thera Theri Gatha Paliya (Using observation questionnaires with preschool teachers/parents/students and Thera Theri Gatha Paliya)	Analysing data through a processing methodology	Source sample and field sample of school students (50 pre-school parents, 10 pre-school teachers, 10 specialist consultants
Objective 04	Using the Thera Theri Gatha Paliya with Preschool Students (Using Observation Questionnaire)	Data analysis through the implementation of the methodology	Selecting about 25 students for the source sample and the field sample.
Objective 05	With the help of preschool teachers and preschool parents (using observation questionnaires)	Analysing data to examine whether there has been any development in the mindfulness of preschoolers.	Using 50 parents of the 25 selected preschool students and about 10 teachers from the five preschools.

Potential contributions and implications of the research:

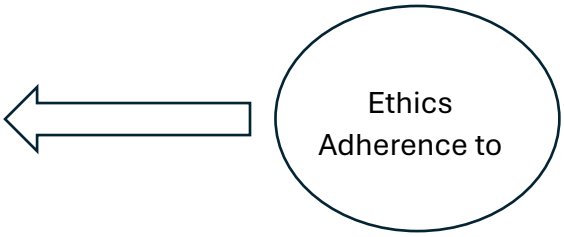
The expected results of the research titled "Developing the mindfulness of preschool students using the Thera Theri Gatha Paliya" can be discussed through three main points. Namely, discussing the theoretical differences of the results obtained from the research, discussing the practical differences of the results obtained from the research, and discussing the policy differences of the results obtained from the research. Here, the ultimate goal of the research is to foster personal character development and future aspirations in preschool students by cultivating mindfulness. Also, a developmental change in good attitudes and knowledge is expected.

Therefore, in many countries considered advanced in the world, research conducted by educational researchers on education has identified early childhood development as a crucial factor in shaping the child's attitudes, leading to rapid development. Accordingly, to avoid certain bad practices that are being lost in the current society. This research aims to utilise mindfulness, known as the mindfulness of the Great Arahants and Great Noble Ones, as a developmental factor for students in the current preschool field, thereby attempting to socialise a generation of children with good mindfulness and a positive family life for the future world.

Research Ethics

When conducting research, the researcher must be mindful of the ethical considerations associated with the research. The research topic should be selected in accordance with the field the researcher intends to study, in accordance with the correct ethics (1993). The researcher is expected to apply ethics based on the research ethics presented by Fraenkel. T. R. and Wallen, N. E. (1999). (Fraenkel, T.R. and Wallen, N.B.

- Statement of objectives openly
- Protecting the confidentiality of data
- Not misleading and gaining trust
- Avoiding deception
- Not including personal names
- Compliance
- Obtaining written consent
- Not disclosing data to others
- Not causing physical harm
- Ensuring that there is no psychological harm



Conclusion

The following is what the researcher hopes to discover through the research, which will serve as the conclusion of the study. That is, The need to develop the mindfulness of preschool students using the Thera Theri Gatha Paliya, The need to identify the Mindfulness of the Great Arahants, Great Noble Ones according to their personality traits, The need to develop the mindfulness of preschool students using the Thera Theri Gatha Paliya to prevent the preschool student life from being blurred by tears, The need to use the six personal characters of Buddhism in classifying the personality traits of preschool students through personality dimensions, Need to appropriately identify the mindfulness included in the Thera Theri Gatha Paliya based on personality dimensions, Need to formulate a methodology by classifying the mindfulness of preschool students according to personality dimensions and matching the personality traits of the Great Arahants, Great Noble Ones included in the Thera Theri Gatha Paliya with mindfulness, Need to implement the mindfulness included in Thera Theri Gatha Paliya according to the personality traits of the individual to development of the mindfulness of preschool students based on developed methodology, Need to examine whether there is a development in the preschool students' mindfulness according to the methodology developed. As mentioned above, researchers have

attempted to address the new concepts and knowledge that were previously unexplored in the world.

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A critical Review: Multilevel Learning Approach to Enhance Self-Efficacy in Teaching Scientific Inquiry

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Abstract

This critical review explores the potential of multilevel learning approaches to enhance science teachers' self-efficacy in teaching scientific inquiry. Classrooms today, especially those led by educators qualified through Open and Distance Learning (ODL), require instructional strategies that cater to the diverse cognitive abilities and readiness levels of students. Multilevel teaching, involving differentiated instruction, collaborative learning structures, and technology integration, provides a framework to support inclusive and effective inquiry-based science education (IBSE). Drawing upon Bandura's theory of self-efficacy and key empirical studies, this review examines how multilevel learning structures, professional development (PD), and cognitive diagnostic assessment models contribute to teachers' confidence and instructional competence. The review synthesises findings from seventy key sources, including works by Seneviratne et al. (2019), Hannah and Lester (2009), and Lee et al. (2023), to present a holistic understanding of how multi-tiered learning dynamics improve science inquiry instruction. The review uses a critical literature review methodology, evaluating multilevel learning strategies in terms of their influence on teacher professional growth and pedagogical outcomes. It highlights key mechanisms like mentoring, prompting strategies, digital scaffolds, and nested team learning models. Findings indicate that multi-faceted PD embedded in authentic contexts, supported by sustained mentorship and assessment feedback loops, substantially enhances self-efficacy. The paper concludes by proposing a multilevel intervention framework for science educators, particularly those in ODL environments. The study offers recommendations for future PD design, educational leadership, and policy aimed at equipping teachers with the confidence and capability to foster scientific inquiry in heterogeneous learning settings.

Keywords: Multilevel learning, teacher self-efficacy, Inquiry-Based Science Education (IBSE), Open and Distance Learning (ODL), professional development

Introduction

Inquiry-Based Science Education (IBSE) is a pedagogical approach that emphasizes active learning through investigation, problem-solving, and critical thinking (Furtak et al., 2012). Teachers play a pivotal role in facilitating IBSE; however, their success depends heavily on their self-efficacy, defined by Bandura (1977, 1997) as the belief in one's capabilities to organize and execute the actions required to manage prospective situations. In Sri Lanka and many other developing contexts, a large proportion of graduate teachers acquire their qualifications through Open and Distance Learning (ODL), which poses unique challenges and opportunities in developing teaching competencies, particularly in scientific inquiry (Seneviratne et al., 2019). Multilevel teaching is a promising approach for addressing these challenges. It recognizes learning as a dynamic, layered process occurring across individual, group, and organizational levels (Wiewiora et al., 2018). This review explores the interconnectedness between multilevel teaching practices, teacher self-efficacy, and scientific inquiry pedagogy, aiming to inform the development of more inclusive, effective professional development (PD) interventions.

Emerging research highlights that teacher self-efficacy is significantly influenced by mastery experiences, social modelling, verbal persuasion, and physiological and emotional states all conditions that are frequently in short supply or unevenly available in Open and Distance Learning (ODL) settings (Bandura, 1997). In-service science teachers often report lower

confidence in implementing inquiry-based learning approaches, mainly due to inadequate practicum opportunities, limited professional support, and insufficient exposure to effective inquiry teaching models (Seneviratne et al., 2018). Particularly, novice teachers face more difficulties in employing inquiry than experienced teachers, attributed to lower self-efficacy beliefs (Seneviratne et al., 2018).

In Sri Lanka, a notable gap remains in empirical research investigating how distance education affects the self-efficacy of biology teachers, particularly in their use of inquiry-based methods. Although some studies have begun to address changes in practising teachers' confidence and the role of multifaceted professional development in building efficacy (Seneviratne, Khatibi, & Azam, 2018; Seneviratne et al., 2019), the translation of inquiry-based teaching expectations into effective classroom practice by ODL graduates remains unclear. Furthermore, there is limited evidence on differentiated strategies that might support teachers at various levels of self-efficacy development, which is crucial for preventing a reversion to didactic teaching methods and undermining science education reform goals. Recent critical reviews suggest that multilevel learning approaches, involving mentoring, collaborative communities, digital scaffolding, and sustained feedback, hold promise in enhancing self-efficacy among ODL-trained science teachers, yet these strategies have not been empirically tested in the Sri Lankan context (Seneviratne et al., 2019; Owusu-Agyeman, 2024; Lee et al., 2023). This research, therefore, addresses an important gap by exploring self-efficacy levels among ODL biology teachers, examining their instructional practices, and developing multilevel learning interventions tailored to their unique challenges in inquiry-based teaching.

Objectives

1. Examine how multilevel learning is applied in science education.
2. Explore how multilevel learning contributes to the enhancement of teacher self-efficacy.
3. Analyse how multilevel learning enhances self-efficacy in the teaching of scientific inquiry.

Literature Review

Numerous studies emphasise that teachers' self-efficacy is a key determinant in implementing inquiry-based teaching methods (Tschannen-Moran & Hoy, 2001; Zimmerman, 2000). Seneviratne et al. (2019) argue for multi-faceted PD programs that incorporate mastery experiences, collaboration, mentoring, and sustained feedback. Similarly, Wiewiora et al. (2018) highlight mechanisms such as communities of practice, leadership influence, and reflection that facilitate learning across levels.

Multilevel learning frameworks, as conceptualised by Hannah and Lester (2009) and Vanchurin et al. (2022), emphasise vertical integration, ensuring alignment between individual teacher competencies, team-based collaboration, and institutional learning structures. Owusu-Agyeman (2024) found that multilevel mentoring fosters reflective practice and professional identity among higher education teachers. Other empirical studies, such as those by Lee et al. (2023), confirm that sequential multilevel prompting through digital resources significantly enhances problem-solving skills and learning retention.

Methodology

This study employed a critical literature review methodology to synthesise and evaluate the interplay between multilevel learning and teacher self-efficacy within the context of science education, with a particular focus on teachers trained through Open and Distance Learning (ODL)

approaches. A total of over 70 peer-reviewed journal articles, books, and policy reports were systematically reviewed. The selection focused on three intersecting thematic domains:

1. Teacher self-efficacy
2. Inquiry-based science instruction (IBSE)
3. Multilevel learning strategies in professional development

The inclusion criteria emphasised empirical validity, methodological rigour, and contextual relevance to ODL environments and science education in both local and international contexts. Key academic databases, including ERIC, JSTOR, and Google Scholar, were searched using combinations of keywords such as self-efficacy, multilevel learning, science teaching, ODL, and inquiry-based instruction.

The collected literature was subjected to thematic coding and synthesis, focusing specifically on recurring patterns related to:

1. Mechanisms supporting multilevel learning (e.g., mentoring, scaffolding)
2. Challenges unique to ODL-trained teachers
3. Outcomes related to professional growth and instructional competence

This methodological approach enabled the identification of actionable insights that inform the development of more effective professional development interventions for science teachers working in diverse and resource-constrained learning environments.

Results and Discussion

The analysis reveals that integrating multilevel learning strategies with targeted professional development enhances teacher self-efficacy. Key findings include: Mentoring and Communities of Practice: Structured mentoring (Owusu-Agyeman, 2024) and collaboration in communities of practice (Wiewiora et al., 2018) were found to build sustained confidence among teachers. Multilevel Prompting and Scaffolding: E-book interventions using progressive prompts improved cognitive engagement and confidence in applying inquiry strategies (Lee et al., 2023). Instructional Differentiation: Tailored support across readiness levels improved conceptual clarity and promoted adaptive teaching practices (Huang et al., 2022).

Institutional Leadership and Integration: Leadership practices that promote systemic learning and support nested team structures were critical in sustaining change (Hannah & Lester, 2009). Authentic, Situated Learning: Situated PD experiences embedded in real-world practice fostered stronger efficacy beliefs than theoretical workshops alone (Seneviratne et al., 2019). These results support the notion that multilevel learning, when properly structured and sustained, facilitates not only the transfer of knowledge but also long-term attitudinal shifts in teachers' beliefs about their capabilities to teach scientific inquiry.

Conclusion

This review concludes that multilevel learning approaches significantly strengthen the self-efficacy of science teachers, especially those trained via ODL systems. Effective PD must be ongoing, context-sensitive, and built upon feedback-rich, collaborative platforms. Institutions should embed vertical and horizontal learning mechanisms into their PD design, ensuring that teacher learning is scaffolded across personal, social, and institutional dimensions. The study proposes a multilevel intervention model combining cognitive diagnostic tools, mentorship, peer collaboration, and digital scaffolding to enhance IBSE teaching.

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Positioning Schools as Pillars of Child Protection: A Mixed-Methods Study of Awareness Practices and Institutional Gaps in Sri Lanka

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Abstract

Child protection has become a central concern in contemporary education policy, particularly within the framework of Education for Sustainable Development. In Sri Lanka, schools are increasingly recognised as pivotal institutions for safeguarding children's physical, emotional, and social well-being. This study examines the scope and effectiveness of school-based child protection initiatives, focusing on how schools cultivate awareness among teachers, students, and surrounding communities. Using a mixed-methods sequential exploratory design, the research was conducted in the Piliyandala education zone of Sri Lanka's Western Province. Data were collected through structured interviews and questionnaires from school leaders, teachers, and students, and analysed using thematic analysis, Chi-square tests, and median comparisons. Findings reveal diverse awareness programmes implemented through school-led activities, state initiatives, and partnerships with non-governmental organisations. Prominent themes include child rights education, abuse prevention, empathy development, and digital safety. However, persistent limitations were observed in institutional readiness, teacher training, parental participation, and the confidentiality of reporting systems. External vulnerabilities—such as socio-economic strain, family instability, and cultural reticence—further constrain protective outcomes. The study concludes that while Sri Lankan schools possess the potential to function as effective agents of child protection, this potential remains unrealised without systematic institutional strengthening. It recommends principal-led reform supported by trauma-informed teacher development, inter-agency coordination, and sustained community partnerships. Embedding protection literacy within national curricula and co-curricular frameworks is essential for achieving this goal. Future research should assess the longitudinal impact of such interventions and identify scalable models that can be applied to diverse contexts. By positioning schools as proactive hubs of child protection, the education sector can advance inclusive, resilient, and safe learning ecosystems.

***Keywords*:** Child protection, protection literacy, school-based interventions, teacher capacity, Sri Lanka

Introduction

Children's safety is fundamental to national development, yet systemic child-protection failures persist in Sri Lanka despite its commitment to the UNCRC. Schools occupy a dual role—as educators imparting knowledge and as protectors safeguarding well-being. Research indicates that schools play a crucial role in mitigating risks by fostering resilience, teaching safety skills, and identifying early signs of harm (Walsh et al., 2015). However, in Sri Lanka, institutional capacity to fulfil this role remains understudied. While the *Child Protection Policy Framework for Schools* (Ministry of Education, 2018) outlines mandates for awareness programmes, implementation gaps persist due to resource constraints, inadequate teacher training, and sociocultural barriers (Save the Children, 2020).

This study examines how Sri Lankan schools conceptualise and operationalise child protection awareness, identifying systemic strengths and gaps. Children's developmental limitations amplify their urgency: without structured guidance, they lack cognitive tools to navigate threats (Piaget, 1952; Petrie & Czerniawski, 2020). Schools, as microcosms of society, must equip learners not only with literacy and numeracy but also with *protection literacy*—the knowledge, attitudes, and skills to identify risks and seek help (Collin-Vézina et al., 2020). This

study positions schools as key actors in promoting protection literacy and examines awareness practices and barriers that challenge their protective function.

Research Problem

While schools are universally recognised as pivotal safeguarding agents (UNESCO, 2021), Sri Lanka faces a disconnect: despite national child-protection policies (Ministry of Education, 2018), schools often lack mechanisms to translate awareness into actionable skills (NCPA, 2022). This gap is exacerbated by curricula that prioritise academic outcomes over protective literacy—the competencies necessary to identify risks, seek help, and build resilience (Collin-Vézina et al., 2020).

This study, therefore, asks:

1. How do Sri Lankan schools operationalise child-protection awareness?
2. What systemic constraints hinder schools from fulfilling their safeguarding role?

Objectives

1. Examine the effectiveness of existing school-based child-protection programmes.
2. Assess awareness levels among teachers and students regarding child safety and rights.

Research Questions

1. How do schools operationalise child-protection awareness?
2. What systemic barriers inhibit effective implementation?
3. To what extent are stakeholders equipped to facilitate child-protection education?
4. What best practices can be integrated into school-based protection systems?

Review of Literature

Education serves as both a safeguard and a catalyst for social transformation, particularly in post-conflict societies like Sri Lanka, where schools must address the dual mandate of academic instruction and social protection (Perez Murcia & Muñoz, 2019). This dual role aligns with the transformative education paradigm articulated in UNESCO's Sustainable Development Goal 4, which emphasises the role of education in creating peaceful societies (UNESCO, 2021).

The Sri Lankan Ministry of Education's Circular 25/2019 represents a significant policy commitment to institutionalising child protection, mandating schools to create environments conducive to holistic development—intellectual, physical, emotional, and social (Ministry of Education, 2019). However, implementation challenges persist. Samarasinghe and Chandrakumara's (2021) study revealed critical gaps between policy rhetoric and ground realities, finding that only 23% of teachers could accurately describe reporting procedures for child abuse cases, and just 11% of schools had functional child protection committees.

These findings are validated by UNICEF's (2022) National Education Vulnerability Assessment, which identified three systemic barriers: first, competing academic priorities that crowd out protection education; second, sociocultural reluctance to discuss abuse openly; and third, inadequate training for teachers as frontline protectors. The concept of "protection literacy" (Collin-Vézina et al., 2020*), which encompasses the competencies required to recognise, prevent, and respond to threats*, emerges as particularly relevant in this study. In the Sri Lankan context, protection literacy remains underdeveloped due to:

- Curricular approaches that privilege rote learning over critical safety skills (Jayaweera, 2020)
- Hierarchical teacher-student relationships that discourage disclosure (Perera, 2021)
- Limited community engagement in school safety initiatives (NCPA, 2023)

Furthermore, the National Child Protection Authority's (2023) longitudinal study showed that schools with comprehensive protection programs experienced a significant 42% reduction in reported bullying incidents, accompanied by a 35% increase in help-seeking behaviour, resulting in a 28% improvement in student emotional wellbeing scores.

Recent studies reveal enduring weaknesses in school-based safeguarding across low- and middle-income contexts. Coswatte et al. (2025) identified institutional and coordination gaps in Sri Lankan child protection, while Ellermeijer et al. (2023) noted limited cultural adaptation and weak evaluation of school interventions globally. Pundir et al. (2020) further highlighted the scarcity of outcome-based research in South Asia. These gaps collectively underscore the need for empirical inquiry into how schools translate child-protection awareness into practice—a gap this study directly addresses.

Methodology

A mixed-methods exploratory sequential design was employed, combining qualitative interviews and quantitative surveys. Phase 1 involved semi-structured interviews with 25 stakeholders (principals, child-protection officers, and parents). Phase 2 surveyed 120 teachers and 360 students from 12 stratified urban and rural schools. Qualitative data were thematically coded in NVivo, while quantitative data were analysed using descriptive and inferential statistics (χ^2, ANOVA) in SPSS. Ethical clearance was obtained from the relevant Zonal Education Office, and data were anonymised in compliance with research ethics protocols.

Results and discussion

Institutional Preparedness and Implementation Gaps

The findings indicate that only 23 per cent of schools maintained functional child protection committees, with urban schools demonstrating higher compliance than rural counterparts. This uneven distribution reflects systemic disparities in institutional preparedness. Rural schools, constrained by limited staffing and oversight, often struggle to operationalise policy directives. These results align with those of Samarasinghe and Chandrakumara (2021) and the National Child Protection Authority (2023), both of which reported persistent implementation lags at the provincial level. When compared to regional peers such as Vietnam (58%) and Nepal (49%) (UNICEF, 2021), Sri Lanka's compliance rates remain significantly below global averages, reinforcing the argument that child protection policy in Sri Lanka remains predominantly rhetorical rather than procedural.

Teacher Capacity and Protection Literacy

The study highlights a marked imbalance between student awareness and teacher preparedness. While 89 per cent of students recognised at least two protection-related topics, only 12 per cent of teachers had formal training in trauma support. Large class sizes (1:45 ratios in some 1AB schools) further restrict teacher-student engagement and hinder responsive interventions. These patterns echo UNICEF's (2022) national assessment, which identified teacher capacity as the weakest link in safeguarding implementation. The absence of trauma-informed practices curtails the potential of awareness programs to translate into protective behaviour. Compared to Singapore's Circle of Care initiative (OECD, 2023), which demonstrates how trauma-sensitive pedagogy and cross-sectoral collaboration can foster teacher agency and sustain systemic resilience.

Sociocultural Barriers and Silent Harms

Sociocultural attitudes continue to limit open dialogue on abuse and mental health in Sri Lankan schools. Interviews revealed that teachers frequently avoid topics deemed socially taboo, including sexual exploitation and domestic violence. This avoidance reinforces hierarchical teacher–student relations and discourages disclosure (Perera, 2021). Save the Children's (2020) findings similarly

identified moral instruction as a substitute for open discussion in many provincial schools. The present study thus reinforces the need for culturally sensitive pedagogical models that normalise conversations on safety, consent, and emotional well-being.

Family and Community Dynamics

Household environments emerged as crucial determinants of child vulnerability. Parental substance abuse and unstable family arrangements—particularly polygamous households—were among the most frequently cited risk factors, accounting for 42 and 23 per cent of identified cases, respectively. These findings align with NCPA's (2023) national audit and Save the Children's (2020) data from the Eastern Province. Interestingly, while formal school reporting systems, such as complaint boxes, were underutilised (<15 per cent), community-based reporting accounted for 62 per cent of cases, indicating a strong informal network of vigilance. Comparable studies in Brazil (UNICEF, 2023) suggest that community partnerships, when supported by trained social workers, significantly enhance protection outcomes. This evidence supports strengthening community–school collaborations in Sri Lanka's safeguarding ecosystem.

Reporting Mechanisms and Digital Opportunities

Traditional reporting channels remain underused, primarily due to a lack of anonymity and trust among students. The Norwegian *Child Whisperer* model (OECD, 2022), which facilitates confidential digital reporting, demonstrates a scalable best practice. Integrating such technology into Sri Lanka's emerging digital education framework (Ministry of Education, 2024) could modernise child protection practices, aligning with current reforms under the *Online Safety Act* (2024). Embedding digital literacy within protection curricula would also equip students to address cyberthreats—an increasingly prominent risk factor identified in this study.

Toward a Culture of Protection

Overall, Sri Lankan schools are situated at a transitional juncture. While awareness of child protection principles has improved, institutional, pedagogical, and sociocultural barriers continue to hinder the full realisation. The evidence underscores the need to reposition schools as proactive agents of protection through four core actions: (1) institutionalise trauma-informed teacher training; (2) embed child protection content into mainstream curricula; (3) establish confidential, technology-supported reporting systems; and (4) strengthen community participation through local partnerships. By fostering *protection literacy* (Collin-Vézina et al., 2020) as a measurable learning outcome, Sri Lanka can transform its schools into inclusive and empathetic ecosystems of safety.

Conclusion

This study reveals duality: while awareness of child protection is rising, systemic preparedness remains low. To reposition schools as agents of protection, Sri Lanka must institutionalise trauma-informed training, digital literacy, and community-based models. Bridging global best practices with local strengths can enable schools to evolve into resilient ecosystems of safety and security. Recommendations include adopting anonymised reporting systems, standardising protection curricula, and integrating social workers to ensure safe, inclusive learning environments across Sri Lanka.

Sri Lanka's awareness programs demonstrate progress (e.g., high baseline knowledge), but systemic gaps in implementation (e.g., rural resource deficits, teacher training) persist, compared to regional and global benchmarks. Prioritising three areas that could bridge gaps:

1. Teacher Capacity: Adopt Singapore's trauma-training models.
2. Reporting Tools: Implement Norway-style anonymous digital systems.
3. Community Partnerships: Scale Brazil's family intervention programs.

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A Thematic Review Exploring Challenges and Pedagogical Implications of Computer Technology Integration in the Teaching and Learning Process

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Abstract

Teacher roles and the use of computer technology are critical in ensuring that the quality of teaching and learning in modern classrooms is achieved. Despite the proposed study sample consisting of 40 principals and 200 teachers representing 1AB, 1C, and Type 2 schools in the Colombo, Hambantota, and Ampara districts of Sri Lanka, the current study was done as a qualitative inquiry. In particular, ten research articles concerning the use of computer technology in instruction and learning were examined and analysed thematically. The results indicated several challenges that educational institutions continually faced, such as technical limitations, a lack of competence in computer use among educators, a negative attitude towards the use of modern technology, and inadequate infrastructural facilities. All these elements make it challenging to engage a student effectively in the teaching-learning process. The suggested paradigm suggests a pedagogical shift from traditional, teacher-centred learning to a student-centred model, where teachers act as facilitators of learning through the strategic application of digital tools, individualised learning, and group learning platforms. This research enabled a profound investigation of new trends, issues, and pedagogical concerns related to technology integration in the Sri Lankan school environment.

Through these practices, teachers can maximise student engagement, inculcate digital literacy, and encourage the growth of higher-order thinking skills necessary in 21st-century learning settings.

***Keywords*:** Teacher's role, computer technology, teaching learning process

Introduction

Introducing competency-based reforms to the Sri Lankan education system represents a significant shift from traditional content-oriented teaching to student-centered, activity-oriented learning. Gangodagama (2014) states that these reforms aim to develop an education system that emphasizes skills, attitudes, and values by promoting active learning rather than memorization. In this context, the role of a teacher has evolved from being a transmitter of knowledge to a facilitator and guide. This professional opens opportunities for learners to build their own knowledge through meaningful and real-life experiences.

Information and Communication Technology (ICT) has played a central role in bringing this change. It serves as a pedagogical and cognitive resource, enabling the teacher to bridge the gap between traditional teaching approaches and modern, inquiry-based learning strategies. According to Amali (2017), the adoption of educational technology in classroom instruction enhances student motivation, facilitates learning through various styles, and makes the learning process more interactive. ICT can also equip teachers with new methods of planning, assessing, and giving feedback on lessons, thus enhancing the overall teaching and learning experience.

Nevertheless, despite this potential, the process of developing technology-enhanced education in Sri Lanka has been a slow and challenging one. It was officially implemented in the school system in 2001 as part of the National Education Reforms of 1997, but has been implemented unevenly across different regions and school types (Amali, 2017). Teachers, especially in rural settings, continue to face challenges due to the lack of proper infrastructure, inadequate training, and negative attitudes towards computer technology, which hinder the effective implementation of computer technology. UNESCO (2019) emphasizes that even though

ICT can drastically improve the quality of teaching, this process requires that teachers implement technology in their pedagogy in a meaningful way.

A study on the topic by Anderson and Dexter (2017) also notes that the quality of learning outcomes among students directly depends on the leadership and technological competence of teachers. When teachers are confident in their use of ICT, they are also more likely to employ learner-cantered methods and promote collaboration and critical thinking. On the other hand, the digitally insecure tend to rely on didactic approaches that do not allow students to engage in meaningful interaction. Likewise, Voogt et al. (2018) note that the motivation, morale, and well-being of teachers are highly relevant factors that determine their willingness and capability to embrace ICT in classrooms.

Various theoretical and conceptual frameworks have been employed to support the integration of ICT in pedagogy in the global context, which emphasizes the evolving role of teachers. The Sociocultural Theory by Vygotsky (1962) emphasizes the role of social interaction and scaffolding in the learning process, indicating that digital technologies can be used as mediational tools to expand the Zone of Proximal Development (ZPD) of a learner. This theoretical perspective contributes to contemporary models, such as TPACK (Technological Pedagogical Content Knowledge) and SAMR (Substitution, Augmentation, Modification, and Redefinition). According to Mishra and Koehler (2006), the TPACK model focuses on the interdependency of technology, pedagogy, and content knowledge, stating that an effective ICT integration entails teachers acquiring competency in all three areas. Ertmer and Ottenbreit-Leftwich (2010) support this fact by stating that teachers' knowledge, confidence, and beliefs are key elements that determine the use of technologies in the educational environment.

Considering these views, it is evident that the Sri Lankan government's attempts to incorporate ICT in the teaching and learning process should not be limited to the supply of digital resources. They should also include professional growth opportunities, continuous technical assistance, and, at the policy level, a commitment to sustaining and perpetuating change in pedagogy. Thus, to develop effective, contextually specific strategies that facilitate meaningful ICT integration in Sri Lankan classrooms, it is essential to understand the current situation regarding the use of computer technology, teachers' perceptions, and the issues they encounter.

Literature Review

The application of computer technology in education has been thoroughly researched worldwide, yielding both positive and negative findings about the potential transformative nature of the technology and the challenges involved in its implementation. An increasing number of studies highlight that the achievement of ICT integration does not only rely on the presence of technological tools, but also on pedagogical beliefs, competencies, and institutional support structures of teachers (Ertmer & Ottenbreit-Leftwich, 2010; UNESCO, 2019).

The Sociocultural Theory by Lev Vygotsky (1962) serves as the conceptual framework for understanding technology-mediated learning. Vygotsky hypothesised that knowledge construction involves social interaction and that learning is facilitated when people interact within the Zone of Proximal Development (ZPD). In contemporary classrooms, digital tools can be used as mediational tools to scaffold learning in ways that enable teachers to facilitate the cognitive growth of students by facilitating guided discovery and peer interaction. ICT is thus not merely a teaching supplement, but a cognitive extension that allows the students to experiment, invent and solve problems beyond the conventional scope. This theoretical position has shaped modern theories of technology integration, including TPACK and SAMR. The Technological Pedagogical Content Knowledge (TPACK) model is a framework of teacher knowledge that explains the dynamics of interaction between three types of teacher knowledge content (CK), pedagogy (PK), and technology (TK) (Mishra & Koehler, 2006). According to the model, successful integration of

technology occurs in cases where teachers have a moderate level of knowledge regarding the role of technological tools in augmenting specific pedagogical approaches and content. TPACK also emphasizes that educators must receive contextualized professional development that links the use of technology to curriculum aims, rather than emphasizing technical skills. Based on this, the Substitution, Augmentation, Modification, and Redefinition (SAMR) Model by Ruben Puentedura (2014) is a hierarchical continuum for analyzing the effect of technology on learning activities. Digital tools can substitute traditional processes with slight functional differences at the Substitution level; can be used to augment efficiency at the Augmentation level; can be used to redesign tasks at the Modification level; and can be used to provide new learning experiences that would be unthinkable without technology at the Redefinition level. The SAMR model, therefore, provides an avenue through which teachers can assess the level of their integration of ICT and its potential impact on student learning.

Several empirical studies emphasize that the attitudes of teachers, their self-efficacy, and pedagogical confidence are key determinants in establishing whether technology is successfully applied in the classroom. Ertmer and Ottenbreit-Leftwich (2010) established that, despite the presence of infrastructure, teachers' beliefs regarding the importance of technology may facilitate or hinder meaningful integration. Affirmative beliefs, combined with proper training, would enable teachers to develop interactive, student-cantered lessons, as opposed to negative or doubtful attitudes that result in low and superficial use of technology. According to Hew and Brush (2007), the barriers to ICT integration were numerous, including limited access to resources, a lack of administrative support, and insufficient time to prepare lessons. According to them, the only way to overcome these challenges is through institutional commitment and continued mentorship, which will transform teachers' pedagogical practices to constructivist and inquiry-based learning environments, rather than the traditional, teacher-cantered methods of teaching. On the same note, Anderson and Dexter (2017) have focused on the impact of technological leadership in schools, indicating that administrators who lead by example and encourage the adoption of ICT develop more assertive and creative teachers.

The ICT Competency Framework for Teachers, offered by UNESCO (2019), provides an international standard for ICT-enhanced education, encompassing stages of teacher development that range from technology literacy to knowledge creation. The framework emphasizes that teachers must be facilitators of the learning process, instructing students in the collaborative construction of knowledge and problem-solving using technology. Notably, UNESCO (2019) warns that the integration of technology must be accompanied by suitable policy frameworks, infrastructure, and capacity-building efforts to ensure that the integration is sustainable and equitable in various school settings. This is further supported by Voogt et al. (2018), who state that the influence of ICT on learning results is best leveraged when the schools develop a conducive culture that appreciates experimentation, collaboration, and reflection on practice. Their study shows that the morale, health, and trust in the institution of teachers have a direct impact on their use of digital tools. As a result, promoting an appropriate school climate is as essential as having the proper hardware and connectivity.

Attempts to integrate ICT with pedagogy in the Sri Lankan education system are highly associated with competency-based curriculum reforms that have been implemented since 2001. Despite the significant developments in computer studies and the provision of basic infrastructure, challenges remain. According to Amali (2017), the unequal distribution of resources between urban and rural schools has led to unequal access to ICT. Teachers typically lack both technical expertise and pedagogical knowledge to create technology-enhanced learning experiences. Furthermore, the lack of support and resistance to change has limited the success of the current ICT initiatives. Gangodagama (2014) noted that to make technology play a significant role in education reform, teachers must not only be trained on how to use digital tools but also empowered to redefine their

roles in instruction. This change involves the long-term professional growth, cooperation with peers and school leadership. Therefore, the integration of ICT in Sri Lanka, like in most developing countries, will be determined by an ecosystem that combines technological availability, pedagogical creativity, and systemic policy coordination.

All the literature has shown that the teaching learning process involving computer technology is a complex activity that is affected by individual, institutional and systemic issues. The Vygotsky Sociocultural Theory, the TPACK, and the SAMR are theoretical frameworks that offer conceptual tools to understand the mediating role of technology in the learning process and ways in which a teacher can move towards transformative digital pedagogy. To achieve this potential, however, it is necessary to address practical issues related to infrastructure, teacher preparedness, and enabling policy structures.

Lastly, in the Sri Lankan context, the capacity building of the teachers, equity in resource access, and integration of ICT in curriculum development are some of the priorities. The literature reviewed thus provides a solid reason for investigating the current practices, perceptions, and challenges faced by teachers in utilizing computer technology, laying the foundation for developing effective strategies and policy recommendations to improve ICT-driven education in Sri Lanka.

Methodology

The research design employed in this study was a qualitative thematic review, aiming to understand the issues, pedagogical implications, and the role of teachers in integrating computer technology into Sri Lankan classrooms. The qualitative design was selected because it allows for in-depth exploration of concepts, contexts, and patterns, and for analysing them through text and interpretation rather than numerical means (Creswell, 2014). The thematic review enables the researcher to compile the results of various academic papers to uncover the common notions, gaps, and trends in the current literature (Braun & Clarke, 2006). Based on this, the current study conducted a systematic review and analysis of ten peer-reviewed research articles that addressed the issue of integrating Information and Communication Technology (ICT) in teaching and learning within the Sri Lankan education system. The review aimed to understand the current status of technology use, teachers' perceptions, and the barriers to ICT integration, as demonstrated in previous studies.

All the data in this study were obtained from secondary sources, including ten peer-reviewed research articles published between 2010 and 2024. These papers were located on reliable academic databases, such as ERIC, Google Scholar, and ResearchGate, and were chosen based on specific criteria. The chosen studies were empirical or conceptual studies concerning ICT integration in the context of Sri Lankan schools, peer-reviewed, and published in reputable journals or conference proceedings. All the studies covered at least one of the following areas explicitly: the role of teachers, pedagogical practices, technological barriers or ICT policy implementation. Articles that were in English and had full text were only included. This was a purposive choice to ensure that all the reviewed literature was directly relevant to the aims of the current study and provided a broad overview of the available evidence on the use of technology in classes in Sri Lanka.

Thematic analysis was employed in the data analysis, a qualitative technique suitable for identifying, interpreting, and presenting common patterns or themes within datasets (Braun & Clarke, 2006). A systematic six-step process was used in the analysis to provide methodological rigour and consistency. The articles were read thoroughly on multiple occasions to ensure that the main findings, arguments, and contexts concerning ICT use in education were understood. Applicable phrases, sentences, and sections were subsequently identified and coded according to emerging themes, including teacher competence, access to technology, pedagogical change, and

institutional support. There were similar codes that were grouped into preliminary themes, which represented broader categories such as infrastructure challenges, teacher attitudes, and policy implications. The mentioned themes were narrowed and compared across all sources of data to ensure consistency and accuracy. The last themes were well-defined to show their conceptual importance and relationships, and findings were synthesised into an analysis narrative to explain the main patterns, challenges, and implications of ICT integration in Sri Lankan schools. This thematic strategy enabled the researcher to synthesise the results of separate studies into a comprehensive understanding of the general trends and pedagogical implications of ICT-based teaching and learning.

The researcher followed the qualitative research criteria outlined by Lincoln and Guba (1985) to achieve credibility in the analysis. The credibility was achieved through the incorporation of a variety of data (ten independent studies) and repetitive reading to ensure consistency. The reliability was ensured through systematic documentation of data selection and coding process, which formed a clear audit trail. Researcher reflexivity promoted conformability of the interpretations and ensured that the researcher did not bias the interpretation. The transferability was also facilitated through the contextual descriptions, which provided detailed accounts of the contexts in which the findings can be applied in other educational environments. Since the present research was grounded entirely on secondary data published in the past, no direct participants were involved. Ethical principles were, however, followed by making sure that the articles reviewed were well referenced to their original authors. There was no unpublished or confidential data utilized in this review.

Despite the fact that the thematic review method provides a broad insight into existing knowledge, it is associated with some limitations. The sample of ten research articles used in the study might not be representative of the entire gamut of ICT integration in all educational settings in Sri Lanka. Additionally, the methodological quality differences among the reviewed studies may have contributed to the scope and depth of the identified themes. However, the limitations were alleviated by the systematic analytical process and adherence to qualitative rigour, which guaranteed the credibility and validity of the results.

Nonetheless, the synthesis of this qualitative thematic review comprised 10 peer-reviewed articles on the integration of ICT in Sri Lankan classrooms. Through thematic analysis, the study identified key trends in terms of teacher roles, pedagogical changes, infrastructural constraints, and policy implications. The rigour in the methodology was such that the analysis not only drew on existing scholarly knowledge but also produced new insights that may guide future policy and practice in the field of educational technology integration.

Findings

A thematic review of ten peer-reviewed research studies revealed four significant challenges associated with the use of computer technology in Sri Lankan classrooms. These themes also highlight the structural, pedagogical, and attitudinal barriers that hinder successful ICT-based teaching and learning. The initial major challenge identified was the technical limitations and poor infrastructure. Throughout the literature reviewed, school access to computers, reliable internet connections, and adequate maintenance facilities were identified as being deficient in most schools, particularly in rural and semi-urban schools. The lack of multimedia resources and weak infrastructure in the classrooms hinders the teachers' ability to plan and deliver technology-based lessons. All these are exacerbated by the frequent power outages and the absence of IT technical support personnel, which means that teachers are left to employ more conventional means of teaching. The second important problem was low teacher competence and confidence in ICT. Many teachers lacked formal training in using digital tools as pedagogical tools. Although some of the teachers were computer literate to some extent, they had limited ability to make ICT significant in subject teaching. The lack of connection between technical knowledge and pedagogical practice

has led to the poor utilisation of available technology. Studies have shown that teachers who have undergone professional training in ICT are more likely to implement new and student-focused teaching styles than their counterparts who have not received such training. The third recurring theme was the aversion and negative views of new technologies. Other teachers said that they were afraid of failure, stressed about technology, or were doubtful about its educational benefit. It was specifically this attitude that was present among older and more experienced teachers, who were the ones who favoured traditional instruction using the textbook. The continuation of such attitudes is indicative of a more fundamental cultural and systemic issue, in which technology is viewed as an external or optional tool, rather than an integral part of pedagogy.

Lastly, the discussion has identified inadequate professional development and institutional support as a significant impediment. Educators complained about the lack of sustained training and sufficient support from school administrations to be innovative in using ICT. In addition, there have been no formal ICT integration policies or monitoring systems in schools that can help sustain technology-based teaching. The absence of a collaborative professional learning community also isolates teachers and prevents the exchange of effective digital teaching practices.

Pedagogical Implications

The results indicate that there are significant pedagogical implications for teaching and learning practices in Sri Lankan schools. The first of these is the prevalence of teacher-centred instructional methods. Even with the curricular changes that focus on the use of activities in learning, there are still several teachers whose teaching methods still revolve around traditional didactic approaches, such as lecturing, note-taking, and memorisation. Technology, as it has been used, tends to replace old tools rather than serve as a platform for changing teaching. This narrow application of ICT compromises the learning opportunities for active, collaborative, and inquiry-based learning. The data indicate that a majority of teachers are using computers as tools for administration or to present ready-made lessons, rather than involving students in creative problem-solving or project-based learning. Thus, the potential of ICT to facilitate higher-order thinking, self-directed learning, and digital literacy is not fully exploited. The results thus highlight the importance of a pedagogical transition to student-based, technology-based learning processes. Teachers in such classrooms are facilitators who support and scaffold student inquiry using digital tools. Personalization of instruction through the accommodation of different learning styles, differentiated tasks, and critical thinking can be achieved with the effective use of ICT. According to UNESCO (2019) and Mishra and Koehler (2006), the application of ICT within the framework of TPACK enables teachers to integrate content, pedagogy, and technology in a manner that enhances students' cognitive involvement. To realise this shift, teachers will have to stop regarding ICT as an independent course or an additional tool, but instead view it as a central instrument of pedagogy. This paradigm shift demands more than just technical abilities, but new pedagogical attitudes that focus on collaboration, creativity and learner autonomy.

Proposed Pedagogical Framework

The proposed pedagogical framework for ICT Integration is presented based on the findings and theoretical implications of the literature to inform changes in teaching and learning practices in classrooms in Sri Lanka. This model is structured into three major dimensions, including pedagogical orientation, strategic use of technology, and design of the learning environment. Teachers are expected to shift their focus from content delivery to inquiry-based learning and student-driven instruction. Their function is transformed into that of a mentor who helps learners explore, create, and use knowledge with the aid of digital tools. This method is consistent with the sociocultural theory proposed by Vygotsky (1962), which emphasizes scaffolding and collaborative learning within the Zone of Proximal Development (ZPD). The use of technology needs to progress beyond substitutional use to transformational use, as outlined in the SAMR model (Puentedura, 2014). The classroom tasks should be modified and redefined using

educational programs, online simulators, and interactive learning platforms, which enable learners to create, collaborate, and reflect. The framework supports the application of online and blended learning opportunities to facilitate peer interaction and personalized learning. Online discussion forums, collaborative digital workplaces, and cloud-based project collaboration can help continue learning even after leaving the classroom and promote ongoing interaction. Adaptive technologies enable teachers to tailor instruction to meet the unique needs of individual students, fostering self-directed learning. The implementation will need good institutional support. In schools, periodic ICT education, peer mentoring schemes and access to online resources should be available. Technology-enhanced pedagogy requires leadership support to maintain innovation and establish a culture of technology-enhanced pedagogy (Anderson & Dexter, 2017). The suggested framework, therefore, envisages a student-cantered learning environment whereby teachers, technology and institutional structures interact in synergy to promote quality in education. This model will contribute to the overall national objective of producing 21st-century learners who are innovative, adaptable, and globally competent by enhancing collaboration, creativity, and digital competence. The following figure, No. 1, proposes the Pedagogical Framework of ICT integration.

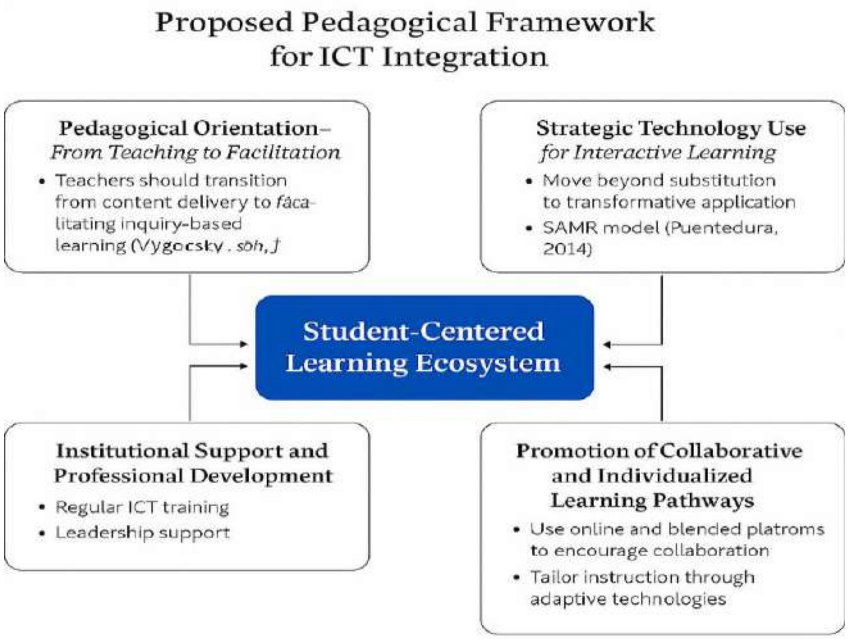

Figure 1. Pedagogical Framework for ICT integration

Conclusion

The thematic review undertaken in this study provides an in-depth understanding of the current state of Information and Communication Technology (ICT) integration in Sri Lankan classrooms and the evolving role of educators in this transition. The findings indicate that, despite national education reforms advocating for competency-based and student-centred pedagogies, the integration of ICT in teaching and learning remains inconsistent and is hindered by various factors. Some of these issues include insufficient infrastructure, inadequate teacher training, and a lack of willingness to change how teachers teach. The ten studies examined all show that teachers recognise the potential of technology to enhance the quality of instruction; however, many lack the confidence, skills, or institutional support necessary to utilise ICT effectively in their daily teaching. As a result, people do not utilise computers as much as they could, or they only use them as a replacement for traditional tools, rather than as a means to transform their learning approach. The current curriculum reforms aim to shift away from teacher-centred instruction and toward a more student-cantered and interactive learning environment. This situation has made that transition more difficult. The study emphasizes that the effective incorporation of ICT necessitates a

comprehensive transformation of pedagogical philosophy. Teachers need to transition from being people who pass on information to those who help students ask questions and enhance learning experiences with technology. This change aligns with the principles underlying constructivist and sociocultural learning theories, particularly Vygotsky's (1962) emphasis on scaffolding and social interaction, as well as more recent models such as TPACK (Mishra & Koehler, 2006) and SAMR (Puentedura, 2014). These frameworks demonstrate that ICT can enhance higher-order cognitive skills, critical thinking, and problem-solving—essential competencies for 21st-century learners. Moreover, the results indicate that institutional and systemic factors have a significant influence on the efficacy of ICT integration. Schools can only make lasting changes if they offer ongoing professional development, opportunities for teachers to collaborate, and strong leadership support for implementing new technologies. Anderson and Dexter (2017) emphasize that leaders' commitment and vision are crucial for fostering a culture of technology-based teaching. Equally significant is the formulation of national policies that guarantee equitable access to ICT resources in both urban and rural schools, thereby bridging the digital divide and fostering inclusivity. The proposed pedagogical framework outlined in this study provides a strategic approach to achieving these objectives. It focuses on four areas that are all connected: pedagogical orientation, strategic technology use, collaborative and individualized learning, and institutional support. These parts work together to create a student-cantered learning environment where technology helps students be creative, work collaboratively, and stay engaged at all times.

Finally, this study emphasizes that ICT integration is not merely a technical initiative, but a pedagogical and cultural transformation that reconfigures the methods of teaching, learning, and sharing knowledge. The teacher's role in this process is both central and changing. They transition from being the person who teaches to being the person who helps students learn, and from being the person who controls information to being the person who designs learning experiences. For Sri Lanka to fully realize the promise of technology in education, policy, infrastructure, and pedagogy must all work together. Future research should focus on assessing the practical application of ICT-based frameworks, evaluating their impact on student learning outcomes, and investigating methods for enhancing technology integration across various educational settings. Ultimately, by embracing ICT as a catalyst for innovation and inclusivity, Sri Lankan schools can prepare learners to meet the challenges of the digital age, empowering them with the knowledge, skills, and dispositions necessary to thrive in a globally connected world.

Recommendations

This thematic review's findings and theoretical insights lead to several important suggestions for improving the effective use of Information and Communication Technology (ICT) in Sri Lankan classrooms. These suggestions are presented at three interconnected levels: national policy, institutional implementation, and teacher professional practice. For ICT integration to be long-lasting and fair, each level must work together. This will improve the quality of teaching and learning in the country.

Policy-Level Recommendations

To support the effective use of ICT in all levels of education, a unified and coherent National ICT in Education Policy Framework should be established. The Ministry of Education should establish this framework in accordance with global standards, such as UNESCO's ICT Competency Framework for Teachers (2019). This will ensure that ICT integration supports education based on skills and focused on the student. To bridge the digital divide between urban and rural schools, the government should ensure that all schools have equal access to ICT resources. Especially in areas that lack sufficient resources, there must be adequate ICT infrastructure, including computers, reliable internet access, and a stable power supply. Public-private partnerships (PPPs) and collaboration with international organisations like UNICEF, ADB, and UNESCO can be beneficial in securing funding and technical assistance. Digital literacy, critical thinking and problem-solving

skills should be taught in all subjects, not just as a separate part of the national curriculum and assessment systems. Indicators of ICT use should be included in national assessments to encourage schools to use technology in their daily lessons. The Ministry of Education and the National Institute of Education (NIE) should establish standards for Continuous Professional Development (CPD) in ICT teacher training. To ensure that teachers remain competent and confident in new technologies, they should be required to take regular refresher courses and obtain certification. Lastly, there needs to be a way to track, evaluate, and hold people accountable at the national and provincial levels to monitor the progress of ICT integration, identify issues, and ensure that resources are being utilised effectively. Clear monitoring systems will make policies more effective and help the environment last longer.

Institutional-Level Recommendations

To encourage the use of ICT in schools, it is important to strengthen school leadership. Principals and other school leaders need to learn how to utilise digital transformation strategies, make informed decisions based on data, and effectively manage ICT resources. They should be role models and sources of inspiration, encouraging teachers to utilise technology to enhance their teaching. Schools should establish ICT resource centres and support units equipped with the necessary infrastructure and staff to maintain hardware in good condition, assist teachers with technical issues, and ensure that teachers are continually learning. These centers can be places where people try out new digital tools and create teaching materials that are useful in their specific area. To encourage teachers to work together, Professional Learning Communities (PLCs) should be set up. Teachers can share best practices, talk about problems and work together to find new ways to teach with technology through PLCs. Peer mentoring, co-teaching, and lesson study models can boost confidence and a sense of shared responsibility for learning with technology. Every school should have a plan for using ICT that fits with the goals of the national education system. The plan should include specific goals, deadlines, resource requirements, and methods for tracking progress. This kind of structured planning ensures that technology integration is responsible and sustainable. Institutions should encourage blended and hybrid learning environments that combine in-person teaching with online tools, such as Google Classroom, Moodle, and Microsoft Teams. These settings make things more flexible, encourage students to learn independently, and prepare them for a global workforce that is connected to the internet.

Teacher-Level Recommendations

Teachers should employ student-centred, technology-enhanced teaching methods that foster interaction, collaboration, and questioning. To get students actively involved in building knowledge, teachers should employ strategies such as flipped classrooms, problem-based learning (PBL), and project-based learning (PjBL) instead of relying solely on lecturing. The TPACK (Technological Pedagogical Content Knowledge) framework (Mishra & Koehler, 2006) should be employed to ensure that technology, pedagogy, and subject content are all interconnected in a meaningful way. Using the SAMR model (Puentedura, 2014), teachers can transition from using technology to replace existing tasks to changing and redefining tasks, thereby altering how students learn. Teachers should take online courses, webinars, and MOOCs to keep learning and growing as professionals. Joining global professional networks can help them learn about the latest and best ways to utilise technology in the classroom. Utilize technology to support learning that is tailored to each student's needs and inclusive of all. Adaptive software, multimedia tools, and assistive technologies can help students with diverse learning needs, including those with disabilities or learning difficulties. Teachers should also teach students how to be good digital citizens and use technology responsibly by showing them how to behave online. Lessons should focus on internet safety, intellectual property rights, and polite digital communication. This will help students become responsible digital citizens in a world that is becoming more connected.

Future Directions for Research

Although this thematic review consolidated existing knowledge on ICT integration, additional research is required to enhance comprehension in various domains. Subsequent research ought to examine the influence of teacher professional development programs on ICT pedagogy and evaluate the efficacy of the suggested pedagogical framework within actual classroom settings. Furthermore, research should investigate students' perceptions of ICT-enhanced learning environments to elucidate learners' experiences and motivation. It is also suggested that you explore how school leadership, teacher motivation, and the school's culture interact to influence the use of technology in the classroom.

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Status of Curricular Implementation in the Pre-Schools managed by the Eastern Provincial Council

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Abstract

Preschool education is a valuable resource for all children. The success of preschool curriculum in developing human resources effectively during this period depends on the integration, relevance, and linkage between human resources and practical educational activities. This study aims to identify the gaps in curriculum implementation in preschools managed by the Eastern Provincial Council in the Batticaloa District and to propose suggestions for effective implementation. Therefore, the objectives are to identify the availability of physical and human resources for curriculum implementation, to examine supervision practices related to curriculum implementation, to assess the effectiveness of the curriculum implementation process, to identify gaps in curriculum implementation, and to propose suggestions for effective curriculum implementation. This study was conducted as a descriptive study to identify the classroom activities involved in curriculum implementation. It has been designed as a mixed-methods study, utilising both quantitative and qualitative research methods. Thirty preschools and thirty preschool teachers were selected from 146 preschools managed by the Eastern Provincial Council in the Batticaloa District, using a stratified sampling technique, with two teachers per preschool. In addition, the sample included pre-school managers, assistant directors of education responsible for non-formal education in the Zonal Education Office, and directors managing schools in the Eastern Provincial Council. Questionnaires, observations, and time observations were used as data collection methods. Data were obtained from pre-school teachers through questionnaires, observation of the implementation activities of the curriculum for pre-school students, and through interviews with pre-school managers, assistant directors of education, and directors managing provincial council schools. The data collected on quantitative, qualitative, and qualitative bases were subjected to descriptive analysis. They were analysed using the software. The study suggests that the provision of adequate physical resources and the implementation of the curriculum should be approved only after ensuring the adequacy and completeness of the resources.

Keywords: Pre-school proficiency, curriculum, classroom implementation

Introduction

Preschool education is a critical period in providing equal opportunities for all children. According to the National Policy of Sri Lanka, early childhood education is the period from conception to five years of age (UNICEF, 2019). Preschool education should be child-friendly and reflect the rights and dignity of children (UNICEF, 2024). It should be provided free and compulsory for at least one year to develop the child's skills, abilities, and self-confidence (Ibid, 2015). Appropriate arts programmes are essential to provide quality pre-school education to all children (Global Education Monitoring Report Summary, 2024). According to research, the early childhood education period is a critical time for the all-around development of a child. In Sri Lanka, the Kannangara Committee recommendations of 1943 emphasised the importance of nursery schools. In Sri Lanka, the government intervened in pre-school education only after the establishment of the Children's Secretariat in 1979. The Children's Secretariat was transferred to the Ministry of Women's Affairs and later to the Ministry of Social Welfare. The Constitution of Sri Lanka, under its 13th Amendment of 1987, has vested the supervision and management of pre-schools in the Provincial Councils. The Provincial Councils have established Pre-school Authorities to

implement this mandate. Through them, the Eastern Provincial Council is developing and implementing the curriculum for Eastern Provincial Pre-Schools.

Pre-schools in Sri Lanka operate under various names. Their differences range from the curriculum, the implementation of the curriculum, the context in which it is implemented, to the language and principles used for the specific purpose. The Presidential Rapid Action Committee of 1997 noted that the lack of proper pre-school education is a reason for the backwardness of primary education. Pre-school activities, which require proper guidance and supervision, are most effective when operated under government control (National Education Commission, 2023). Pre-schools are operated by several government and non-government organisations in the Batticaloa district. Between them, they are teaching children literacy and numeracy skills for Grade 1, exceeding the national preschool targets. In the implementation of the Arts Program in the Batticaloa District, significant differences exist between the teaching and learning resources of urban preschools and those in rural areas. The primary factor in implementing the curriculum is the presence of qualified teachers. Preschool teachers in the Batticaloa district have different qualifications. There are also considerable differences in the training they have received. While preschool education is becoming increasingly modern worldwide, those who operate preschools in the Batticaloa district are often unaware of its importance. In most preschools in the Batticaloa district, traditional teaching and learning activities are conducted, including arithmetic, writing, and reading. In this situation, adopting such a strategy is the need of the hour. Accordingly, the Eastern Provincial Council has put forward recommendations to identify and address gaps in curriculum implementation practices in pre-schools.

Objectives of the study

The study aims to identify the current situation of curriculum implementation in the pre-schools managed by the Eastern Provincial Council and propose practical suggestions. Specifically, the objectives are:

1. To determine the availability of physical and human resources for curriculum implementation.
2. To investigate and describe the practices related to the implementation of the curriculum in these preschools.
3. To identify the effectiveness of the curriculum implementation process.
4. To identify the gaps in curriculum implementation and to propose suggestions for effective curriculum implementation.

Methodology

From the 146 preschools managed by the Eastern Provincial Council, 30 preschools and 30 preschool teachers were selected through the stratified sampling technique, with two teachers per preschool. In addition, the sample included the preschool managers, the assistant directors of education responsible for non-formal education at the Zonal Education Office, and the director managing the Eastern Provincial Council schools. Questionnaires, observations, and interviews were used as data collection methods. To collect data from preschool teachers, questionnaires were used, and the implementation activities of the preschool curriculum were observed. The preschool managers, assistant directors of education, and provincial council school managers were interviewed. Data were collected quantitatively and qualitatively, and the quantitative bases were subjected to descriptive analysis. The results were presented in the form of tables, graphs, scatter plots, and descriptive statistics.

Discussion & Findings

The examination Centre is also a priority in most preschools in the Batticaloa district. In the city and towns, many parents want more training in numeracy, writing, and reading. Munasinghe

(2002) has stated that there are no systematic evaluation and assessment methodologies for preschool activities, and that preschool curricula should be developed to enhance listening skills in preschools. The qualifying examinations (in-class) taken in preschools affect the ability of children to make decisions, and the money spent on this will be wasted. Those who do not engage in sufficient activities in preschool tend to fail in formal schools (Barnett, 2005).In preschool, activities that are not typically taught in formal schools are adopted (Mary, 2012). The most important thing to give a child in the preschool years should be hands-on experience. Their knowledge development is achieved when they are involved in creative activities. Only through proper preschool education can a child receive a proper early education (Abeypala, 2010). Schools should also implement structured programs to prepare the child (Morrison, 2025).

In 58.6 per cent of the preschools, students who have achieved above the cut-off mark are enrolled, while in 33.2 per cent of the preschools, students who have achieved below the cut-off mark are enrolled. In 33.3 per cent of the preschools, a monthly fee is charged that exceeds the cut-off mark. In 37.7 per cent of the preschools, a fee is charged that is lower than the cut-off mark. In 33.3 per cent of the preschools in the city, 20 per cent of the preschools in the towns, and 62.5 per cent of the preschools in the villages, there is a shortage of preschool teachers. In the city, except for the whiteboard and chairs, the other facilities are very satisfactory. In cities, 40% of preschools lack basic amenities such as desks, cupboards, and blackboards, while none of the preschools have access to essential items like whiteboards or pens. In villages, 37.5% of the kindergartens have satisfactory classrooms, while 33.3% of the kindergartens have satisfactory classrooms. In contrast, 100% of the teachers have satisfactory desks, cupboards, and blackboards in cities, whereas in villages, these facilities are satisfactory in only 37.5% of the kindergartens. In cities, 20% of the kindergartens have satisfactory classrooms and blackboards, while in 40% of the kindergartens, none of them are found. In villages, 16.8% have satisfactory whiteboards and 8.4% have desks. This analysis examines the teaching aids used in kindergartens. In urban and rural preschools, there is a 60% shortage of toys, seesaws, mats, reading books, puzzles, and musical instruments, as well as an 80% shortage of musical instruments, building blocks, and other educational materials.

Table 1

Available Learning Equipment.

Equipment	Available	Available but not satisfactory	No
Black board	35%	37%	28%
Sports equipment	24%	37%	39%
Small paper cards	54%	23%	23%

Source - Provincial Department of Education, Eastern Province, 2024).

In the Batticaloa district, 85 preschools are less than 1000 square feet. Fifty preschools lack adequate equipment for their children. A survey conducted jointly by the Ministry of Social Welfare and the Children's Secretariat in 2023 revealed that 46 preschools are located in separate buildings, and 38.4 preschools are operating with limited facilities.

The internal and external environment of preschools in the Batticaloa district is shown. Compared to villages, sandboxes and reading corners are better organised in cities and towns. Sandboxes and reading corners are not organised in any preschool in the city. Electricity facilities are not available in 58.3 preschools in villages. 33.3% of preschools in cities and 37.4% of preschools in villages do not have a playground. 75% of teachers firmly support the statement that “the physical environment, buildings, materials, and equipment of preschools should be organised

in such a way that children can freely run, swim, and play" and that "children should be left alone with objects such as various shapes, circles, squares, spheres, etc." The Montessori Method and the drama method are used to a lesser extent in the city than in the countryside. Similarly, the kindergarten method is used to a lesser extent in both urban and rural areas. Other methods are used to a greater extent at all levels. The Montessori Method is more prevalent in government preschools and those under religious institutions, comparable to the prevalence in private institutions, and less prevalent than in non-governmental institutions.

Details of the pre-school teachers. Fifty-four seniors agreed with the statement that the responsibility of raising children has been entrusted to preschool teachers. However, 46 seniors disagreed with this statement. Seventy-five senior pre-school teachers firmly agreed that pre-school students should be given opportunities to engage in self-creation and that literacy teaching activities should be carried out in pre-schools, taking into account the child's developmental stages. 45.6% of teachers strongly agreed that teachers with special education qualifications should work as preschool teachers, and that children who do not receive friendship, love, and support in preschools will face difficulties in socialising with others as they grow up. 80% of teachers strongly agreed that "teaching activities in preschools should be conducted in a way that builds self-confidence in children." There are no restrictions on the educational qualifications or training courses for preschool teachers in the Batticaloa district. There is a high rate of early retirement and frequent replacements. The salaries of preschool teachers range from 5,000 to 45,000, while there is a wide range in their educational qualifications. Five per cent of those serving are graduates, and 58 per cent are under the ordinary level. Preschool teachers often lack training to ensure the full development of preschool students. 45.6 per cent are engaged in teaching for less than 1 month. 16.5% of the students have been involved in higher education for more than 1 year. Only 31.5% have obtained G.C.E. Ordinary Level. Only 20% have obtained G.C.E. Advanced Level. He said. In terms of the age of the sampled preschool teachers, 8.2% are older than the cut-off age. 50.6% of the preschool teachers are younger than the cut-off age. 29.9% of the preschool teachers are younger than the cut-off age, while 37.4% of the preschool teachers are older than the cut-off age. Of these, 16.6% have the longest service. 24.8% of pre-school teachers earn more than the median salary, 20.7% earn less than the median salary, and 8.2% earn more than the median salary.

Regarding the educational qualifications of preschool teachers, 75% of teachers working in the private sector have received diploma training in preschool education, and 25% are graduates. Fifty per cent of teachers working in government institutions have studied up to the G.C.E. level. 33.3% of those working in religious institutions and 30.8% of those working in non-governmental institutions have studied up to G.C.E. level. Seventy-five per cent of teachers working in the private sector have received diploma training, 33.4% of those working in religious institutions, and 38.5% of those working in government institutions. 28.6 per cent of government preschool teachers, 10 per cent of preschool teachers from non-government institutions, and 10 per cent of private preschool teachers have received less than 10 months of training. In the Batticaloa district, the professional education received by preschool teachers has had an impact on them equal to their secondary education. However, the education received regarding preschool administration and management has had a minimal impact. 29.2 per cent of the participants did not have a significant impact.

Twenty-five per cent of government preschool teachers and 8.2% of non-government preschool teachers received training for less than three months. 8.2% of non-government preschool teachers and 33.3% of religious preschool teachers received training for 4 to 6 months. Seventy-five per cent of government preschool teachers, 83.6% of non-government preschool teachers, and 66.7% of religious preschool teachers received training for 7-12 months. In the metropolitan area, 66.7% of preschools do not maintain health development reports, daily work plans, monthly work plans, student assessment books, and other relevant records. In rural areas, this is 25% and in urban

areas, it is 20%. Regarding the safety of preschools, 100% of preschools in the metropolitan area are considered safe, 80% of preschools in urban areas are safe, while only 43.8% of preschools in rural areas are safe. Additionally, 12.4% of rural preschools are found to be in a situation where there is no safety at all. If preschools in the Batticaloa district are to follow the generalised curriculum, 37.5% of the assistant directors of education said that teacher training should be provided under the general curriculum. An effective new preschool curriculum model can be designed by developing a new curriculum in collaboration with educational experts and incorporating play into the learning process.

Conclusions and Suggestions

Preschools are managed by Pradeshiya Sabhas, private individuals, religious institutions, and non-governmental organizations. Preschools in the Batticaloa district operate with minimal physical facilities. Most preschools in villages are unsafe. These general findings are largely consistent with the findings of surveys conducted at national and regional levels. The rehabilitation Centre is prioritized in preschools. Children are given physical punishment in preschools and are given extra work. A child-friendly environment was not observed in most preschool classrooms. Adapting preschool classrooms to a child-friendly learning environment involves creating a friendly, cohesive student group, creating a playful environment, adopting student-centered teaching and learning activities, and organizing the classroom into a creative classroom. It has been found that it is appropriate to adopt activities (Conceptual Method), such as applying to develop basic human strength in the child, through which the child should have more activities and experiences in the preschool curriculum (Nelson,2016). In rural pre-schools, the Grade 1 Art curriculum is also followed. Activities such as storytelling, free play, environmental activities, and the development of listening skills were given low priority or were not mentioned in this report. Recommendations: A national policy framework for pre-schools should be developed. Pre-schools should be allowed to start only after ensuring the adequacy and completeness of physical resources. Steps should be taken to adapt pre-school classrooms to a child-friendly learning environment. In pre-schools, the child should be involved in activities to adapt to the environment for a longer period of time. A project to educate the students in pre-schools should be undertaken, and systematic public policy should be maintained in matters such as teacher selection, teacher salaries, school location, provision of teaching aids, etc.

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Ethnic Harmony through Education: An Analysis of Sri Lanka's National Education Commission Policy Reports (1992–2022)

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Abstract

The ethnic issue of a country can be analysed using the criteria of educational policy. In Sri Lanka, educational policy is developed and forwarded to the President by the National Education Commission (NEC), established in 1991. Based on the suggestions of NEC, the Cabinet and Parliament can approve the country's educational policy. So far, five reports on educational policy have been published by NEC in 1992, 2003, 2009, 2016, and 2022. The research aimed to analyse the content of the reports to examine their relationship with the ethnic/ethnicity issue in Sri Lanka. The content analysis research method was used to analyse the content of five NEC reports, which were considered a purposive sample for the research. To analyse the content, the thematic analysis method was used, considering the ethnic issue-related codes. Out of the eight / nine objectives presented in each report, between 1 and 3 objectives directly contribute to building national unity, social cohesion, and national identity. These three themes are directly / indirectly related to the ethnic issue in Sri Lanka. Hence, it is valuable to consider objectives related to these three themes when analysing the school curriculum and further developing it for the future. Central ethnic-related ideas highlighted by the NEC reports were also identified. They are creating mutual harmony and equality (1992 Report), meeting the individual and national needs of all races (2003 Report), Integral development of the individual (2009 Report), Quality of living as one nation (2016 Report), and building a unified, peaceful, and patriotic citizen (2022 Report). Based on the findings, it was concluded that ethnic harmony is a crucial factor in achieving educational success. It is essential to monitor the achievement of these goals in the provision of education and curriculum development in a multicultural country like Sri Lanka.

***Keywords*:** Ethnicity, ethnic harmony**,** policy, curriculum, National Education Commission

Introduction

In Sri Lanka's multicultural society, where national identity is deeply intertwined with diverse ethnic and cultural backgrounds, education plays a crucial role in fostering harmony, understanding, and respect within the community. Sri Lanka's ethnic conflict has had a significant impact on national growth and social cohesion. Education, as a vehicle for ideological formation and cultural integration, is crucial in reducing ethnic gaps and promoting togetherness. In this context, the development of inclusive educational policies is crucial.

Education policy is a set of laws or rules that control the operation of the educational system. It aims to provide answers to issues regarding the purpose of education, the goals it is intended to achieve (social, personal, economic, and national), the methods for achieving them, and the tools for judging their success or failure. Because education affects people of all ages, education policy can be divided into several segments or stages within the educational system (Balasooriya, 2024).

Established in 1991, the National Education Commission (NEC) serves as the central authority for setting national educational objectives and recommending policies to Sri Lanka's President (Little, 2010). The National Education Goals of Sri Lanka emphasise not only imparting knowledge but also creating a holistic educational framework that inculcates values, civic responsibilities, and appreciation of cultural elements. These goals aim to develop not only academically competent individuals, but also socially and emotionally well-adjusted individuals

who are enriched by Sri Lanka's diverse heritage (NEC Report, 1992-2022). Empirical evidence regarding the extent to which the national educational objectives, established to foster an individual enriched by diverse heritages, have achieved this task is scarce (Balasooriya, 2024). Considering the need to address this research gap, the current research focuses on analysing the contribution of national education objectives to the promotion of national harmony.

Research problem

How do national education goals help to foster national harmony?

Although Sri Lanka is a multiethnic and multicultural country, the extent to which national educational programs promote ethnic harmony, social cohesion, and national unity is unknown. The National Education Commission (NEC), the primary authority responsible for developing educational policy, has issued numerous reports since its establishment. However, there is a need to critically examine how these policy papers address and respond to the ethnic issue in Sri Lanka, particularly in terms of educational aims. This study examines whether and how NEC policy reports from 1992 to 2022 reflect efforts to promote ethnic harmony and unity through education.

Objectives of the research

The research aimed to analyse the content of the NEC reports to see their relationship with the ethnic issue in Sri Lanka. The specific objectives were as follows:

1. To identify national education goals that contribute to national harmony
2. To investigate how national education objectives that contribute to national unity have gradually altered

Literature review

Multicultural education provides a well-established theoretical framework for examining how educational policies can foster or impede ethnic peace. At its core, multicultural education seeks to reform the ways information is selected, organised, and taught, so that schools become venues of equity, acknowledgement, and democratic involvement (Banks' five-dimensional framework) (Banks, 2014). The study was based on James A. Banks' theory of multicultural education. The extent to which the Bank's multicultural education components appear in the data analysis provides an analytical framework for examining national educational objectives.

A country's policies can impact its social cohesion. Nissanka (2023) states that the Ceylon Citizenship Act of 1948, which denied citizenship rights to Indian Tamils, was a prejudice inflicted upon the minority Tamil community due to policy. Furthermore, they mention that the Sinhala Only Act of 1956, which prohibited Tamil and English speakers from entering the civil service, was also a detrimental outcome to national cohesion caused by these policies. Educational policies can contribute to social cohesion and unity within a country, but they can also exacerbate ethnic tensions. In Sri Lanka, ethnicity, language, religion, and education are significant factors that have contributed to the emergence of ethnic conflicts (Thennakoon et al., 2025). The 1971 Standardisation Act significantly reduced opportunities for a large number of Tamil students to enter universities (Nissanka, 2023; Selvarathnam et al., 2024). Thus, it can be concluded that a country's policies have a direct impact on its national unity and cohesion.

In a study conducted by Malalasekara (2019) to investigate parental attitudes towards the success or failure of the trilingual education policy in fostering national reconciliation, it was concluded that the trilingual education policy is unsuccessful due to linguicism, and therefore, bilingual education is recommended for reconciliation. Although language is a powerful tool for peace building and promoting intercultural understanding, it can both divide and unite. Jayasooriya and Vickers (2025) reveal that the bilingual education policy introduced in Sri Lanka in 2002 has contributed to widening disparities between rural and urban communities, exacerbating social class

differences as well as ethnic differences. This poses a challenge to the democratic process of building sustainable peace.

In contrast to the aforementioned findings, Wijesekera and Hamid (2022) reveal that students in multi-ethnic bilingual classrooms socialise and interact beyond ethnic and linguistic boundaries. The researchers state that the medium of instruction policy in a multi-ethnic society is linked to outcomes that promote social cohesion. Balasooriya (2024) reveals that the education sector in Sri Lanka has formulated more attractive and meaningful policies to enhance the quality of education and maintain standards of educational achievement. They further state that educational policies should meet the real needs at the grassroots level and that integrated policies should be encouraged. Overall, an examination of the above research findings indicates that Sri Lanka's education policy has contributed, to varying degrees, to either fostering national unity or creating ethnic problems. Furthermore, in achieving the national objectives delivered through education policy, it is essential to address the needs of a multicultural society.

Methodology

A qualitative research approach was employed, with content analysis serving as the primary research method. The purposive sample comprised five NEC reports published in 1992, 2003, 2009, 2016, and 2022. Thematic analysis was employed to identify and interpret latent and overt themes related to ethnic concerns. A coding framework was devised that focuses on three primary constructs: national unity, social cohesion, and national identity, all of which are directly related to ethnic harmony in Sri Lanka.

Findings and Discussion

The analysis revealed that, while each NEC report contained eight to nine national education objectives, only one to three of these objectives were explicitly or implicitly aligned with the goals of fostering national unity, improving social cohesion, or promoting a shared national identity. These objectives are directly tied to the broader ethnic issue, since they help to provide an inclusive and equal educational environment for all ethnicities. Notably, each NEC report emphasized at least one core value or vision for ethnic harmony: "Creating mutual harmony and equality" (1992), "Meeting the individual and national needs of all races" (2003), "Integral development of the individual" (2009), "Quality of living as one nation" (2016), and "Building a unified, peaceful, and patriotic citizenry" (2022). These expressions represent a gradual but consistent recognition of the significance of ethnicity-related problems in educational policy formation.

Additionally, in the Commission reports published from 1992 to 2022, three of the goals from 1992 to 2009 emphasised national unity, highlighting the importance of national integration in a society marked by ethnic conflict. However, in the reports published after 2009, there is only one goal that highlights national unity and coexistence. According to the data, the 2016 and 2022 reports have fewer goals highlighting national unity compared to the 1992, 2003, and 2009 reports.

Although the portrayal of ethnic themes is limited in number, the qualitative relevance of the outlined goals is notable. The frequent inclusion of unity-related goals demonstrates a long-term commitment to fostering an inclusive national identity. However, the lack of precise frameworks or implementation strategies limits the ability for these goals to result in transformative change. This reflects a broader pattern in post-conflict education systems, where policy goals are often not effectively translated into systemic improvement. The findings underscore the importance of a deliberate and sustained emphasis on promoting ethnic harmony and fostering an inclusive national identity in educational policymaking and curriculum development. Multicultural countries like Sri Lanka must incorporate concepts of diversity, equity, and mutual respect into their education systems.

Table 01

Evolution of the national education goals that contribute to national harmony

Years	How the goals are introduced	Expected outcome	Total goals	Directly related to coexistence and harmony
1992	National education goals	Creating mutual harmony and equality	9	3
2003	National goals and core competencies	Meeting the individual and national needs of all races	8	3 1 ^ competences&
2009	National common goals	Integral development of the individual	9	3
2016	National goals	Quality of living as one nation	9	1
2022	National education goals ^NEGs& National learning competency domain ^NLCDs&	Building a unified, peaceful, and patriotic citizenry	8	1

Conclusions

The analysis emphasises the importance of viewing educational policy as a strategic tool for advancing ethnic reconciliation in Sri Lanka. National education objectives must expressly include the concepts of diversity, inclusiveness, and social justice. Furthermore, these ideas should be incorporated into curriculum design, textbook content, and teacher education programs. In heterogeneous societies like Sri Lanka, education must not only reflect but also actively promote a culture of peace and harmony. Furthermore, this study analyses only national education goals rather than other content. It is the limitations of the study.

This study contributes to the discussion of peace education and multicultural curriculum reform in post-conflict cultures. It highlights the transformative significance of education policy in promoting long-term social peace and national reconciliation, rather than solely as a technical tool.

One of the principal limitations of this study is its exclusive focus on analysing national education goals, thereby overlooking other substantive content, contextual factors, and policy perspectives articulated in the NEC reports. This narrowed scope may limit the comprehensiveness of the findings and their potential applicability to broader educational policy discussions.

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Incorporating 21st-Century Skills in Professional Subjects Component of The National College of Education

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Abstract

This research paper examines the extent to which 21st-century skills are integrated within the existing professional subject component at the National College of Education (NCOE), with a focus on two key subject areas: Educational Psychology and Educational Guidance and Counselling. The study analysed the subject content, lesson planning, and assessment practice to determine the extent to which 21st-century skills are addressed. The study employs an explanatory sequential mixed-method design, involving a sample of 160 first-year and 214 second-year prospective teachers, along with 48 teacher educators from four NCoEs. Data collection methods include content analyses, lesson planning, assessment practices, and focus group discussions to identify areas of curricular enhancement. Findings reveal that the curriculum primarily emphasizes learning skills, with other crucial 21st-century competencies (including information, media, and technology skills, as well as life and career skills) receiving limited attention. Evidence from lesson planning and assessment practices indicates that students actively engage with learning skills, but opportunities for fostering a broader set of 21st-century competencies are underutilized. Focus group discussions with prospective teachers at the National College of Education revealed a notable awareness gap regarding the full spectrum of 21st-century skills. While participants are adept at employing some skills—such as critical thinking, creativity, communication, collaboration, and technology literacy—in their teaching and lesson planning, their familiarity with other dimensions of 21st-century skills is limited. Based on these findings, a curriculum framework will be developed to institutionalize the comprehensive integration of 21st-century skills across all professional subjects at the National College of Education. This framework will serve as a blueprint for guiding lesson planning, teaching, and assessment, ensuring future educators are equipped with both foundational and advanced competencies necessary for their professional success.

Keywords: 21st-century skills, professional subjects, curriculum, National College of Education, prospective teacher

Introduction

National Colleges of Education in Sri Lanka provide a three-year pre-service diploma in education, referred to as "Vidyapeeta." This diploma comprises two years of institutional training followed by a year of internship conducted in a government school setting. The curriculum encompasses a variety of specializations, including but not limited to primary education, English language, Mathematics, Science, Islamic studies, and the Sinhala language. Teacher trainees are required to engage in the professional subject component, specialized subject area, general subject area, educational practice, and co-curricular activities throughout their two years of academic instruction. The program features a Professional Subject Component that includes disciplines such as Educational Psychology, Educational Guidance and Counseling, Educational Measurement and Evaluation, Principles of Education, and Educational Sociology.

Nonetheless, there exists a notable deficiency in research pertaining to the cultivation of 21st-century skills within the Professional Subjects Component of the NCoE, accompanied by an absence of established assessment methodologies to accurately evaluate the progression of these competencies among pre-service educators. 21st-century skills such as critical thinking, creativity, collaboration, communication, information literacy, and adaptability are vital competencies for

teachers. Integrating these skills into teacher preparation ensures educators can effectively foster these competencies in their students, preparing future generations for complex, rapidly changing environments. These skills are necessary to shift from rote memorization to higher-order skills development. The integration of 21st-century skills into the curriculum demonstrates considerable variability across National Colleges of Education, resulting in teacher trainees lacking essential knowledge, skills, and resources. Consequently, there is an urgent requirement to foster the development of 21st-century skills among pre-service teacher trainees.

Research Problem

Numerous investigations directed at the enhancement of 21st-century competencies are undertaken as supplementary activities; however, there exists a deficiency in research that examines the incorporation of these competencies within the formalized curriculum. Moreover, existing pre-service teacher education initiatives predominantly emphasize theoretical understanding, yet they exhibit a significant shortfall in the practical application of 21st-century pedagogical skills, thereby revealing a notable gap in pedagogical methodologies. There is an absence of implementable strategies for the formulation of teacher education programs that effectively teach 21st-century skills. Consequently, the focal point of my research inquiry is,

1. To what degree are 21st-century skills proficiently integrated and evaluated within the professional subject curricula of the National Colleges of Education?

By tackling this research inquiry, this study aims to provide critical insights that could enhance teacher education programs, commonly referred to as "Vidyapeeta." This program constitutes a three-year pre-service curriculum.

Objectives

The main objective was to investigate the extent to which 21st-century skills are embedded within the existing professional subject component in the National College of Education (NCOE). This is ongoing research. Still, the researcher has gathered the necessary details to achieve the 1st objective only.

The current research is conducted under four specific objectives.

1. Explore the approaches and strategies adapted to develop 21st-century skills.
2. Explore the barriers in integrating 21st-century skills into the curriculum.
3. Design and implement a curriculum framework to enhance the inclusion of 21st-century skills in professional subjects curricula.
4. Evaluate the impact of the intervention.

Literature Review

The incorporation of competencies essential for the 21st century into educational curricula has attracted considerable focus from educators and policymakers alike. Consequently, a review of both theoretical frameworks and empirical investigations has been conducted as follows.

Multiple Intelligence Theory - Howard Gardner

This theory posits that individuals possess a multitude of intelligences that extend beyond conventional metrics, such as IQ. This conceptual framework has the potential to significantly enhance the cultivation of 21st-century competencies by accommodating diverse learning modalities, fostering essential 21st-century proficiencies, encouraging lifelong learning, advancing inclusivity, and acknowledging individual abilities.

The Constructivist Learning Theory

The constructivist paradigm suggests that learners actively engage in constructing their own knowledge and comprehension through experiential learning and social interactions. Within the

framework of 21st-century skills, constructivist pedagogical methodologies are essential for enhancing critical thinking, problem-solving, and collaborative abilities. The theory posits that learners build knowledge upon existing schemas of prior experiences, thus necessitating that educators design learning opportunities that facilitate the active construction of knowledge.

P-21 Framework for 21st Century Learning – Partnership for 21st Century Learning

The P-21 framework for 21st-century education was developed with contributions from educators, educational specialists, and business executives to delineate and elucidate the skills, knowledge, expertise, and support mechanisms requisite for students' success in both professional and civic domains (Gelen, 2017). This framework continues to be employed by a multitude of educators and numerous educational institutions across the United States and internationally to prioritise 21st-century skills within the learning process. Each component of the framework is vital to ensure that every student is adequately prepared for the challenges of the 21st century. It offers a holistic approach to cultivating essential competencies for success in the contemporary milieu.

Empirical Research

Many studies, such as those by Diquitu et al. (2022) and Yurt (2023), have highlighted that pre-service teachers often demonstrate high proficiency in specific skills, including digital literacy, collaboration, and critical thinking. However, these investigations tend to focus on isolated skills or components, with insufficient emphasis on integrating all 21st-century competencies in a cohesive, curriculum-wide manner. There is a gap in understanding how these skills are systematically embedded across different subject areas and pedagogical practices, especially in diverse socio-cultural contexts.

Much of the existing research is contextually limited—often conducted at specific institutions or within specific teacher education programs—making it challenging to generalise findings across different regions or national curricula. Furthermore, longitudinal studies tracking the development of these skills over the entire pre-service teaching period are scarce, leaving questions about how well these skills are retained and transferred into actual classroom practice.

Several studies, such as those by Mohamed et al. (2014) and Alahmad et al. (2023), highlight the challenges faced during implementation, including the practical application in diverse school environments and institutional resistance. However, comprehensive frameworks or models for competency-based curriculum design that address these barriers are underdeveloped. There is a gap in empirical evidence on effective teacher training models that systematically develop and assess all dimensions of 21st-century skills within real-world settings.

While some research explores teachers' perceptions and self-efficacy (e.g., the study on teacher perceptions), a lack of validated, standardised tools remains to measure the actual level of 21st-century skills acquisition. This hampers the ability to reliably assess progress and effectiveness of teacher education initiatives designed to foster these competencies. There is limited exploration of how emerging digital tools, AI, and online learning environments influence the development of 21st-century skills among pre-service teachers. As digital competence becomes increasingly vital, further research is needed to understand how technology-enhanced teacher training can better prepare educators for integrating innovative pedagogies.

The various social, cultural, and institutional factors affecting the development of 21st-century skills are underrepresented. Research is needed to examine how leadership, policy, and organisational culture influence the successful integration of these skills in teacher preparation programs. In summary, while some studies demonstrate promising levels of skills among preservice teachers, a significant need remains for research focusing on integrated curriculum models, context-specific applications, longitudinal assessment, standardised measurement tools,

and the influence of technological advancements. Closing these gaps will support the development of robust, comprehensive, and adaptable teacher education frameworks for the 21st century.

Methodology

This study employs a mixed-methods research design, starting with quantitative data collection and analysis, followed by a qualitative exploration to explain and expand upon the quantitative findings. This sequential design provides a comprehensive understanding of both the breadth and depth of 21st-century skills integration in teacher education programs. The study sample consists of 160 first-year and 214 second-year prospective teachers from four National Colleges of Education (NCoEs) and 48 teacher educators from the same institutions. Data were collected through a combination of questionnaires, content analyses, semi-structured interviews, and focus group discussions, allowing for triangulation and validation of findings.

A descriptive research approach was employed to analyse the problem, with a stratified random sampling technique used for participant selection. The population was divided into subgroups based on characteristics such as year of study (first-year or second-year), medium of instruction, and specialisation. Participants were then randomly selected from each stratum to ensure proportional representation. The study employed several data collection and analysis tools to provide a comprehensive view of 21st-century skills integration:

- Document Analysis**:** Examination of curriculum materials (syllabi, lesson plans, and assessments) to identify explicit inclusion of 21st-century skills.
- Focus Group Discussions**:** Conducted with prospective teachers to gather collective insights and shared experiences.
- Qualitative Content Analysis**:** Used to systematically code and categorise textual data to evaluate the presence and alignment of 21st-century skills within curricular materials.
- Thematic Analysis**:** Applied to qualitative data from interviews and discussions to identify recurring themes and perceptions related to 21st-century skill development.

Finally, mixed methods analysis was used to integrate both quantitative and qualitative findings, offering a more holistic understanding of how effectively 21st-century skills are embedded and fostered in professional subject curricula within NCoEs.

Discussion

The analysis revealed that learning skills, such as critical thinking and creativity, were incorporated in 78% of the reviewed professional subject curricula (Educational Guidance and Counselling, Educational Psychology). However, other essential 21st-century skills, such as information, media, and technology literacy, appeared in less than 30% of the curriculum documents. Focus group discussions corroborated these findings, with several prospective teachers expressing limited awareness of these broader skills, stating, 'We mainly focus on traditional skills; I am not familiar with the full range of 21st-century competencies.' These results highlight a pronounced imbalance in curricular emphasis, underscoring the need for comprehensive integration and targeted professional development for teachers.

While learning skills are well-represented in current teaching practice, there is an urgent need to broaden the focus and systematically incorporate the full spectrum of 21st-century skills. Emphasise that curriculum reform, targeted training, and updated assessment practices are necessary to address these gaps, leading to more capable teachers and better-prepared students. Many participants were unaware of 21st-century skills beyond the learning domain, indicating a gap in both curriculum content and professional understanding.

Conclusion

The findings suggest that many prospective teachers are not fully aware of the full range of 21st-century skills. While their lesson plans and assessment tools consistently address learning skills such as critical thinking, creativity, communication, and collaboration other essential areas, including information, media, and technology literacy, as well as life and career skills, are often overlooked. Teacher candidates primarily focus on traditional learning skills, with little recognition or implementation of the broader set of 21st-century competencies. In both planning and assessment, learning skills are commonly integrated and practised, yet other vital skills remain underrepresented. This highlights the need for enhanced curriculum frameworks and targeted professional development to build awareness and facilitate the practical incorporation of all 21st-century skills in teaching and assessment.

Despite yielding valuable insights into the integration of 21st-century skills within professional subjects, this study has several limitations. First, the sample was drawn from only four National Colleges of Education. The cross-sectional design captures perceptions and curricular content at one point in time, precluding longitudinal analysis of how skills develop or change throughout teacher education and into professional practice.

Third, the study primarily focuses on the professional subject's component and does not deeply explore integration within specialised subject areas or general education courses, leaving gaps in understanding the holistic preparation of pre-service teachers. Further research could examine alignment across all curricular components. Future studies should also consider broader systemic and contextual factors, such as institutional support, teacher educator capacity, policy frameworks, and cultural influences, that shape the integration of 21st-century skills. Employing longitudinal, comparative, and intervention-based designs can provide richer evidence to inform policy and practice. Overall, advancing research on comprehensive, contextually grounded, and dynamically adaptive teacher education frameworks is critical to preparing future educators to meet the evolving demands of 21st-century teaching and learning.

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Cognitive Engagement of Biology Students through Self-Regulated Interventions: A Thematic Review

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Abstract

This thematic review examines how Self-Regulated Learning (SRL) strategies enhance cognitive engagement in educational settings, particularly in biology education, by synthesising key themes from existing literature and identifying pedagogical approaches that foster active, reflective, and independent learning. Biology, the scientific study of living organisms, is taught at the G.C.E. Advanced Level (A/L) to develop students' personal, interpersonal, and cognitive skills, enabling them to seek solutions to contemporary issues faced by humankind (Biology Syllabus, 2017). Student engagement is crucial in achieving these objectives, as it fosters meaningful participation and sustained involvement in the learning process. Among its key dimensions, cognitive engagement – the deliberate use of thinking strategies during learning or problem solving represents a dynamic and evolving aspect of the educational process. Understanding the contextual aspect of cognitive engagement is crucial for educators, as they can devise relevant and engaging learning tasks to promote cognitive, metacognitive, and motivational development in students. Self-regulated learning (SRL) is recognised as a learning approach that empowers students to assume control over their cognitive engagement, resulting in improved learning outcomes and academic performance in the classroom context. The intricate and dynamic relationship between cognitive engagement and SRL is revealed through the thematic analysis of relevant literature from education and social science databases. The Framework of Self-Regulated Cognitive Engagement (FSRCE) model, developed by Alam and Mohanty, provides a comprehensive understanding of the intrinsic dynamics between SRL and cognitive engagement and their potential to enhance learning experiences, which in turn contributes to academic accomplishment. Grounded in this model, it facilitates the incorporation of a self-regulated learning approach to improve students' cognitive engagement, aligning with the tenets of pragmatism.

Keywords: Student engagement, cognitive engagement, Self-Regulated Learning (SRL), Framework of Self-Regulated Cognitive Engagement (FSRCE) model

Introduction

Student engagement has been identified as an important concept in education because it has a profound impact on enhancing student outcomes (Hart, Stewart, & Jimerson, 2011). It encompasses the time and energy students invest in educationally purposeful activities, as well as the efforts undertaken by the institution to provide effective educational opportunities for students (Alba & Fraumeni, 2019). Hence, it is a function of both the individual and the context, and the extent to which students engage in learning activities may vary depending on the classroom environments or school contexts in which they learn (Cleary & Zimmerman, 2012). Engaged students are emotionally invested in their learning, sustain their concentration on the task for extended periods, and are prompt to seek new learning opportunities to deepen and extend their understanding (Perry, 2022). Among the three dimensions of student engagement, the cognitive processing a student brings to academic tasks, as well as the amount and type of strategies a student utilises, is interpreted as cognitive engagement (Walker, Greene, & Mansel, 2006, as cited in Hart, Stewart, & Jimerson, 2011). Hence, cognitive engagement has a more profound effect on the active involvement of the learner in the teaching learning process (Alam & Mohanty, 2024).

The Biology syllabus for G.C.E. A/L has been designed to develop students' personal, interpersonal, and critical thinking skills in the field of Biology (National Institute of Education, 2017). The syllabus includes practical work as part of the learning process in biology to enhance student engagement, develop skills, and help them understand the process of scientific investigation, thereby fostering an understanding of concepts (National Institute of Education, 2017). Concurrently, the biology syllabus aims to develop students' ability to plan and investigate processes, as well as solve problems in the field of biology, demonstrating the subject's practical implications and underscoring its applied value (National Institute of Education). In addition, a curriculum rationalisation process was implemented for A/L classes (Grade 12 and 13) since 2017, with the primary objective of transforming the student population into a human resource rich with the skills and competencies required for the world of work. The rationalisation process emphasised the significance of implementing student-centred and activity-based education (National Institute of Education, 2017). Coinciding with the above aims and objectives of biology education in A/L, National Educational Goals formed by the National Education Commission in the development of the National Learning Competency Framework (2020-2030) also intend to foster productive individuals with curiosity, critical thinking, problem-solving skills, creativity, and innovativeness through the Sri Lankan education system.

However, specific issues have been identified in the teaching-learning process of the school education system, which obstruct students from achieving the expected knowledge, attitudes, and skills. According to the National Education Commission (2022), most teachers have not been adopting student-centred and activity-based approaches in the teaching and learning process, and continue to practice a passive, teacher-centred, one-way process. An overburdened curriculum with a heavy load of subject content from Grade 6 to 13 is identified as another key issue in general education (NationalEducation Commission, 2022).

In parallel, the Department of Examination data (2014-2023) indicates that approximately 30% of students failed in Biology, more than 30% were able to obtain only a simple pass, and less than 5.6% of students received an A pass for Biology in A/L in those years. This suggests that a significant number of students were unable to achieve the expected learning outcomes to a satisfactory level during the two-year Biology Advanced Level course. This condition highlights the necessity of transition in the teaching-learning process of biology in A/L from traditional teacher-centred methods of teaching to a student-driven approach, including constructivist teaching methods and an empowered learning environment to enhance learner engagement.

Nevertheless, despite the growing emphasis on cognitive engagement through Self-Regulated Learning, its applications in biology education remain underexplored, underscoring the need for focused research in this domain. Hence, this thematic review aims to identify possibilities for incorporating Self-Regulated Learning (SRL) strategies to enhance cognitive engagement in senior secondary biology education, including the exploration of conceptual frameworks that support effective implementation.

Methodology

The literature was reviewed and analysed thematically to identify recurring patterns and concepts related to self-regulated learning (SRL) and cognitive engagement in Biology education. Relevant publications were retrieved from academic databases, including JSTOR, ScienceDirect, Scopus, and ERIC, as well as online scholarly platforms such as Google Scholar and ResearchGate, using the keywords "cognitive engagement," "self-regulated learning (SRL)," "biology education," and "constructivism." The thematic analysis was conducted following the six-phase framework proposed by Braun and Clarke (Braun & Clarke, 2006 as cited in Ahmad et al., 2025): (1) Familiarization with the data, (2) Generating initial codes, (3) Searching for themes, (4) Reviewing themes, (5) Defining and naming themes, and (6) Producing the report. The process began with repeated reading of the selected literature to identify meaningful patterns, followed by systematic

coding of data segments related to SRL and cognitive engagement. Codes were then collected into potential themes, which were reviewed, refined, and defined to capture their core meaning. The final themes were interpreted and synthesised within the conceptual lens of the Framework of Self-Regulated Cognitive Engagement (FSRCE) (Alam & Mohanty, 2024), highlighting their relevance to promoting cognitive engagement in Biology education.

Results and Discussion

The thematic analysis of literature revealed the role of cognition, metacognition and motivation in self-regulated learning ((Paul & Groot,1990; Lavasani, Mirhosseini, Hejazi & Davoodi, 2011; Alam & Mohanty, 2024) and cognitive engagement and their intertwined relationship as well as the numerous aspects related to cognitive engagement of biology students including teacher's role (Paris & Paris, 2001), self-regulated learning opportunities (Paul & Groot,1990; Perry, 2022), classroom environment (Perry,2022), laboratory environment (Veselenovska, Gudeva & Djokic, 2011, Jaufer,2011, Ekanayake,2020) and technology involvement in senior secondary biology education (Bond & Bedenliner,2019).

Among the three dimensions of student engagement, cognitive engagement is the key domain in supporting learning (Pickering, 2017), which is a dynamic endeavor that entails continuous adjustments depending upon the specific task and content at hand. It is also influenced by the student's level of interest, motivation, existing competencies, and knowledge. It comprises both qualitative and quantitative dimensions. Qualitative dimension is related to the depth and intricacy of the cognitive process involved during a task, which may encompass higher-order thinking skills, whereas the amount of cognitive effort and cognitive resources devoted to the task is referred to as the quantitative dimension. The intensity of the involvement of these dimensions may vary depending on the assigned learning task (Alam & Mohanty, 2024).

Self-regulated learning (SRL) approach optimizes the cognitive engagement of students by empowering them to take control over their cognitive process (Alam & Mohanty,2024) and supporting them to be metacognitively, behaviourally, and motivationally active in their learning (Kuo,2010). Cognitive engagement and SRL are intertwined, as the level of cognitive engagement impacts self-regulation, and on the other hand, the self-regulation process guides and amplifies cognitive engagement. There are three aspects of self-regulated learning strategies, which appear particularly important for classroom performance;

- Students' metacognitive strategies for planning, monitoring, and modifying their cognition.
- Students' management and control of their effort on the classroom academic task.
- Conceptualization, which is a cognitive strategy that students use to learn, remember, and understand the material.

(Pintrich & Groot, 1990)

Hence, this integrated approach offers the potential to enhance students' learning outcomes and empower them to become more effective and self-regulated learners (Alam & Mohanty, 2024).

Further extant literature reveals a model, the Framework of Self-Regulated Cognitive Engagement (FSRCE) (Alam & Mohanty, 2024), which integrates SRL and cognitive engagement in the teaching and learning process for the holistic development of students. This model is a comprehensive conceptual framework that bridges the domains of Self-Regulated Learning and cognitive engagement, and has the potential to nurture and sustain students' cognitive engagement throughout the learning process, thereby ensuring improved academic performance (Alam & Mohanty, 2024).

The five core principles that form the foundation of the FSRCE model include:

1. Dynamic SRL Loop: (The continuous process of students managing their cognitive engagement throughout the learning process)
2. Cognitive engagement dimensions: (The two dimensions of cognitive engagement: Cognitive engagement depth and Cognitive engagement strategies)
3. Individual and contextual factors: (This includes intrinsic motivation and goal orientation, self-efficacy beliefs, contextual factors such as teacher support, peer collaboration, and availability of learning resources)
4. Ongoing adaptation and optimisation: (Students adapt and enhance their cognitive engagement based on the evolving demands of the learning and the feedback they receive)
5. Integration of cognitive and behavioural engagement: (Integration of the depth of involvement representing cognitive engagement and observable actions and participation in learning activities depicting the behavioural engagement is crucial for achieving optimal learning outcomes.)
6. SRL Loop as the core mechanism underpinning the FSRCE model

The SRL Loop serves as the backbone for integrating SRL and cognitive engagement, displaying the iterative and cyclical nature of self-regulated learning, which involves multiple rounds of feedback and revision. It encompasses four distinctive phases that contribute to the overall process of cognitive engagement.

Forethought phase: In this phase, students analyse the learning tasks, set clear and specific goals, and develop plans to achieve those goals.

Performance phase: It is the stage where students employ a range of self-control processes, including self-instruction, attention focus, and the use of various cognitive and metacognitive processes, ensuring the effectiveness of their learning.

Monitoring and feedback loops: Students actively monitor their cognitive engagement levels during the forethought and performance phases, and the external feedback from various sources provides additional insights for their evaluation. This phase reflects the iterative nature of self-regulated cognitive engagement.

Self-reflection phase: This phase primarily involves metacognitive processes as students assess the extent to which their cognitive engagement contributed to the expected learning outcomes. Students cognitively reflect on their strategies, identify the areas for further improvement, and make informed decisions about future cognitive engagement.

As FSRCE model lies a strong foundation for understanding the interplay between SRL and cognitive engagement, it is important to conduct empirical studies to test its validity and applicability in real-world educational settings, develop assessment tools and instruments to measure the various dimensions of cognitive engagement in FSRCE, explore opportunities to develop innovative pedagogical approaches, technology-enhanced learning environments and feedback mechanisms for encouraging students to regulate their cognitive engagement effectively (Alam & Mohanty, 2024).

Conclusions

In senior secondary biology education, issues such as predominant reliance on teacher centred instructional methods in delivering the subject (Strengthening science education in Sri Lanka, 2011), regular reliance on written assessment strategies in preference to student centred assessment strategies (National Education Commission, 2022), exam oriented learning process (National Education Commission, 2022) and lack of open-endedness (Jaufar, 2011; Ekanayake, 2020) and technology involvement (Ekanayake, 2020) in laboratory work suggests lack of student engagement in the teaching learning process.

Self-Regulated Learning (SRL) strategies appear to be a promising approach for enhancing students' cognitive engagement and academic outcomes. The FSRCE model is a conceptual framework that offers valuable insights to support the integration of SRL and cognitive engagement for accommodating the changing dynamics in the learning process (Alam & Mohanty, 2024), as it.

- Emphasises the cyclical nature of SRL and ongoing adaptation.
- Offers a comprehensive understanding of the complex interplay between SRL and cognitive engagement.
- Considers the individual and contextual factors in incorporating SRL and cognitive engagement.
- Empowers educators to foster an environment that nurtures and sustains students' cognitive engagement throughout the learning process.
- Offers a blueprint for students to be active learners, optimising their cognitive engagement and achieving enhanced learning outcomes.

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The Gender Shift in Education: A Literature Review on the Causes and Consequences of the Feminisation of the Teaching Profession

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Abstract

The feminisation of the teaching profession represents a significant transformation within the global educational sphere, reflecting broader shifts in gender norms, labour market dynamics, and societal expectations. Historically dominated by men, formal teaching began to experience a demographic shift from the late 19th century, with a marked increase in female participation, particularly in primary and secondary education. This literature review critically examines the historical progression, driving forces, and educational implications of this phenomenon, with a particular focus on both global patterns and the Sri Lankan context. Utilising a qualitative integrative literature review methodology, data were gathered from peer-reviewed academic journals, institutional reports (including those from UNESCO), and official statistics from Sri Lanka's Ministry of Education, covering the period from 1970 to 2024. Thematic analysis guided the synthesis of findings across four key dimensions: historical developments, socio-cultural influences, professional conditions, and educational outcomes associated with teacher gender. The review reveals that the feminisation of teaching has been driven by factors such as the perception of teaching as an extension of maternal care, favourable working conditions for women, and state-led initiatives to increase female participation in education. In Sri Lanka, this trend is especially pronounced, with women comprising 76% of the government teaching workforce by 2022. While this shift has promoted employment equity, it has also introduced challenges, including the scarcity of male role models in early education and concerns about gendered classroom dynamics. The study concludes with a call for gender-balanced recruitment policies, increased attention to gender dynamics in pedagogy, and the development of inclusive strategies to enhance educational equity and student outcomes.

Keywords: Feminisation, teaching profession, gender disparity, role modelling, educational equity

Introduction

The teaching profession has undergone a significant shift in gender, evolving from a historically male-dominated field to one that is increasingly feminised. In early patriarchal societies, educational roles were reserved almost exclusively for men, with women confined to domestic responsibilities (Zinn, 2012; Rahayani, 2010). This male predominance continued into the 19th century, when teaching was considered a prestigious, male-led profession (Kelleher et al., 2011). However, the late 19th century witnessed an expansion of educational rights for women, leading to their increasing entry into the teaching workforce.

This transformation is defined by Cacouault-Bitaud (2001) as *professional feminisation*, whereby a profession becomes numerically and symbolically dominated by women. In education, this has been influenced by gendered perceptions of teaching as nurturing and flexible work suited to women (Kelleher, 2012; Goff & Feuvre, 2017). Globally, women comprise 55% of teachers (UNESCO, 2022); in Sri Lanka, the figure reaches 76.1% (Ministry of Education, 2022).

While feminisation has improved employment equity, concerns have emerged about its impact on student education. Studies show that male students are more likely to experience disengagement, lower academic performance, and higher dropout rates in the absence of male role models (UNESCO, 2006; Aturupane et al., 2018). Research also indicates that gender dynamics in

classrooms, such as teacher-student gender congruence, can influence learning outcomes (Skelton, 2002; Veldwijk, 2024).

The core research problem lies in the underexplored educational implications of the feminisation of the teaching profession**.** In highly feminised contexts like Sri Lanka, the gender imbalance may affect classroom interactions, student achievement, and role modelling opportunities, particularly for male students. Despite its significance, limited research has critically examined these impacts, underscoring the need for a deeper investigation into the gendered dimensions of teaching and learning.

Objectives

1. Examine the historical context of gender roles in education, emphasising patriarchal structures that excluded women and the gradual changes enabling their entry into teaching.
2. Analyse socio-cultural, economic, and institutional factors contributing to the feminisation of the teaching profession.
3. Explore global and national trends in teacher feminisation, with a particular focus on Sri Lanka.
4. Evaluate the educational implications of this demographic shift for classroom dynamics, pedagogy, and student outcomes.
5. Consider issues of gender diversity, role models, and professional identity within the teaching profession.

Methodology

This study employs a qualitative integrative literature review methodology. The data corpus includes peer-reviewed journals, UNESCO reports, Sri Lankan Ministry of Education statistics (1970–2024), and historical literature. A thematic analysis framework was employed to synthesise insights from a diverse range of sources. Emphasis was placed on empirical rigour, cross-cultural relevance, and gender-related dimensions of teaching. The review focused on historical evolution, socio-cultural factors, global and local trends, and the educational consequences of gender imbalance in the teaching workforce.

Findings and Discussion

The literature investigation conducted on "Gender Shift in Education: Exploring the Causes and Consequences of the Feminisation of the Teaching Professions" presented the research objectives that were expected to guide the research.

Historical Context of Gender Roles in Education

The evolution of gender roles in education is deeply rooted in the patriarchal structures that have shaped human societies since antiquity. Reincount (1989) attributes early gender divisions to biological factors, such as women's reproductive roles and reduced physical strength, which excluded them from labour-intensive tasks like hunting. This division of labour established early social norms in which men assumed public, economic, and educational authority, while women were relegated to domestic responsibilities and child-rearing. These roles were reinforced through gendered socialisation, preparing boys for leadership and girls for domesticity.

In ancient civilisations such as Mesopotamia and Egypt, educational authority was predominantly held by males. Siyu & Betty (2020) describe Mesopotamian society as curtailing women's access to political and educational spaces. Similarly, Zinn (2012) notes that in Egypt,

formal learning was primarily reserved for men, although Mahumud (2021) points out that elite women occasionally accessed educational opportunities, albeit within strict patriarchal confines.

During the European Renaissance (15th–17th centuries), educational access for women improved modestly. Xia (2023) notes that middle- and upper-class women began attending convent schools and vocational institutions, which contributed to their intellectual growth. Nevertheless, formal teaching roles remained male-dominated, and patriarchal ideologies continued to limit women's professional advancement in education.

Significant progress occurred in the 19th century when women were admitted to teacher training colleges, enabling their formal entry into the profession (Portugal, 2014). Teaching offered women social respectability and economic agency, yet it remained culturally aligned with caregiving and emotional labour.

In summary, women's historical exclusion from education and teaching was shaped by deeply embedded patriarchal norms. Over time, however, shifts in cultural, institutional, and policy frameworks gradually opened pathways for women, contributing to the ongoing feminisation of the teaching profession as both a social and economic transformation.

Driving Forces of Feminisation in the Teaching Profession

The increasing feminisation of the teaching profession results from the intersection of social, economic, cultural, and institutional dynamics that have encouraged female participation in education globally. At the core of this transformation is the long-standing societal perception of teaching as a natural extension of women's traditional caregiving roles. As Kelleher (2012) asserts, teaching is widely perceived as "women's work," closely associated with traits such as nurturing, patience, and emotional sensitivity. These gendered expectations have significantly shaped women's occupational preferences while influencing recruitment and retention patterns within schools.

Economic considerations have further reinforced this trend. Teaching typically offers job security, structured working hours, and extended leave during school holidays, features that align well with women's domestic responsibilities (Wedikandage, 2024). Simultaneously, wage structures and the relatively low occupational prestige of teaching have rendered the profession less appealing to men, especially in the context of expanding access to more lucrative career paths. Goff & Feuvre (2017) highlight how workplace conditions and societal views on occupational status influence the gender composition of professions, noting that roles perceived as low-paid and with limited mobility often attract more women.

Institutional reforms, particularly during the late 19th and 20th centuries, also contributed to this shift. The expansion of teacher training programs and the enactment of gender-inclusive policies enabled more women to enter teaching (Cacouault-Bitaud, 2001). However, these policies frequently overlooked the persistence of deep-rooted gender stereotypes that continued to marginalise men in the field.

Interestingly, the "glass escalator" phenomenon (Williams, 2013) demonstrates that men, despite being a minority in teaching, often ascend more quickly into leadership roles (Reich-Shapiro et al., 2021). This duality underscores the enduring gender hierarchies within the profession. Understanding these forces is vital for addressing imbalances and fostering inclusivity in education.

Global and National Trends

The feminisation of the teaching profession is a widespread global trend, marked by a growing proportion of women in pre-primary, primary, and secondary education. According to UNESCO (2022), women constitute approximately 55% of the global teaching workforce. This trend reflects

the expansion of educational access for women, alongside enduring cultural associations between teaching and traditional female roles.

However, regional and sectoral disparities persist. Women dominate early education, while men retain stronger representation in tertiary institutions (UNESCO Institute for Statistics, 2024), reflecting structural norms that align early education with nurturing traits culturally attributed to women.

In Sri Lanka, feminization is particularly pronounced. Government data indicate that female teachers comprised 76.1% of the workforce by 2022, up from 53.4% in 1971 (Ministry of Education, 2022; Wedikandage, 2024). This significant imbalance has implications for student outcomes, particularly among boys. Research suggests that male students may experience disengagement and higher dropout rates due to the lack of male role models (Skelton, 2002; Aturupane et al., 2018). Several countries have launched initiatives to recruit more male teachers, yet gender imbalances persist due to entrenched norms and institutional barriers (UNESCO, 2023). Addressing these disparities requires deliberate policy action to promote gender diversity and inclusive learning environments.

Educational Implications of Feminization

The feminization of the teaching profession presents both benefits and challenges for educational outcomes, classroom dynamics, and student development. While the increased participation of women reflects progress toward gender equality in the workforce, it also raises concerns about the effects of gender imbalances in educational settings, particularly for male students. Aturupane, Shoja, & Ebenezer (2018) highlight that male students often experience disengagement and higher dropout rates, partly due to the scarcity of male role models in schools.

Gender imbalances also shape classroom interactions. UNESCO (2011) notes that teachers may engage more positively with students of the same gender, potentially leading to unequal expectations and feedback. Skelton (2002) suggests that a female-dominated teaching workforce can unintentionally privilege female students, affecting male learners' confidence and participation. Moreover, the association of teaching with nurturing roles (Kelleher, 2012) reinforces gender stereotypes that may limit pedagogical diversity. Feminized professions, including teaching, are also vulnerable to lower societal status and remuneration (Goff & Feuvre, 2017).

Despite these concerns, feminization has enhanced educational access and gender inclusion. However, to ensure equitable outcomes for all students, it is essential to promote gender diversity among teachers and create inclusive environments that reflect varied pedagogical strengths and student needs.

Gender Diversity, Role Models, and Professional Identity

Gender diversity within the teaching profession is vital for fostering educational equity and supporting students' holistic development. The presence of both male and female educators provides diverse role models who reflect the varied identities of learners. Positive teacher role modeling significantly influences students' motivation, self-concept, and social growth (Veldwijk, 2024). Male teachers, in particular, serve as important figures for boys, helping reduce disengagement and enhancing academic persistence (Aturupane et al., 2018). A lack of gender diversity may restrict students' exposure to varied pedagogical approaches and limit their social and cognitive development. According to UNESCO (2006), gender-balanced teaching teams challenge stereotypes and create inclusive environments where all students can thrive without conforming to rigid gender norms.

Professional identity is also shaped by gendered expectations. Teaching is traditionally associated with feminine traits such as nurturing and empathy (Kelleher, 2012), often

marginalizing male teachers or compelling them to adopt non-traditional roles. Furthermore, the "glass escalator" effect enables men in feminized professions to ascend more quickly to leadership roles, reinforcing gendered disparities (Williams, 2013). Promoting gender diversity requires targeted recruitment, stereotype-aware training, and inclusive school cultures. Such strategies enhance both teacher experiences and student outcomes by fostering more balanced and representative educational settings.

Conclusion

The feminization of the teaching profession reflects a significant socio-cultural and institutional transformation, shaped by evolving gender roles, labor dynamics, and educational policy reforms. This paper has explored the historical progression from male-dominated teaching roles to a predominantly female workforce, highlighting the interplay of societal perceptions, economic factors, and policy initiatives in facilitating this shift.

Global and national trends, especially in Sri Lanka, reveal a pronounced gender imbalance in the teaching workforce, with important implications for educational practice. The predominance of female teachers, while advancing gender equity, has contributed to reduced male representation, potentially affecting classroom dynamics, student engagement, and male learners' academic outcomes due to the scarcity of relatable role models.

Additionally, gendered perceptions of teaching as nurturing work have shaped teacher identity, often reinforcing stereotypes that limit professional autonomy and contribute to the undervaluation of the profession. The "glass escalator" effect further illustrates how male teachers may benefit from structural advantages despite their minority status, complicating efforts toward true parity.

To address these challenges, education systems must implement intentional policies that promote gender diversity through equitable recruitment, retention, and professional development strategies. Enhancing gender balance in teaching not only improves representational fairness but also enriches pedagogical approaches and supports inclusive student development.

In summary, while feminization signifies progress in women's participation in education, it also demands critical attention to its broader impacts. Achieving a balanced and inclusive teaching workforce is essential for delivering equitable, high-quality education that meets the needs of all learners.

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Validating Questionnaires for Cooperative Learning in Sri Lankan Secondary Mathematics Classrooms: Evidence from a Pilot Study

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Abstract

This study presents the validation process of student and teacher questionnaires developed to assess cooperative learning practices in Sri Lankan secondary mathematics education. As part of a broader research project aimed at enhancing student engagement, conceptual understanding, and academic performance through a blended cooperative learning module, this pilot study was conducted to evaluate the content validity, construct validity, and reliability of the instruments. Grounded in social constructivist theory and the theory of social interdependence, the study responds to a recognized need for culturally relevant, psychometrically sound tools in South Asian educational contexts. A design-based research approach was adopted, involving 30 Grade 12–13 Combined Mathematics students and 10 teachers from government schools in Kalutara and Monaragala districts. Content validity was established through expert reviews conducted by curriculum developers and experienced mathematics educators, leading to item revisions for clarity, cultural appropriateness, and curricular alignment. Construct validity was assessed through structured participant feedback collected during the pilot administration, which informed refinements to item structure and interpretability. Internal consistency was measured using Cronbach's Alpha, with the teacher questionnaire yielding a value of 0.728 and the student questionnaire achieving 0.896, both exceeding the acceptable threshold of $\alpha \geq 0.70$. Items that underperformed were revised or removed to enhance the instruments' psychometric quality. The findings confirm that both questionnaires are valid, reliable, and contextually appropriate for use in the full-scale study. This validated toolset provides a strong foundation for future research on the effectiveness of cooperative learning in Sri Lankan mathematics classrooms. It also contributes to the broader field by demonstrating the importance of localized instrument development in educational research and offering practical guidance for adapting cooperative learning frameworks in developing country contexts.

Keywords: Cooperative learning, mathematics education, questionnaire validation, pilot testing, Cronbach's Alpha

Introduction

Secondary mathematics education in Sri Lanka continues to face challenges related to student disengagement, limited conceptual understanding, and an overreliance on traditional, teacher-centered instructional methods. In response, a doctoral research study was initiated to design and implement a blended cooperative learning module tailored to the Sri Lankan educational context. As an essential preparatory phase of this study, a pilot was conducted to validate the student and teacher questionnaires developed to assess experiences with cooperative learning. This extended abstract outlines the validation process and findings from the pilot test.

Objectives

The primary objective of this pilot study was to evaluate the validity and reliability of student and teacher questionnaires. The study is guided by the following specific objectives and research questions:

Research Objectives

1. To evaluate the content validity of the student and teacher questionnaires designed to assess cooperative learning practices in secondary mathematics classrooms.

2. To assess the construct validity of the questionnaires through pilot testing with students and teachers.
3. To determine the internal consistency (reliability) of the questionnaires using Cronbach's Alpha.
4. To refine the questionnaire items based on feedback from experts and pilot participants to ensure clarity, relevance, and contextual appropriateness.

Research Questions

1. To what extent are the items in the student and teacher questionnaires valid in terms of content, as judged by subject experts and curriculum developers?
2. How effectively do the questionnaire items reflect the intended constructs when tested with Grade 12–13 mathematics students and teachers?
3. What is the level of internal consistency of the student and teacher questionnaires as measured by Cronbach's Alpha?
4. What revisions are necessary to improve the clarity, reliability, and contextual suitability of the questionnaires based on pilot test feedback?

Literature review

The validation of research instruments in educational research is a critical step that ensures methodological rigor, particularly when transferring or adapting pedagogical frameworks like cooperative learning to new cultural and contextual settings. In the context of Sri Lankan secondary mathematics education, where research on cooperative learning remains limited, the development and validation of reliable instruments to measure student and teacher experiences is both timely and necessary.

Cooperative learning has been widely recognized in the international literature as a pedagogical approach that promotes academic achievement, critical thinking, and student motivation (Slavin, 1995; Gillies, 2007). Grounded in social constructivist theory, particularly Vygotsky's (1978) concept of the Zone of Proximal Development, cooperative learning encourages learners to engage collaboratively with peers, allowing knowledge construction through scaffolding and shared problem-solving. The theory of social interdependence further supports this perspective by emphasizing the role of positive goal interdependence in enhancing individual accountability and group success (Johnson & Johnson, 1989). Together, these theories suggest that well-structured group learning environments can produce both cognitive and social benefits in mathematics education. Empirical studies across varied contexts, such as the United States, Australia, and parts of Asia, have consistently demonstrated the effectiveness of cooperative learning in improving mathematical reasoning, collaborative skills, and learner confidence (Webb, 2009; Kyndt et al., 2013). However, these findings cannot be uncritically generalized to the Sri Lankan context. Factors such as class size, exam-oriented curricula, teacher-centered practices, and limited professional development opportunities may mediate the effectiveness of such approaches locally (Perera & Wijesundara, 2020). Therefore, contextually validated instruments are essential for capturing nuanced responses from Sri Lankan students and teachers regarding cooperative learning practices.

Despite the growing global recognition of cooperative learning, a significant gap exists in the availability of validated instruments designed to measure its implementation and outcomes in South Asian educational contexts, including Sri Lanka. Research instruments developed in other countries often lack cultural relevance, linguistic appropriateness, and alignment with national curricular objectives (De Silva & Aturupane, 2015). Consequently, scholars recommend not only

the translation but also the rigorous adaptation and pilot testing of such tools before they are employed in full-scale studies (Beaton et al., 2000; Cohen et al., 2018).

In light of this gap, the present pilot study provides a crucial contribution by validating teacher and student questionnaires tailored specifically to the Sri Lankan mathematics classroom environment. By establishing content validity through expert consultation, construct validity through pilot testing, and reliability through statistical analysis (e.g., Cronbach's Alpha), the study ensures that the instruments are both psychometrically sound and contextually relevant. This process lays the groundwork for future empirical investigations into the efficacy of cooperative learning strategies in improving mathematics education outcomes in Sri Lanka.

Methodology

To ensure methodological rigor and contextual relevance, this pilot study adopted a design-based research (DBR) approach, which is well-suited for educational research aiming to develop and refine practical interventions through iterative testing and feedback in authentic learning environments (Design-Based Research Collective, 2003). The pilot phase focused specifically on the validation of student and teacher questionnaires intended for evaluating cooperative learning in Sri Lankan secondary mathematics classrooms. The sample consisted of 30 Grade 12–13 Combined Mathematics students, 15 each from government schools in Kalutara and Monaragala districts, and 10 mathematics teachers (6 from Kalutara and 4 from Monaragala). The pilot was limited to testing these two instruments. Content validity was established through expert reviews conducted by curriculum specialists and experienced mathematics educators. Their feedback informed modifications to item wording, clarity, and alignment with the national curriculum and classroom realities (Cohen, Manion, & Morrison, 2018). Construct validity was examined through structured feedback gathered during the pilot administration of the instruments. This step ensured that the questionnaire items appropriately reflected the theoretical constructs underpinning the study, including social constructivist learning principles and cooperative learning frameworks (Vygotsky, 1978; Johnson & Johnson, 1989). Finally, reliability was assessed using Cronbach's Alpha, a standard statistical method for measuring internal consistency. Both the teacher questionnaire ($\alpha = 0.728$) and the student questionnaire ($\alpha = 0.896$) exceeded the commonly accepted threshold of $\alpha \geq 0.70$, indicating a satisfactory level of internal consistency (George & Mallery, 2003).

Results and Discussion

The input provided by subject matter experts was instrumental in refining the terminology and eliminating ambiguities within the questionnaire items, thereby enhancing their clarity and contextual appropriateness for the Sri Lankan educational setting (Cohen, Manion, & Morrison, 2018; De Silva & Aturupane, 2015). Regarding the second objective, construct validity was evaluated through structured feedback obtained during the pilot administration of the questionnaires to 30 students and 10 teachers. Participant feedback contributed to the refinement of item structure and wording, ensuring that the constructs being measured, such as perceptions of cooperation, engagement, and instructional practices, were clearly represented and interpreted consistently. These refinements supported the theoretical coherence of the instruments with the study's underlying framework, grounded in cooperative learning theory and social constructivist principles. The third objective focused on establishing the reliability of the research instruments through statistical analysis of internal consistency. Cronbach's alpha was employed as the primary measure, yielding a reliability coefficient of 0.728 for the teacher questionnaire and 0.896 for the student questionnaire. These values exceed the commonly accepted benchmark of $\alpha \geq 0.70$, indicating satisfactory internal consistency (George & Mallery, 2003). Notably, all individual items within both instruments met this threshold, thereby affirming the overall reliability of the measures used in the study. These results indicate that both instruments are not only psychometrically robust

but also culturally and contextually appropriate for use in the full-scale implementation of the research.

Conclusions

This pilot study shows that the student and teacher questionnaires developed to assess cooperative learning in Sri Lankan secondary mathematics classrooms are both valid and reliable. The results directly address the study's key objectives by confirming that the instruments are well-designed to measure the intended learning experiences. Content and construct validity were established through expert feedback and participant responses, while reliability was confirmed using Cronbach's Alpha, with both questionnaires meeting accepted standards ($\alpha \geq 0.70$). This validation process gives strong support for using the tools in the next phase of the research. Many international studies (e.g., Slavin, 1995; Johnson & Johnson, 1989; Gillies, 2007) have shown that cooperative learning improves student performance, motivation, and participation. This study adds to that evidence by showing that similar strategies can be meaningfully studied in the Sri Lankan context using instruments adapted to local classrooms. Unlike general tools used in other countries, these questionnaires were reviewed and adjusted to suit the language, culture, and classroom settings found in Sri Lanka. This is important because education systems differ from country to country, and tools must reflect those differences to be useful. It is important that future research includes the views of all stakeholders: students, teachers, school leaders, and policymakers. As suggested by Cohen et al. (2018) and Kyndt et al. (2013), using mixed methods over a longer period will help capture how teaching strategies like cooperative learning work in real classrooms. It will also help identify what kinds of support teachers need to use these methods effectively. In conclusion, the successful validation of these questionnaires is a valuable step towards improving mathematics education in Sri Lanka. However, to make real changes, research must be connected to classroom practice and educational policy through a shared, evidence-based approach.

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Implementing CASEL's Three-Legged Stool for SEL in Classrooms in Sri Lanka: A Case Study

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Abstract

Global research over recent decades has recognised the significant benefits of Social and Emotional Learning (SEL) for students' mental wellbeing and academic learning. Sri Lanka has also acknowledged the importance of SEL, but its implementation in schools, especially for Senior Secondary students aged 15-18 years, remains inadequate. The Collaborative for Academic, Social, and Emotional Learning (CASEL) offers a model for implementing SEL within classrooms, referred to as the 'Three-Legged Stool for SEL in Classrooms'. The stool represents SEL implementation in classrooms and stands on three legs, which represent three approaches: (1) supportive classroom environments, (2) explicit instruction, and (3) integration of SEL and academic instruction. This study aims to investigate how the Three-Legged Stool model can be implemented in classrooms in a national school in Sri Lanka. The study will employ a mixed-methods case Study design and will be conducted at a Type 1 AB school. First, a needs and readiness assessment will be carried out, followed by the development of SEL programmes for Grades 10 and 12. These programmes will be implemented over the course of one academic year. At the end of the school year, the overall impact of the SEL implementation will be evaluated to determine the effectiveness of CASEL's model in a Sri Lankan context. Data will be collected through questionnaires, feedback forms, interviews, and focus group discussions. Analysis will utilize descriptive and inferential statistics, thematic and inductive analysis, descriptive narratives, and triangulation. By exploring the implementation of SEL based on a globally accepted model, this study aims to support the development of national policies that encourage schools to initiate SEL programmes and address the critical need for SEL among students in Sri Lanka.

***Keywords**:* SEL, CASEL's three-legged stool, senior secondary, social, emotional

Introduction

The aims of education have changed over the years, and the demand for education to develop the 'whole child' has become increasingly popular. Educators all over the world agree that Social and Emotional Learning (SEL) has a key role to play in educating the whole child. The Collaborative for Academic, Social, and Emotional Learning (CASEL) was formed in 1994 in the USA, and the term 'Social and Emotional Learning' was formally defined by them in 1997 (*Our History-CASEL*, 2025). SEL is defined as "the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions" (*CASEL-Fundamentals of SEL*, 2025).

Studies conducted globally have demonstrated the effectiveness of SEL for supporting students' academic success, mental health, general well-being, and future success in work environments (Cipriano et al., 2023; Durlak et al., 2011; Greenberg, 2023). SEL has been shown to be particularly beneficial for adolescents as they navigate the transition to adulthood. The research on brain development also suggests that education during adolescence is vital, and the aims of education for adolescents should change to include abilities such as internal control, multitasking, planning, self-awareness, perspective-taking, and the understanding of other people's minds (Blakemore, 2008). This knowledge has resulted in a global call for the incorporation of SEL competencies in school curricula. The interest in SEL in Sri Lanka, too, has been growing

during the past few years. In March 2022, the Ministry of Education issued a publication, *Socio Emotional Skills Approach*, that discusses the importance of SEL and provides guidelines for schoolteachers to incorporate SEL in their classrooms (Ministry of Education, Sri Lanka, 2022).

Research Problem

Despite the increased interest in SEL in Sri Lanka, the implementation of SEL in local schools in the country has not been very promising. SEL for Senior Secondary students aged 15-18 years, in particular, has been inadequate, largely due to the heavy emphasis on public examinations. Global research on SEL implementation suggests possible explanations for this situation. Implementing SEL in a school involves a series of steps, including creating awareness of the importance of SEL, allocating time for teaching SEL, conducting a needs analysis to ensure the SEL programme matches the needs of the students, and training school leaders and teachers (Cefai et al., 2018; Jones et al., 2018). The guidelines currently given by the Ministry of Education of Sri Lanka, therefore, are not sufficient for local schools to initiate SEL programmes. This study aims to investigate whether CASEL's Three-Legged Stool for SEL in Classrooms can be employed for implementing SEL effectively for Senior Secondary students in national schools in Sri Lanka.

Importance of implementing SEL in schools for Senior Secondary students

While teaching social and emotional skills in schools as part of the school curriculum was not considered a necessity a few decades ago, it is an accepted norm nowadays that schools must offer more than just academic instruction to prepare students for successfully navigating the challenges of adult life in an increasingly complex world (Weissberg et al., 2015). The need for teaching SEL in schools is supported by several theoretical frameworks, including Albert Bandura's Social Learning Theory, Erik Erikson's Psychosocial Theory, Lev Vygotsky's Sociocultural Theory, and Urie Bronfenbrenner's Bioecological Theory. Among these, Erik Erikson's Psychosocial Theory particularly underscores the profound impact of SEL on Senior Secondary students.

Erikson's Theory of Psychosocial Development outlines eight stages of life, each marked by a psychological crisis between two opposing states. Successfully resolving each stage develops strengths and virtues that help an individual navigate the next stage of life. Senior Secondary students are in the crucial development stage of Adolescence, where the central task is identity formation, which refers to the way young people define themselves in relation to social groups they belong to. The opposing states of this stage are 'identity cohesion' and 'role confusion', and the virtue developed is fidelity. Successfully navigating this stage achieves fidelity while failure leads to fanaticism or repudiation (Knight, 2017). Identity formation is a dynamic process often marked by a search for autonomy, self-expression, and belonging (Cross & Cross, 2017; Main et al., 2025). SEL plays a crucial role in supporting this process by helping students understand their role in society and make informed decisions on their career paths and future goals. A better understanding of their future goals can motivate adolescents to achieve more academically as well. SEL can also help adolescents manage strong emotions, face challenges with resilience, and foster positive relationships. Additionally, longitudinal studies demonstrate long-term benefits of SEL, such as a greater likelihood of college attendance, higher income, homeownership, and retirement savings (Green et al., 2021; OECD, 2021; Yeager, 2017).

CASEL's SEL competencies

CASEL's SEL framework identifies five core SEL competencies, and each of these competencies encompasses a set of skills and attitudes. These are: (1) Self-awareness, which is an individual's ability to understand one's own emotions, thoughts, and values and how they influence behaviour, (2) Self-management, which includes the abilities to manage one's emotions, thoughts, and behaviours effectively in different situations (3) Social awareness, which are abilities to understand the perspectives of and empathise with others, including those from diverse backgrounds, cultures, and contexts, (4) Relationship skills, which are the skills needed to establish and maintain healthy

and supportive relationships and to effectively navigate settings with diverse individuals and groups, and (5) Responsible decision-making, which includes the abilities to make caring and constructive choices about personal behaviour and social interactions (*CASEL-Fundamentals of SEL*, 2024).

CASEL's Three-Legged Stool for SEL in Classrooms

CASEL has supported numerous schools in initiating SEL and establishing effective and sustainable programmes. A common and effective starting point for integrating SEL into a school curriculum is by implementing SEL in classrooms. CASEL offers a model for this process, referred to as the 'Three-Legged Stool for SEL in Classrooms'. The stool represents classroom-based SEL implementation and stands on three legs, which represent three approaches for this. These are: (1) supportive classroom environment, (2) explicit SEL instruction, and (3) integration of SEL and academic instruction (*SEL in the Classroom-CASEL*, n.d.; *Updates to Our Guidance for Advancing SEL in the Classroom-CASEL*, n.d.).

Supportive classroom environments involve fostering social and emotional skills through general teaching practices designed for establishing positive classroom climates, promoting positive and trusting teacher-student relationships, and using instructional practices that promote students' SEL (Dusenbury et al., 2015). Explicit SEL instruction involves directly teaching social and emotional competencies through structured lessons, followed by opportunities for students to practise and apply these skills (*Explicit SEL Instruction - CASEL*, n.d.). Integration of SEL and academic instruction embeds SEL instruction into content areas of subjects such as the languages, the arts, or sports (Weissberg et al., 2015). For example, schools may teach SEL as part of History, Civic Education, or Arts curricula, using analyses of historical or fictional characters, read-alouds, and interactive sessions to develop social and emotional skills (Dusenbury et al., 2015).

Proposed Study

The purpose of the study is to investigate whether CASEL's Three-Legged Stool for SEL in Classrooms can be employed for implementing SEL for Senior Secondary students in national schools in Sri Lanka. Accordingly, the objectives of this study are:

1. To establish an SEL Steering Committee and conduct a needs and readiness assessment
2. To develop SEL programmes that include all approaches of the Three-Legged Stool
3. To implement the SEL programmes and evaluate their impact

Research Design

Since the aim of this study is to find a practical solution to a real-world problem, it belongs in the pragmatic paradigm. Accordingly, a Mixed Methods Case Study design with a convergent approach will be used. This design follows the design of a basic case study but includes collecting and analysing both quantitative and qualitative data (Creswell & Plano Clark, 2018). An action research spiral will be used for implementing SEL programmes.

The study will be conducted at a Type 1AB school in the Sri Jayawardenepura Education Zone. Participants will include 50 consenting students from selected Grade 10 and Grade 12 classes, their class teachers, and four subject teachers. The principal and one senior member of the administrative staff will also participate in the study.

The first phase of the study will involve establishing an SEL Steering Committee and conducting a needs and readiness assessment to determine students' social-emotional needs and assess the school's preparedness for SEL implementation. Based on findings from the assessment, one-year SEL programmes will be developed for each grade and implemented over the course of one academic year. The impact of the SEL lessons will be evaluated at the end of each school term, and feedback will be used to revise and improve the lessons for the next term. At the end of the

school year, the overall effectiveness of the SEL programmes will be assessed to determine the applicability of CASEL's Three-Legged Stool for SEL in Classrooms in the Sri Lankan context.

Data will be collected through questionnaires, feedback forms, interviews, and focus group discussions. School records will be used to obtain data on students' academic performance and any behavioural issues. Participants of the study will not need to reveal any personal information. Consent statements will be included at the beginning of all questionnaires, and prior written permission will be obtained from parents and the school for students' and staff participation. All participants will be informed of how their responses are recorded, and only methods that they consent to will be used for recording.

Responses to the questionnaires will be analysed using descriptive and inferential statistics. Qualitative data from feedback forms, interviews, and focus group discussions will be transcribed and subjected to thematic analysis and inductive analysis. Descriptive narratives will be used to describe and explain common views and themes in the data. Pattern matching and triangulation will be applied to interpret findings and assess the effectiveness of the SEL implementation.

Potential contributions and implications

As previously noted, SEL remains poorly implemented in local schools, despite the Ministry of Education's handbook, largely due to the absence of clear guidelines and skepticism about the benefits of SEL compared to the time required for its implementation in schools. This study aims to test the applicability of CASEL's Three-Legged Stool for SEL in Classrooms in Sri Lanka and evaluate its effectiveness. If successful, the findings could support the development of national policies that encourage other schools to adopt similar SEL initiatives by providing practical guidelines for the systematic and effective implementation of SEL based on CASEL's model. Additionally, any challenges encountered during implementation will inform how the model can be adapted to better align with Sri Lanka's cultural and educational context.

Conclusion

School years are a prime time for fostering positive habits, shaping perspectives, and developing strong social and emotional skills in children. Achieving this can have a lasting impact on individuals and set the foundation for healthy adult behaviours and mental wellbeing. SEL is, therefore, a sound investment in the future. However, implementing SEL in schools in Sri Lanka requires more specific guidelines for schools and targeted training for school leaders and teachers. This study aims to address this gap by exploring how CASEL's Three-Legged Stool for SEL in Classrooms can be used to implement SEL effectively in national schools. It also hopes to demonstrate to educators and policymakers the far-reaching benefits of SEL for both academic learning and the overall well-being of children in Sri Lanka, and to make the case that dedicating time to SEL is not a distraction from academics, but rather a meaningful enhancement. Ultimately, it is hoped that the development of implementation guidelines will contribute to the creation of national policies that make teaching SEL in national schools compulsory across all grades and ensure dedicated time for SEL instruction in the daily school timetable.

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Perceptions and Experiences of PGDE Students Using Open Educational Resources in Distance Teacher Education in Sri Lanka

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Abstract

Open Educational Resources (OER) offer free, flexible materials that improve access to quality education and promote innovative teaching in distance learning. Since 2013, the Open University of Sri Lanka (OUSL) has used OER in its Postgraduate Diploma in Education (PGDE) programme, embedding them in study guides for teacher training. This study explores how PGDE students perceive, use, and experience OER, as well as the challenges they face. A survey of 338 students, selected by stratified sampling based on gender and medium of instruction (Sinhala, Tamil, English), used a 5-point Likert scale questionnaire. Results showed students have moderate awareness (mean 3.39) and positive views (mean 3.66) of OER, with 58.2% using it regularly and 54.5% noting better learning outcomes. However, 44.9% face technical issues, 48.5% struggle with navigation, and Sinhala and Tamil-medium students encounter language barriers. The medium of instruction shapes OER experiences, highlighting access gaps. The study suggests building a centralized OER platform, upgrading digital infrastructure, providing content in local languages, and offering student training. These actions can strengthen OER's role in creating fair and effective teacher education at OUSL.

***Keywords**:* Open Educational Resources (OER), PGDE students, teacher education, distance learning

Introduction

Open Educational Resources (OER) transform distance education by offering free, adaptable materials for learning and teaching. These resources enable students to access high-quality content at a lower cost and promote innovative teaching methods. At the Open University of Sri Lanka (OUSL), the Postgraduate Diploma in Education (PGDE) programme uses OER in study guides to support teacher training. However, the success of OER depends on how students perceive and utilize these materials, especially in Sri Lanka's diverse and multilingual setting. Understanding student experiences with OER is essential for effective educational policy and institutional practice. As Sri Lanka advances its Education 2030 goals (UNESCO, 2015) and seeks to broaden teacher education access, implementing evidence-based OER strategies becomes a decisive factor. This study's findings directly inform policy development at multiple levels: (1) institutional strategies for digital resources and infrastructure; (2) curriculum guidelines for integrating multilingual OER in teacher education; (3) national initiatives targeting digital equity and access; and (4) regional efforts to localize global educational resources. Moreover, as the OUSL serves as a model for distance teacher education in the region, insights from this study can guide similar institutions in designing inclusive, technologically supported learning environments that accommodate linguistic diversity while maintaining quality standards. The identification of specific barriers, technical, linguistic, and pedagogical, provides actionable intelligence for policymakers allocating resources for teacher professional development and educational technology infrastructure. Therefore, this study aims to examine how PGDE students at the OUSL perceive, use, and experience OER in their distance learning program. The study answers the following questions:

- What are the levels of awareness, perceptions, and experiences of PGDE students at OUSL regarding the use of OER in their studies?

- How does OER impact the learning outcomes of PGDE students in terms of academic performance, engagement, and motivation?
- What challenges do PGDE students face when using OER?

The study's findings will help improve the use of OER in teacher education, foster fair and effective learning environments, and provide evidence-based recommendations for education policy and practice by addressing these questions.

Theoretical Framework

This study is grounded in the Technology Acceptance Model (TAM) (Davis, 1989) and the Distance Education Theory framework. TAM suggests that perceived usefulness and perceived ease of use determine technology adoption and usage patterns. In the context of OER, this framework helps explain why students with positive perceptions (usefulness) but facing technical barriers (ease of use) may have limited actual usage. Additionally, Moore's (1993) theory of transactional distance emphasizes that psychological and communication gaps in distance education can be bridged through the use of appropriate educational resources and instructional design, making OER a critical tool for reducing transactional distance in the PGDE programme.

Literature Review

Around the world, OER have been recognized for their potential to widen access to education, lower costs, and bring new possibilities to teaching and learning. At the same time, studies show that the story of OER is far from straightforward. While some research highlights their benefits, other studies identify gaps in awareness, uneven adoption, and challenges in making resources meaningful across diverse contexts. This review synthesizes key perspectives from the literature, focusing on four areas particularly relevant to the Sri Lankan context: accessibility and awareness, cultural and linguistic adaptation, the balance between infrastructure and pedagogy, and the impact of OER on learning outcomes. These themes help frame the discussion of how OERs are experienced in the PGDE programme at the Open University of Sri Lanka (OUSL).

Divergent Views on OER Accessibility and Awareness

While research consistently acknowledges OER's potential to democratize education, studies reveal contrasting findings about awareness and actual usage. Specifically, Bozkurt et al. (2023) and Cronin et al. (2023) emphasize the role of OER in removing financial and temporal barriers in distance learning contexts. In contrast, Choi and Carpenter (2017) challenge this optimistic view, finding that low awareness significantly limits OER adoption. This gap between OER's potential benefits and its actual adoption suggests that accessibility extends beyond resource availability to include awareness and digital literacy, particularly in multilingual developing country contexts.

Cultural and Linguistic Contextualization: A Critical Gap

A critical tension exists between global OER repositories and local educational needs. While Western studies (Horn et al., 2018; Fine & Read, 2018) emphasize the collaborative potential of OER, research from Asia highlights implementation challenges. Kumar et al. (2015) and Sheeja (2018) highlight language barriers as significant obstacles, whereas Abramovich and McBride (2018) emphasize the importance of cultural alignment. This distinction is important: OER effectiveness depends not only on content availability but also on cultural and linguistic appropriateness. In Sri Lanka's trilingual context (Sinhala, Tamil, English), this issue is particularly salient. Similarly, Tlili et al. (2020) and Zhang et al. (2020) argue that successful OER implementation in Arab and Chinese contexts requires localization rather than the direct adoption of Western materials.

Infrastructure vs. Pedagogy: Competing Explanations for OER Challenges

The literature identifies two main explanations for the challenges of implementing OER. Scholars focusing on technical infrastructure (Grewe & Davis, 2017; Ali & Warraich, 2020) point to issues such as poor connectivity, limited access to devices, and platform accessibility, particularly in rural and developing regions. In contrast, pedagogical scholars (Patidar, 2018; Karunanayaka & Naidu, 2020) argue that the primary barriers lie in areas such as training, instructional design, and faculty support, which are crucial for effective teaching and learning.

OER Impact on Learning Outcomes: Mixed Evidence

Some other research presents mixed evidence on the actual impact of OER on learning outcomes. Optimistic studies (Bol et al., 2021; Jaggars et al., 2019) report improved engagement and satisfaction with OER materials. However, these studies typically measure perceptions rather than actual performance outcomes. The current study addresses this gap by examining both perceived benefits and self-reported performance improvements, thereby providing a more nuanced understanding of the impact of OER in teacher education.

Research Gap and Study Contribution

Despite substantial OER research in Asian contexts (Bordoloi, 2018; Mishra, 2017; Thakran & Sharma, 2016), few studies have specifically examined OER in multilingual distance teacher education programs. Karunanayaka's (2024) work at OUSL provides a foundational understanding, but a systematic examination of student experiences across linguistic groups remains limited. This study uniquely contributes by: (1) examining OER perceptions across three media of instruction groups, (2) investigating the specific context of postgraduate teacher education, and (3) connecting perceived benefits to reported challenges in a systematic framework grounded in TAM and distance education theory.

Methodology

The study uses a survey research design. The study targets PGDE students from the 2024/2025 batch at OUSL, totaling 2,849 students. This population included 1,944 Sinhala-medium, 777 Tamil-medium, and 128 English-medium students. The sample size of 338 students represents 11.9% of the total population (2,849 students) and was determined using Krejcie and Morgan's (1970) formula for sample size determination. For a population of 2,849 with a 95% confidence level and ±5% margin of error, the minimum required sample is 338 participants. This sample size provides adequate statistical power (>0.80) for detecting medium effect sizes (Cohen's d = 0.5) in comparative analyses. The stratified sampling approach ensured proportional representation across medium of instruction (Sinhala: 68.3%, Tamil: 27.3%, English: 4.5%) and gender (females: 78.1%, males: 21.9%), so the characteristics of the sample closely matched those of the population, supporting the generalizability of the study's conclusions to the entire student body. A questionnaire was used as the primary data collection tool. It has two parts, in which demographic information is collected from Part A, and Part B includes items on students' awareness, perceptions, and experiences with OER, using a 5-point Likert scale from 1 = totally disagree to 5 = totally agree. Data were analyzed using descriptive statistics, including means, standard deviations, frequencies, and percentages, to summarize students' perceptions, experiences, and challenges.

Results

Students' perceptions and experiences regarding using OER in the PGDE programme at OUSL

As teacher-students are the primary users of OER-based study guides, it is important to understand their perceptions and experiences. Therefore, a questionnaire was used to gather their views on these OERs. The statistical analysis of students' perceptions and experiences regarding Open Educational Resources (OER) in the PGDE programme provides valuable insights into their awareness, usage, and challenges. Table 1 shows the mean and standard deviation of the students'

views on several aspects of OER integration. According to Table 1, the awareness of OER has a mean score of 3.39 (SD = 0.91), indicating that while students have a moderate understanding of OER, there is still room for improvement in increasing familiarity and recognition of OER before and during the programme.

Table 1

Students' perceptions and experiences regarding using OER

Category	Mean	Standard Deviation
Awareness	3.3935	.91016
Perception of OER	3.6649	.82409
Experience with OER	3.5420	.75657
Impact of OER on learning outcomes	3.5107	.80418
Challenges of Using OER	3.3284	.73212

The Perception of OER is relatively high, with a mean of 3.66 (SD = 0.82), suggesting that students view OER as beneficial, accessible, and a valuable supplement to traditional learning materials. Students' experiences with OER in the programme yielded a mean of 3.54 (SD = 0.76), demonstrating that while most students find OER useful and easy to access, individual experiences vary. The impact of OER on learning outcomes has a mean of 3.51 (SD = 0.80), reflecting its positive influence on academic performance, engagement, and motivation. However, some neutral and lower ratings suggest that certain areas, such as alignment with course content and assessment preparation, could be improved. The challenges of using OER received the lowest mean score of 3.33 (SD = 0.73), indicating that difficulties are not overwhelmingly negative while they exist. Students face issues related to navigation, content complexity, and reliability of sources, but the overall response suggests these challenges are manageable with proper support and resource improvements.

Awareness of OER

The findings indicate that students had varying awareness of OER before enrolling in the PGDE programme. While 31.1% remained neutral, only 37.6% (agree and strongly agree) were familiar with OER before joining. However, 60% of students reported increased awareness after enrolling, suggesting that the programme significantly exposed students to OER. Additionally, nearly 64.2% of students acknowledged that some of their study materials are based on OER, demonstrating a growing understanding of OER's presence in their academic journey.

Table 2

Students' Awareness of OER

Item		1	2	3	4	5
1.	I knew about Open Educational Resources (OER) before enrolling in the PGDE programme.	12.7	18.6	31.1	28.1	9.5
2.	Before enrolling in the PGDE programme, I had heard of "Open Educational Resources (OER)" in previous academic or personal learning situations.	9.8	13.3	26.6	39.1	11.2
3.	My awareness of OER has increased since joining the programme.	5.3	6.5	28.1	41.7	18.3
4.	I know some of my PGDE programme study materials are based on OER.	5.9	7.1	22.8	45.0	19.2

Students' Perception of OER

65. There must be a sufficient 7% of students who perceive OER as valuable and beneficial to their learning. A significant 62.4% of students agree or strongly agree that they understand the concept and importance of OER. Additionally, 61.2% view OER as useful, if not superior, to traditional study materials, while 66.3% believe OER enhances accessibility to educational resources.

Table 3

Students' Perception of OER

Item		1	2	3	4	5
5.	I understand the concept of OER and its importance in education.	4.1	4.4	29.0	49.4	13.0
6.	I perceive OER as valuable and beneficial to my learning in the PGDE programme	3.8	3.8	26.6	48.5	17.2
7.	Study materials based on OER are as useful as, or better than, traditional study materials.	2.7	6.5	29.6	47.9	13.3
8.	OER promotes better access to educational resources for learners.	3.6	6.2	24.0	50.0	16.3

These findings suggest a positive reception of OER, with most students recognizing its value in facilitating learning and improving access to academic materials.

Experiences with Using OER

The integration of OER in the PGDE programme is effective, as 58.2% of students report regularly using OER to supplement their learning, while 59.4% use it for assignment preparation. Most students (57.7%) find OER easy to access through study guides, and 60% feel OER enhances their understanding of course content. Moreover, 58.3% believe the materials align well with the course content, and 56.8% also acknowledge that OER supports collaborative learning with peers. However, satisfaction with the variety of OER is slightly lower, with 38.8% agreeing, while 41.4% remain neutral, indicating room for improvement in diversifying available OER resources.

Table 4

Students' Experiences with Using OER

Item		1	2	3	4	5
9.	As part of the PGDE programme, I used different types of OER, such as e-books, videos, and online courses.	2.4	8.0	32.0	45.9	11.8
10.	Accessing OER through the study guides provided in the PGDE programme is straightforward and user-friendly.	2.7	8.9	30.8	44.1	13.6
11.	I regularly use OER to supplement my learning in the PGDE programme.	3.3	5.9	32.5	46.7	11.5
12.	I often use OER to review course content and prepare for assessments.	3.0	10.1	27.5	48.5	10.9
13.	OER provided in the PGDE programme has helped me explore topics more deeply.	3.8	7.7	33.7	42.9	11.8
14.	I use OER primarily for enhancing my understanding of specific topics covered in the course.	3.3	5.3	31.4	48.2	11.8
15.	The quality of the OER materials provided meets my expectations for postgraduate-level study.	3.0	8.0	33.4	45.6	10.1
16.	The OER materials are relevant and closely aligned with the course content in the PGDE programme.	2.4	6.2	33.1	45.9	12.4
17.	I find OER useful for collaborative learning activities with my peers.	4.4	7.1	31.7	45.9	10.9
18.	I am satisfied with the variety of OER provided in my study materials.	3.6	8.6	41.4	38.8	7.7
19.	Integrating OER into the PGDE programme will help me achieve my academic goals.	3.3	6.8	31.7	45.9	12.4

Table 5

Students' View on the Impact of OER on Learning Outcomes

Item	1	2	3	4	5
20. Using OER in the PGDE programme has improved my understanding of course concepts.	4.4	5.0	36.1	45.9	8.6
21. OER has positively impacted my overall academic performance in the PGDE programme.	4.4	6.5	39.3	40.8	8.9
22. The availability of OER has made it easier for me to complete assignments and projects effectively.	5.6	6.5	30.8	45.6	11.5
23. OER has enhanced my ability to prepare for exams and achieve better results.	4.4	5.9	34.0	45.3	10.4
24. I am confident in my learning abilities because of the support provided by OER in the PGDE programme.	4.1	7.7	36.1	43.2	8.9
25. OER has contributed to developing my critical thinking and problem-solving skills.	3.0	8.6	37.3	41.1	10.1
26. The integration of OER has helped me stay engaged and motivated throughout the PGDE programme.	3.8	5.9	36.7	41.7	11.8
27. I recommend the use of OER to other students pursuing the PGDE programme.	4.1	5.9	28.7	47.9	13.3
28. Using OER has encouraged me to explore additional resources beyond the course curriculum.	2.7	6.2	30.8	47.6	12.7
29. OER is an effective tool for achieving the learning outcomes of the PGDE programme.	4.7	7.1	32.2	44.4	11.5

Impact of OER on Learning Outcomes

Students largely agree that OER has positively influenced their academic performance. A majority (54.5%) report that OER has improved their understanding of course concepts, while 57.1% believe it has helped them complete assignments and projects effectively. Similarly, 55.7% say OER aids in exam preparation, and 52.1% feel more confident in their learning abilities due to OER support. Additionally, 61.2% recommend OER to future PGDE students, reinforcing its perceived effectiveness in achieving learning outcomes.

Challenges of Using OER

Despite its benefits, students face challenges in utilizing OER effectively. Technical issues, such as internet connectivity and device limitations, are barriers for 44.9% of students, while 48.5% report difficulties navigating certain OER materials. Additionally, 45.2% find some OER content complex or difficult to understand, and 49.7% believe more guidance is needed on using OER effectively. Concerns about the credibility and reliability of some OER materials are raised by 50.3% of students, and 54.1% state that some OER does not align well with course assignments or exams. Furthermore, 42% feel overwhelmed by the vast amount of information available through OER, while 31.1% note that inconsistencies in format and structure sometimes disrupt their learning flow.

Table 6

Students' Views on the Challenges of Using OER

Item	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
30. I find it difficult to access OER due to technical issues, such as internet connectivity or device limitations.	5.0	13.3	36.7	32.5	12.4
31. The OER materials integrated into the study guides sometimes find it difficult to navigate.	3.8	13.9	33.7	37.3	11.2
32. I find it difficult to understand the content of some OER due to language barriers or complexity.	4.1	16.6	34.0	32.8	12.4
33. There is insufficient guidance on effectively using OER in the study guides.	3.0	13.3	34.0	37.9	11.8
34. The quality of certain OER materials needs to meet the standards expected for postgraduate-level studies.	5.6	12.1	38.5	34.9	8.9
35. I am concerned about the credibility and reliability of some OER sources used in the study guides.	4.1	12.7	32.8	41.1	9.2
36. I find it easier to use OER with additional support from instructors or peers.	5.6	12.4	31.7	38.8	11.5
37. The OER materials sometimes need to align better with the specific requirements of the course assignments or exams.	4.4	10.4	31.1	40.8	13.3
38. Some OER resources require additional software or tools that are not easily accessible.	3.8	14.8	30.2	37.6	13.6
39. The amount of information provided in OER overwhelms me, making it difficult to focus on what is essential.	7.4	17.2	33.4	31.1	10.9
40. Integrating OER into the study guides sometimes disrupts my learning flow due to consistency in format and structure.	9.2	22.8	37.0	24.6	6.5

The integration of OER into the PGDE programme has significantly enhanced students' awareness, learning experiences, and academic performance. While students recognize OER's value and accessibility, challenges remain regarding content complexity, alignment with course requirements, and technical limitations. Addressing these concerns through better guidance, improved resource selection, and enhanced accessibility measures can further optimize the effectiveness of OER in supporting postgraduate education.

Conclusion and Recommendations

This study reveals that PGDE students at OUSL possess a moderate level of awareness of OER, with 60% reporting that their familiarity with OER increased after joining the programme. This confirms earlier observations by Choi and Carpenter (2017) that awareness is a key barrier to OER adoption, but it also demonstrates that structured exposure through study guides can effectively

bridge this gap. Embedding OER awareness within teacher education, as recommended by Karunanayaka and Naidu (2020), appears to be a practical and effective strategy. Overall, students view OER positively. About two-thirds of participants recognize its value (65.7%) and appreciate its accessibility (66.3%). This supports the work of Bozkurt et al. (2023), who highlight the role of OER in reducing financial barriers, and Cronin et al. (2023), who emphasize its flexibility in distance learning contexts. Students actively use OER: 58.2% supplement their learning, and 59.4% use it for assignment preparation. These figures suggest that integrating OER into study materials encourages engagement beyond voluntary use. The impact of OER on learning is generally positive, with 54.5% of respondents reporting an improved understanding of course concepts. However, the moderate effect size suggests that OER effectiveness is closely tied to how well it aligns with course assessments, aligning with Bol et al. (2021) while partially differing from Jaggars et al. (2019). Despite these benefits, challenges remain. Technical issues, such as connectivity and device limitations (44.9%), and navigation difficulties (48.5%), are echoed in findings by Grewe and Davis (2017). Language barriers significantly affect Sinhala- and Tamil-medium students, confirming the findings of Kumar et al. (2015) and Sheeja (2018). Meanwhile, 45.2% of students struggled with content complexity, reinforcing Abramovich and McBride's (2018) argument for local adaptation. Interestingly, English-medium students reported fewer challenges, highlighting that effectiveness depends not only on technical access but also on linguistic and cultural alignment. Gender differences were minimal, supporting observations by Karunanayaka (2024) regarding inclusivity at OUSL.

Recommendations

Based on these findings, the following steps could help strengthen OER integration at OUSL:

1. Create a Centralized OER Repository: A single, user-friendly platform would simplify access and make navigation easier for all students.
2. Improve Digital Infrastructure: Strengthening internet connectivity and providing device support, especially in rural areas, would reduce technical barriers.
3. Develop Localized Content: Producing OER in Sinhala and Tamil and aligning it with Sri Lankan educational contexts would help overcome language barriers.
4. Provide Training and Guidance: Workshops could teach students how to effectively use OER, including evaluating sources, navigating materials, and applying content to assignments.
5. Align OER with Course Objectives: Ensuring that OER closely aligns with PGDE course goals, assessments, and assignments would increase its relevance and usefulness.
6. Expand OER Formats: Including videos, interactive tools, and diverse multimedia resources could improve satisfaction and meet different learning preferences.

OUSL can make OER a more effective, accessible, and inclusive tool, enhancing learning outcomes and supporting teacher education in meaningful ways by addressing these areas.

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The Influence of the Psychosocial Environment on Self-Esteem in Students with Low Academic Achievement: A Systematic Literature Review

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Abstract

This qualitative, literature-based study investigates how the psychosocial environment influences the Self-Esteem of students with low academic achievement. Guided by Bronfenbrenner's Ecological Systems Theory and Leary's Sociometer Theory, the research integrates a phenomenological perspective to interpret students' lived experiences within social and academic contexts. This study adopts a *systematic review design*, which involves a structured and comprehensive analysis of existing literature related to the topic. A *qualitative systematic review* approach was used to analyze patterns, themes, and relationships across studies rather than statistical aggregation. A purposive sample of 16 peer-reviewed studies (2015–2025) was analyzed thematically, supplemented by insights from educational psychology texts (Woolfolk, 2016; Santrock, 2018). The thematic analysis identified six major domains—perceived social support, school climate and belonging, peer networks and bullying, academic self-efficacy, family functioning, and resilience. Findings revealed that inclusive, supportive environments and strong interpersonal relationships enhance students' Self-Esteem and motivation, while punitive school cultures, peer rejection, and dysfunctional family dynamics exacerbate emotional vulnerability. Emotional resilience and Social and Emotional Learning emerged as critical buffers against the negative impacts of low achievement. The study's analysis reinforces the importance of systemic, evidence-based psychosocial interventions in schools, highlighting their relevance to educational contexts such as Sri Lanka, where academic performance is closely tied to social identity and psychological well-being.

Keywords: Self-esteem, psychosocial environment, academic achievement, social support, school climate

Introduction

Self-esteem is a foundational psychological construct representing an individual's perception of self-worth (Leary, 2012; Leary & Baumeister, 2000). For adolescents, this perception is deeply intertwined with academic identity and social inclusion. Students with persistently low academic performance are especially vulnerable to Self-Esteem challenges, often trapped in a feedback loop: academic failure diminishes self-confidence, which further reduces motivation and engagement. However, the psychosocial environment, including interactions with peers, family, teachers, and the broader school community, can either buffer against or intensify these effects. In the South Asian context, including Sri Lanka, academic pressure is high, and school success is closely linked to family honor, social mobility, and psychological well-being. This cultural backdrop can magnify the emotional stakes of academic failure, making psychosocial interventions particularly crucial. Recent research underscores the potential of positive psychosocial conditions to nurture Self-Esteem, even in the face of academic struggle (Banstola et al., 2020; Filippello et al., 2019). The purpose of this study is to systematically review the influence of the psychosocial environment on the self-esteem of students with low academic achievement. Self-esteem is a critical component of adolescent development that shapes motivation, resilience, and overall academic engagement (Anderson, 2020). However, low-achieving students frequently experience diminished confidence and social exclusion, often stemming from negative peer interactions, unsupportive family contexts, or adverse school climates (Van de Sande et al., 2024; Shindler, 2016). Collectively, these findings reveal that while individual studies have examined separate aspects of the psychosocial

environment, there remains a lack of integrated synthesis that focuses specifically on students with low academic achievement. This review, therefore, aims to bridge that gap by identifying how environmental, interpersonal, and intrapersonal factors jointly shape self-esteem and learning engagement, with the goal of informing interventions and school practices that foster inclusive, emotionally supportive educational settings. This article reviews literature and applies established theoretical frameworks to explore the influence of environments on Self-Esteem in students with low academic achievement. It highlights evidence-based themes including social support, school belonging, peer relationships, family context, and emotional resilience.

Research Problem

Students with low academic achievement often experience declining Self-Esteem, exacerbating academic underperformance and social disengagement. Psychosocial factors such as family functioning, peer interaction, school climate, and perceived social support play a crucial role in shaping self-concept and resilience (Karunarathne, 2022; Shindler, 2016; Zhao et al., 2022). Most research has examined these factors separately rather than as interconnected elements of the psychosocial environment. While positive family relationships and supportive school contexts enhance self-esteem and learning motivation (Maspupatun et al., 2021; Shi et al., 2025), there is limited integration of findings on how these factors collectively influence low-achieving students (Van de Sande et al., 2024). Moreover, most studies originate from Western or high-income contexts, leaving gaps in understanding their impact in developing countries like Sri Lanka, where academic success strongly affects self-worth and social identity.

Thus, a systematic review is needed to consolidate evidence and identify psychosocial mechanisms that most influence self-esteem among low-achieving students, informing interventions and policies to foster inclusive, supportive educational environments.

Objectives

This study addresses three objectives:

1. Examine external psychosocial factors, including family relationships, peer interactions, school climate, and teacher support, that shape Self-Esteem.
2. Explore internal strengths such as emotional resilience, academic self-efficacy, and social-emotional learning skills, and their interaction with external support systems.
3. Identify and synthesize evidence-based strategies and interventions to enhance Self-Esteem and academic motivation among low-achieving students.

Literature review

A growing body of research highlights the critical influence of psychosocial relationships on adolescents' self-esteem and well-being. Sakova et al. (2014) found that positive peer and teacher relationships lower depression and anxiety while increasing self-esteem, underscoring the importance of supportive school environments. Similarly, Shi et al. (2022) revealed that strong parent–adolescent relationships reduce emotional and behavioral problems through enhanced self-esteem, emphasizing the protective value of emotionally supportive family dynamics. Transitional phases such as entry to junior high school can heighten vulnerability, making psychosocial support especially vital (Pikul et al., 2019; Wigfield et al., 1991). Positive parenting and academic engagement also promote higher self-esteem and achievement, with self-esteem mediating this relationship (Kim et al., 2021). Supportive environments characterized by empathetic teachers, cohesive families, and strong peer networks consistently enhance students' self-worth and academic persistence (Karunarathne, 2022; Maspupatun et al., 2021; Zhao et al., 2022). In contrast, bullying and negative school climates lower self-esteem and engagement (Nasaireh, 2022; Shindler, 2016). Shi et al. (2025) further noted that family functioning and self-esteem shape

students' achievement goals. Despite this evidence, research rarely isolates low-achieving students as a distinct group, leaving a gap in understanding how psychosocial factors specifically affect their self-esteem. This review, therefore, synthesizes existing studies to clarify how family relationships, peer interactions, and school climate collectively influence the self-esteem of low-achieving students, guiding interventions to build resilience and inclusion.

The study is grounded in two frameworks: Bronfenbrenner's social ecological theory and Leary's sociometer theory. Bronfenbrenner (2009) explains that self-esteem is shaped by overlapping systems—family, school, peers, and culture where even one supportive context (e.g., an encouraging teacher) can buffer against negative influences. Sociometer theory (Leary, 2012; Leary & Baumeister, 2000; Liu & Zhang, 2016) views self-esteem as a reflection of perceived social acceptance, explaining why underachievers often internalize academic setbacks as personal failure. Despite strong evidence linking psychosocial environments to student well-being, there remains a limited focus on low-achieving learners. Few studies or interventions have directly examined how targeted psychosocial strategies, such as teacher training, mentoring, peer support, or family engagement, can strengthen self-esteem and academic outcomes in this group. This research, therefore, aims to address this gap by exploring how the psychosocial environment influences adolescents with low academic achievement.

Methodology

This study adopts a *systematic review design*, which involves a structured and comprehensive analysis of existing literature related to the topic. A *qualitative systematic review* approach was used to analyze patterns, themes, and relationships across studies rather than statistical aggregation. Academic databases such as Google Scholar, ERIC, PsycINFO, and ResearchGate were systematically searched using keywords like *"psychosocial environment," "self-esteem," "academic achievement," "school climate," "social support,"* and *"resilience."* A purposive sample of 16 peer-reviewed studies (2015–2025) was selected from reputed online educational journals like *Journal of Current Psychology, Journal of Policy Research, Journal of Youth and Adolescents*, based on thematic relevance and methodological rigor. A thematic analysis approach was employed to systematically examine the selected articles and extract meaningful insights into how psychosocial factors influence the Self-Esteem of students with low academic achievement. Tables were used to analyze qualitative data. Supplementary perspectives were drawn from other peer-reviewed articles regardless of published year and Education psychology textbooks published by Woolfolk (2016) and Santrock (2018), to build a proper background for the research article.

Discussion

The analysis of selected literature identified six key psychosocial themes influencing the self-esteem of students with low academic achievement: Perceived Social Support, School Climate and Belonging, Peer Networks and Bullying, Academic Self-Efficacy and Social Skills, Family Functioning, and Resilience and Self-Compassion. Among these, Perceived Social Support, School Climate and Belonging, and Academic Self-Efficacy and Social Skills received greater attention, while the remaining three were less frequently examined.

Perceived Social Support

Emotional and instrumental support from family, teachers, and peers acts as a key protective factor for students with low academic achievement. Filippello et al. (2019) and Karunarathne (2022) found that social and familial support enhance engagement and self-esteem, while Zhao et al. (2021) showed that perceived support moderates the link between self-esteem, self-efficacy, and academic engagement. Gidi et al. (2021) similarly observed that weak support predicts lower self-esteem among Ethiopian underachievers. Overall, emotional backing from close relationships helps students maintain self-worth despite setbacks.

School Climate and Belonging

A positive, inclusive school climate fosters self-esteem and engagement. Studies by Konold et al. (2018), Maxwell et al. (2017), and Cornell and Huang (2016) revealed that fairness, warmth, and structure reduce behavioral issues and strengthen emotional well-being. Supportive teacher–student relationships promote safety and acceptance, encouraging motivation and belonging—especially in collectivist contexts like Sri Lanka, where school identity contributes to self-worth.

Peer Networks and Bullying

Peer relations can either support or undermine resilience. Álvarez and Szücs (2023) found that low-achieving students experience more bullying, reducing self-esteem, while Wang et al. (2018) showed that positive peer attachment buffers emotional harm and improves outcomes. Strong peer networks thus protect against social stressors and enhance academic resilience.

Academic Self-Efficacy and Social Skills

Self-efficacy and social-emotional skills are central to persistence and confidence. Filippello et al. (2019) and Duraku and Hoxha (2018) showed that coping skills and self-efficacy mediate the effects of social support on achievement. Simion (2023) emphasized that socio-emotional learning (SEL) enhances motivation, empathy, and regulation, which are key to sustaining engagement and reducing anxiety.

Family Functioning

Family relationships strongly shape emotional stability. Amjad et al. (2023) and Gana et al. (2024) found that supportive, communicative families foster confidence, while rigid or distant parenting lowers self-esteem. In cultures with high academic pressure, emotional warmth and open dialogue help students separate self-worth from grades. Parenting programs that promote empathy and positive discipline are vital for adolescent well-being.

Resilience and Self-Compassion

Resilience and self-compassion enable recovery from academic stress. McLeod and Boyes (2021) described "academic buoyancy" as the ability to manage challenges, while Weißenfels et al. (2023) found that SEL interventions enhance coping and self-efficacy. Students who practice self-compassion show reduced perfectionism and greater motivation. Embedding SEL across curricula builds resilience and emotional stability essential for long-term success. The literature emphasizes a holistic, multi-tiered approach to enhancing self-esteem and engagement among low-achieving students. Building strong, empathetic teacher–student relationships is central, as caring and structured climates improve well-being and self-perception (Konold et al., 2018; Cornell & Huang, 2016). Peer mentoring further strengthens belonging and support. Integrating Social and Emotional Learning (SEL) into classrooms fosters self-awareness, empathy, and emotional regulation, helping students manage stress and stay motivated (Simion, 2023; McLeod & Boyes, 2021). Embedding emotional learning across subjects supports both academic and personal growth. A positive, inclusive school climate promoting fairness, student voice, and respect enhances belonging and engagement (Maxwell et al., 2017; Cornell & Huang, 2016). Fair discipline and shared decision-making reinforce trust. Individualized supports such as coaching, feedback, and counseling rebuild confidence and motivation (Filippello et al., 2019). Strength-based feedback encourages focus on progress rather than failure. Finally, supportive family environments boost resilience and self-worth (Amjad et al., 2023; Gana et al., 2024; Natarajan et al., 2024). Collaboration between schools and families through workshops and counseling promotes empathy and realistic expectations.

Findings

Environmental Influences on Self-Esteem

The psychosocial environment significantly shapes the self-esteem of low-achieving students. Perceived Social Support and School Climate and Belonging emerge as key factors. Research (Filippello et al., 2019; Karunarathne, 2022; Zhao et al., 2021) shows that support from family, teachers, and peers fosters engagement and resilience. Similarly, inclusive and fair school climates enhance belonging and reduce behavioral issues (Konold et al., 2018; Maxwell et al., 2017; Cornell & Huang, 2016). Together, these findings highlight the vital role of interpersonal and school contexts in protecting self-worth.

Internal Capacities Supporting Coping and Self-Esteem

Internal strengths: Academic Self-Efficacy, Social Skills, Resilience, and Self-Compassion—help students stay motivated despite challenges. Studies (Duraku & Hoxha, 2018; Simion, 2023; McLeod & Boyes, 2021) indicate that self-efficacy and socio-emotional skills promote persistence and emotional control, while self-compassion reduces fear of failure (Weißenfels et al., 2023). These skills flourish in emotionally supportive, SEL-integrated classrooms.

Strategies to Enhance Psychosocial Support

Multi-tiered interventions engaging families, peers, and schools are most effective. Supportive families build resilience (Amjad et al., 2023; Gana et al., 2024), while mentoring and SEL programs strengthen confidence and engagement (Simion, 2023; Filippello et al., 2019). Inclusive, emotionally safe school environments further enhance belonging and motivation (Cornell & Huang, 2016; Maxwell et al., 2017).

Table 1

Findings and further gaps according to key themes

Theme	Key Studies	Main Findings	Critical Notes / Gaps
Perceived Social Support	Filippello et al. (2019); Karunarathne (2022); Zhao et al. (2021)	Emotional and instrumental support from family, teachers, and peers strongly predicts academic engagement, resilience, and self-esteem.	Well-studied; less focus on peer-to-peer support networks and negative social interactions.
School Climate & Belonging	Konold et al. (2018); Maxwell et al. (2017); Cornell & Huang (2016)	Inclusive, fair, and supportive school climates enhance belonging, reduce behavioral problems, and improve self-esteem.	Need for studies on the cultural/contextual variability of school climate effects.
Academic Self-Efficacy	Duraku & Hoxha (2018); Simion (2023); McLeod & Boyes (2021)	High self-efficacy promotes persistence through setbacks, motivation, and emotional regulation.	Limited longitudinal evidence on long-term sustainability.
Social Skills	Duraku & Hoxha (2018); Simion (2023)	Strong social skills facilitate collaboration, peer support, and adaptive coping.	Interactions with environmental factors are underexplored.
Resilience & Self-Compassion	Weißenfels et al. (2023); Simion (2023)	Resilience and self-compassion reduce fear of failure, framing mistakes as learning opportunities, and protecting self-esteem.	Few intervention studies test scalability or integration into curricula.
Intervention Strategies	Amjad et al. (2023); Gana et al. (2024); Natarajan et al. (2024); Filippello et al. (2019)	Multi-tiered approaches—SEL, mentoring, coaching, and family engagement—improve emotional regulation, engagement, and confidence.	Gaps in peer-led programs, cultural adaptation, and longitudinal validation.

Limitations and Future Directions

While this literature-based synthesis offers a multidimensional understanding of Self-Esteem development in low-achieving students, it is limited by its reliance on secondary data. The absence of primary data limits contextual depth and subjective insights from the target group. Future research should involve qualitative interviews or case studies to capture students' lived experiences in culturally specific contexts like Sri Lanka. Another research area is the way of improving student Self-Esteem and academic skills through the Authentic, multi-faceted assessment and positive feedback.

Conclusion

This study shows that low academic achievement does not necessarily result in low self-esteem. A student's self-worth depends largely on their psychosocial environment—the support they receive from family, peers, teachers, and the overall school climate. When students feel valued and emotionally secure, they handle academic challenges without viewing failure as personal inadequacy. Internal strengths such as resilience, social-emotional skills, and self-efficacy further help them stay motivated and learn from setbacks. Practical strategies like fostering inclusive school cultures, nurturing strong teacher-student relationships, integrating social-emotional learning, and encouraging open family communication are essential—especially in contexts like Sri Lanka, where academic success is highly emphasized. Supporting these students requires a holistic, collaborative approach that builds confidence and resilience beyond academics.

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Demotivation vs. Proficiency in Second Language Learning - A Quantitative Study Involving Engineering Students

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Abstract

This study examines the impact of internal and external demotivating factors on English language proficiency among 896 first-year engineering undergraduates at the University of Moratuwa. Using a Likert-scale questionnaire with eight subscales, data were analyzed via ANOVA and effect size across five proficiency levels (Grades A, B, C, S, and W). Results indicate that participants are generally motivated, with negative mean values for all demotives. Internal factors crippled L2 identity, toxic learning environment, antisocial attitudes, and social withdrawal showed increasing influence as proficiency decreased, revealing an inverse relationship between internal demotivation and language competence. External demotives, such as cultural and ideological resistance or systemic barriers, exhibited minimal variation across proficiency levels. Crippled L2 identity emerged as the most influential factor, highlighting the role of self-perception in L2 learning. The findings emphasize the need for pedagogical strategies that strengthen learners' resilience against internal demotives, particularly for lower-proficiency students.

***Keywords*:** Second language learning, demotivation, L2 proficiency, internal demotives, engineering students, English for specific purposes, motivation

Introduction

Motivation is identified as the second most reliable indicator of second language learning attainment. Accordingly, motivation is the quantity assumed to be present in an individual who persistently pursues a personally relevant objective in the face of numerous obstacles, such as during the often demoralising journey towards mastering a second language (Dörnyei, 2009). Conversely, second language learning demotivation refers to forces that diminish motivation, ultimately resulting in lower levels of target language mastery. Different types of demotives have been found to affect learners at different levels of language proficiency. For example, low proficiency learners have identified *Self-Confidence, Attitude toward L2 Itself, Courses, Teachers,* and *Attitude of Group Members* as demotives in descending order of strength of influence, while high proficiency learners have only identified *Self-Confidence* (Falout and Maruyama, 2004). Characterising the nature of demotivation affecting learners at different levels of proficiency would facilitate measures to suppress its effects during teaching and strengthen English learning motivation, thereby facilitating their career development. Since lower levels of English proficiency would result in a lesser capacity to avail oneself of existing academic and professional opportunities in Sri Lanka, insights enabling demotivation mitigation would be invaluable. This investigation, therefore, seeks to characterise the levels of relative influence of a number of demotives as they affect English language learners of varying levels of competence. Accordingly, this study was conducted at a Faculty of Engineering in a Sri Lankan university with the participation of 896 first-year students following an English for Specific Purposes course.

Research Problem

Motivation has been clearly identified as a reliable indicator of second language learning success, and demotivation as its countervailing influence. A precise characterisation of the latter would ultimately enable greater facilitation of second language learning. Research relevant to this area has concentrated primarily on motivation and has generated a significant body of work conceptualising motivation as pertinent for second language learning. Studies into demotivation,

in contrast, have been narrow, both in volume and scope, and have primarily limited themselves to more localise demotives, such as classroom, teacher, or teaching content-related influences. However, as with motivation, demotivation involves a wide range of internal (affective) and external (environmental) factors, in an analogous manner (Kikuchi, 2011). Inclusion of a wider array of such factors and the relative strength of influence of each such factor upon learners of varying proficiency levels would allow a more comprehensive conceptualisation of demotivation. This, in turn, could facilitate the reduction of demotivation at different levels of proficiency through the countering of the dominant demotives at each such level. This study seeks to formulate a number of internal and external demotives and estimate their respective strengths of influence upon learners at different proficiency levels.

Objectives and Research Question

Research literature highlights that L2 (second language) learning demotivation significantly undermines language attainment. L2 demotivation encompasses both internal and external demotivating factors, each consisting of a variety of potential influences. The relative strength of these influences may differ depending on learners' levels of L2 proficiency, as certain demotives could affect more proficient learners differently from less proficient ones. Understanding this variation is crucial for advancing effective second language teaching and learner motivation strategies. Accordingly, the objective of this study is to determine how the strength of specific internal and external demotivating factors varies across learners with different levels of English language proficiency. To achieve this aim, the study analyzes data collected from 896 engineering undergraduates, who responded to a Likert-scale questionnaire assessing eight demotivational factors. The comparative strength of these factors is examined using ANOVA and effect size analysis across five proficiency levels—Grades A, B, C, S, and W—based on the G.C.E. Advanced Level General English examination. This process allows the study to establish the rank order of demotivational factors for each proficiency level.

The research question guiding this study is as follows:

> How do learners' levels of demotivation, with regard to specific internal and external demotivating factors, vary according to proficiency level?

Literature review

The dominant orientation in pedagogical studies primarily regards the entirety of the teaching and learning community as uniform and focused towards its educational goals, such that any heterogeneity in attainment would be nullified due to commitment to this single-minded objective (Alexander & Murphy, 1999). This belief has been refuted across myriad domains due to the existence of individual differences, which distinguish between individual learners with regard to second language learning. Accordingly, motivation, defined as that which "provides [the learner with] the primary impetus to initiate L2 learning and later the driving force to sustain the long and often tedious learning process" (p.65), is a significant individual difference accounting for differential progress among learners (Dörnyei, 2005). As a crucial finding, Skehan (1989) claims that motivation in second language learning has been observed to be the second most reliable predictor of success, following language learning aptitude.

Demotivation, then, serves as a significant barrier to developing second language proficiency. Formulating an initial definition, Dörnyei and Ushioda (2011) conclude that 'demotivation' concern[s] specific external forces that reduce or diminish the motivational basis of a behavioural intention or an ongoing action" (p.139). Sakai and Kikuchi (2009) enumerate a number of distinct quantities, namely, teachers, characteristics of classes, experiences of failure, class environment, class materials, and loss of interest as context-specific demotivational influences. Kikuchi (2011) includes internal factors, such as diminished self-confidence and unfavourable attitudes, in this definition, such that demotivation is presented as "the specific

internal and external forces that reduce or diminish the motivational basis of a behavioral intention or an ongoing action" (p.11). Hence, all external and internal forces that result in reduced motivation are referred to as demotivators, or demotives. The impact of such demotivators depends on particular learner traits, such as first language, gender, current proficiency, and origin type, as well. For instance, a study by Falout and Maruyama (2004) contrasted the ranking of demotives by low and high proficiency learners. This study examines the level of comparative influence of the following demotives, subject to the participants' current level of proficiency as indicated by the grades obtained on the general English test of the GCE Advanced Level examination, namely A, B, C, S, and W.

The demotives considered for this investigation, identified and conceptually adapted from previous studies, are:

- *Overall L2 Demotivation* – overall opposition to the language being learnt
- *Crippled L2 Identity* – representing internalised negative self-imagery
- *Conflicted L2 Integration* – representing the rejection of external norms
- *Toxic L2 Learning Environment* - negative characteristics of the classroom
- *Cultural and Ideological Resistance* - dissonant psychological, cultural, or political narratives
- *Nationalism, Ethnocentrism, and L2 Resistance* – aversion arising from one's community
- *Antisocial Attitudes and Social Withdrawal* - tendency to avoid interaction
- *Systemic and Institutional Barriers* - structural and institutional aspects of the educational context

Methodology

The data were elicited through a Likert item-based questionnaire administered to 896 engineering undergraduates at the University of Moratuwa during routine lectures. Lecturers administered the questionnaire to groups other than their own to reduce any power dynamics. The questionnaire comprises eight subscales representing the factors listed above, each with eight Likert items. Participants were explicitly informed of the voluntary nature of their involvement, and their willingness to participate was obtained through a consent form. They were also informed that the feedback sought concerned their general sentiments towards L2 learning and not their current teachers or institution. Missing data in the returned questionnaires were addressed through multiple imputation (Allison, 2010), and the reliability of the data was verified through the estimation of Cronbach's Alpha (α) for each subscale (Dörnyei, 2007). The comparison of the strengths of demotives above, separately for each of the proficiency levels A, B, C, S, and W, was conducted using analysis of variance (ANOVA) and effect size analysis (Omega-squared). All statistical analyses were carried out on IBM SPSS Statistics version 30.0.0.0 (Build 172).

Discussion

All averaged demotivational quantities demonstrate negative magnitudes, indicating disagreement with the Likert items in the questionnaire, characterising the participants as a generally motivated group. The relative strengths of the demotives follow a consistent pattern across proficiency levels. This means that the hierarchy ranking the highest to the lowest influential demotive appears to be the same across the levels. Accordingly, c*rippled L2 identity* appears to be the most potent demotive, and *cultural and ideological resistance* is the least influential, with other factors between the two, for all groups.

The factors *that conflicted with L2 integration, cultural and ideological resistance, nationalism, ethnocentrism, and L2 resistance* and *systemic and institutional barriers,* do not vary in strength among different proficiency groups, a probable consequence of these being more external demotives. The demotives *crippled L2 identity, toxic L2 learning environment, antisocial*

attitudes, and social withdrawal, and *overall L2 demotivation,* gain in influence significantly as proficiency declines. This reveals an inverse relationship between demotivation and proficiency governing the behaviour of internal demotives. To conclude, an inverse relationship is observed between internal demotives and L2 proficiency, while external demotives and L2 proficiency appear not to be significantly correlated.

Findings

The principal observation is that the mean values on all demotives for all proficiency groups yield negative values, confirming that the participants are not demotivated, on average. The least potent deterrent is cultural and ideological resistance, while crippled L2 identity is the most influential, with the other factors falling between these extremes. The results of the analysis of variance (ANOVA) and effect size analysis (Omega-squared) are summarised below.

There exists no significant difference among the language proficiency-based subgroups with regard to conflicted L2 integration, $F (4, 880) = 1.99$, $p = .095$, $\omega^2 = .004$. Cultural and ideological resistance is also similarly rejected to the same degree by each of the proficiency-based subgroups as indicated by the findings of the one-way ANOVA and the estimated effect sizes, $F (4, 880) = 0.25$, $p = .909$, $\omega^2 = –.003$.

The differences in nationalism, ethnocentrism, and L2 resistance scores across proficiency groups were not significant, $F (4, 880) = 1.10$, $p = .357$, $\omega^2 = .000$. This quantity represents a more general and less personally involved version of the previously examined quantity, cultural and ideological resistance, and a comparable response was received. Systemic and institutional barriers also revealed no significant proficiency-based differences, $F (4, 880) = 1.22$, $p = .300$, $\omega^2 = .001$. As perhaps the most objectively perceptible quantity, the responses appear to have elicited similar responses across all of the proficiency-based groups.

Significant differences were observed with regard to the remaining demotives: crippled L2 identity, $F (4, 880) = 39.756$, $p < .001$, $\omega^2 = .149$; toxic L2 learning environment, $F (4, 880) = 9.719$, $p < .001$, $\omega^2 = .038$; antisocial attitudes and social withdrawal, $F (4, 880) = 4.786$, $p < .001$, $\omega^2 = .017$; overall L2 demotivation, $F (4, 880) = 9.345$, $< .001$, $\omega^2 = 0.036$, all of them indicating a general trend of increasing demotivation with decreasing proficiency.

Conclusions

It is evident that certain demotives exert greater influence than others, a pattern preserved across proficiency levels. The strengths of the proximal, internal, more emotionally dependent demotives - *overall L2 demotivation, crippled L2 identity, toxic L2 learning environment,* and *antisocial attitudes and social withdrawal*- increase as L2 proficiency declines. The most rapid increase in potency occurs in the demotive *crippled L2 identity* as proficiency declines. This indicates that learners' positive self-imagery deteriorates and negative emotions rapidly gain strength as language competency decreases. The identity dimension of demotivation, therefore, appears to play a dominant role in the overall reduction of L2 learning drive among less proficient learners. The external demotives do not exhibit a comparable pattern of variability in response to varying L2 proficiency. These findings highlight the need for teaching approaches strengthening weaker learners' capacity for countering affective factors as a crucial dimension to be addressed in the classroom.

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A Comparative Study of Junior Secondary Curriculum Implementation and Classroom Management in Two Selected Schools in Germany and Sri Lanka

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Abstract

Classroom management and curriculum usage are critical components of the success of the teaching and learning process. This research explores the similarities and differences in classroom management and the implementation of the junior secondary curriculum in two countries with contrasting contexts: Sri Lanka and Germany. The primary aim is to identify positive practices in junior secondary education across both contexts and to propose ways to incorporate advanced German practices into the Sri Lankan system to enhance educational outcomes. The study focused on a school in the Gampola education zone in Sri Lanka's Kandy district and a school in Bavaria, Germany. A sample of two principals, 10 teachers, and 40 students from these schools was selected for data collection. Data were gathered using observation, informal interviews, field studies, electronic sources, and documentary reviews. Both quantitative and qualitative data analysis methods were employed under a descriptive analysis framework to derive meaningful insights. The findings reveal both shared and unique approaches to classroom management and curriculum implementation in the two countries. In Sri Lanka, challenges related to resource constraints and rigid curricular structures often hinder innovation in classroom practices. Conversely, the German system in Bavaria benefits from advanced pedagogical methods, well-developed infrastructure, and a flexible curriculum that fosters creativity and critical thinking. Based on these observations, the study suggests adopting selected advanced practices from the Bavarian system to address gaps in Sri Lanka's junior secondary education. Recommendations include fostering teacher training programs, adopting flexible curricular structures, and integrating innovative classroom management strategies. These adjustments could bridge existing disparities, enhance student engagement, and ultimately improve the effectiveness of junior secondary education in Sri Lanka.

Keywords: Curriculum, classroom management, Germany, Sri Lanka, comparative study

Introduction

I was fortunate enough to study at the Julius Maximilian University in Würzburg, Germany, for a period of six months through a scholarship awarded by the Department of Educational Sciences, University of Peradeniya. There, I had the opportunity to participate in a teacher training course at a school in the same area. During the training, an idea arose to study the classroom management process and the implementation of the junior secondary curriculum in Germany, its unique features, important characteristics, advanced practices, etc. Based on the facts studied, it is expected that this research will overcome the existing problems related to classroom management and curriculum in that school and overcome the weaknesses related to classroom management and curriculum in Sri Lanka by studying the similarities and differences in comparison with a selected school in Sri Lanka.

Research problem

What are the similarities and differences in junior secondary curriculum implementation and classroom management practices between selected schools in Germany and Sri Lanka, and how do these similarities and differences impact the teaching-learning process in each context?

Objectives

1. To identify the nature of the school classroom and the junior secondary curriculum implemented within it in a selected school in Germany.
2. To identify the nature of the school classroom and the junior secondary curriculum implemented within it in a selected school in Sri Lanka.
3. To identify the similarities and differences in the implementation of the junior secondary curriculum and classroom management in selected schools in Sri Lanka and Germany.
4. To identify the best practices in classroom management and junior secondary curriculum implementation in a selected school in Germany.

Literature review

A comparative study of junior secondary curriculum implementation and classroom management in Germany and Sri Lanka can provide valuable insights into the differences and similarities between the two countries' educational systems. Research highlights the importance of effective curriculum implementation in achieving educational goals. Studies have shown that curriculum design, teacher training, and assessment methods are crucial factors in determining the success of curriculum implementation. Germany's emphasis on vocational training and Sri Lanka's focus on developing teacher competencies through in-service training are notable examples of different approaches to curriculum implementation.

Effective classroom management is essential for successful curriculum implementation. Research emphasizes the need for teachers to create a supportive learning environment, manage classroom behavior, and engage students in the learning process. Studies have also shown that teacher professional development and school leadership play a critical role in shaping classroom management practices.

Comparative studies in education can provide valuable insights into the strengths and weaknesses of different educational systems. Research has shown that comparative studies can help identify best practices, inform policy decisions, and promote cross-cultural understanding. This study aims to contribute to the existing literature by comparing junior secondary curriculum implementation and classroom management in Germany and Sri Lanka. By exploring the differences and similarities between the two countries, this study can provide valuable insights into the complexities of curriculum implementation and classroom management in different cultural contexts.

Methodology

In this research, the implementation of the curriculum and classroom management of the junior high school in two selected schools in Germany and Sri Lanka are studied, so in order to achieve the expected objectives, various methods are used under the mixed research methodology to collect the necessary information. The steps followed in conducting the research can be listed as follows. The research process began with the analysis of classroom equipment in a German school, followed by observations of class activities to understand teaching and learning practices. This was complemented by a study of the junior secondary school curriculum in Germany and interviews with three teachers from the selected school to gain professional insights. A similar procedure was conducted in Sri Lanka, starting with analysis of classroom equipment in a Sri Lankan school, observations of classroom activities, and review of the junior secondary school curriculum. Additionally, interviews with three teachers from the selected Sri Lankan school were conducted. Subsequently, all collected data were analyzed, and finally, conclusions were drawn, along with new suggestions for improving teaching and learning practices. In conducting this research, a purposive sample was selected under non-random sampling. The sample was selected using a

German school and its teachers and students, and one selected school in Sri Lanka and its teachers and students. The study involved a total of 10 teachers, 40 students, and 2 principals from both a German and a Sri Lankan school, with each school contributing 5 teachers, 20 students, and 1 principal. Both primary and secondary data collection methods were employed to gather relevant information.

Primary data were collected through informal interviews with teachers, students, and principals to gain insights into classroom practices, challenges, and experiences. Additionally, classroom observations were conducted in both schools to examine the teaching-learning process, as well as the internal and external environments of the classrooms. Observations focused on identifying problems and challenges faced by students and teachers during classroom activities, and field notes were recorded for further analysis. Secondary data were obtained from electronic sources and documentary materials, including information from the internet regarding the junior secondary school curriculum in Germany and Sri Lanka, as well as official documents and data reports. The collected data, comprising both quantitative and qualitative information, were analyzed using a mixed-methods approach. Descriptive analyses were conducted with the assistance of Excel and other statistical tools to provide a detailed and systematic understanding of the findings.

Discussion

In line with the primary research objectives, a separate, extensive analysis was conducted on classroom management in terms of classroom space, desk and chair arrangement, and number of students in the classroom, physical resources, teacher-student interaction, and internal and external environment. In relation to the Junior Secondary curriculum, an analysis was conducted on curriculum objectives, the number of subjects available, how the curriculum is used in the classroom, assessment, challenges, and problems faced by teachers and students.

Results

The analysis of the classroom environments in the two selected schools revealed several key findings. In the Sri Lankan school, students participated in the teaching and learning process despite limited facilities, which negatively affected the overall quality of education. Data from the classroom checklist indicated a significant shortage of physical resources in the Sri Lankan school compared to the German school, with this disparity hampering the teaching and learning process. In contrast, the German school effectively utilized modern technology in the classroom, providing students with access to more up-to-date knowledge and enhancing their learning experience. Furthermore, the curriculum in the German school emphasized practical subjects directly connected to the world of work, preparing students for practical training and career opportunities based on their interests after completing junior secondary education. Both schools demonstrated positive student evaluation processes through comprehensive assessment systems. However, in both contexts, the practice of having the same teacher handle multiple subjects occasionally disrupted the flow of teaching and learning.

Conclusion

This comparative study explores the implementation of junior secondary curriculum and classroom management practices in two selected schools in Germany and Sri Lanka. The study aims to identify similarities and differences in curriculum design, teaching methods, and classroom management strategies between the two countries. By examining the experiences of teachers and students in both countries, the study provides insights into the complexities of curriculum implementation and classroom management in different cultural contexts. The findings of this study can inform educational policy and practice, promoting effective teaching and learning in junior secondary schools.

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Influence of Teachers' Transformational Leadership on Classroom Management Dynamics in Secondary Schools in Sri Lanka

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Abstract

This study examines the impact of teachers' transformational leadership on classroom management dynamics in secondary schools, with a particular emphasis on enhancing student behaviour, improving learning outcomes, promoting teachers' professional development, and enhancing the overall learning process. Within the context of Sri Lankan secondary education, where teachers often face challenges such as student diversity, limited resources, and increasing academic pressures, this research investigates how transformational leadership practices can transform traditional classroom management into a more inclusive and inspiring educational experience. Adopting a mixed-methods approach, the study was conducted among 40 randomly selected teachers from four 1C-type secondary schools in the Gampola education zone in Sri Lanka. Quantitative data were gathered through structured questionnaires, while qualitative data were obtained via interviews and analysed thematically. The findings revealed that most teachers regularly employed transformational leadership practices, such as encouraging creativity, serving as ethical role models, recognising student achievements, adapting teaching strategies, and fostering respectful and supportive classroom environments. Thematic analysis further revealed that transformational leadership enabled teachers to build student confidence, manage classroom behaviour, promote collaboration, and enhance engagement through democratic and student-centred approaches. However, teachers also reported challenges, including addressing the diverse needs of learners and coping with administrative limitations. Teachers revealed the need for continuous professional development, including training on inclusive pedagogy, leadership skills, emotional intelligence, classroom technologies, and peer mentoring. The study concludes that transformational leadership makes a significant contribution to effective classroom management by fostering a learning culture based on mutual respect, motivation, and empowerment. This research highlights the crucial role of teacher leadership in enhancing educational quality, particularly in contexts undergoing reform and facing significant challenges. It offers valuable implications for policymakers, school administrators, and teacher educators to apply transformative practices that enhance both teaching effectiveness and student success in Sri Lankan schools.

***Keywords*:** Transformational leadership, classroom management, teacher development, student

Introduction

Effective classroom management is essential for creating a productive learning environment. In the educational context, the classroom is not only a place to transfer knowledge, but also a space for interaction among teachers and students, as well as among students themselves. Therefore, effective classroom management is crucial in creating an atmosphere that fosters the development of character, social skills, and students' desire to learn (Hasnanto, 2024). One of the keys to successful classroom management is a good relationship between teachers and students (Mudarris, 2024). In Sri Lankan secondary schools, teachers face numerous challenges, such as diverse student needs, limited resources, and increasing academic demands. These challenges require teachers not only to manage classrooms but also to take on leadership roles to motivate and guide their students toward success. The study by Sasan, Escultor, and Larsari (2023) revealed that, in this context, Transformational leadership is important because it helps teachers inspire and support

their students in a meaningful way. Transformational leadership behaviours of teachers in classroom management are leadership behaviours that promote growth and success among students, while also creating a positive and empowering learning environment (Harris, 2002).

Pennell (2023) reports that transformational leadership has demonstrated potential globally for increasing teacher effectiveness and student performance. According to Khoudri (2024), this leadership style places an extreme value on vision, motivation, and the connection between the teacher and students. In the Sri Lankan context, where educational reforms and school dynamics are evolving, applying transformational leadership practices in classrooms could play a crucial role in addressing current challenges. Although transformational leadership has demonstrated numerous benefits, there is still limited research on its impact on classroom management in Sri Lankan secondary schools. This study aims to fill that gap by investigating closely how teachers' leadership styles influence classroom behaviour, teaching practices, student learning, and overall school success, specifically in the Gampola education zone. Understanding these connections can support teachers as leaders and create more positive, engaging classrooms that improve the quality of education across Sri Lanka.

Review of Literature

Core Elements of Transformational Leadership

Various scholars, for instance, have pointed out that there are four unique and integrating behavioural components or characteristics of transformational leadership, namely: Idealised Influence (II), Inspirational Motivation (IM), Intellectual Stimulation (IS), and Individual Consideration (IC) (Gonfa, 2019). Transformational leadership promotes growth, creativity, and adaptability, making it a more suitable choice for educational leaders who seek lasting and positive impacts (Pennell, 2023). This leadership, at its core, is inspirational because it taps into the spirit of the people involved. This leadership is about change in that it focuses on changing the way people form themselves. This means that leadership endeavours to alter the way people view themselves, both independently and in relation to others, and, hence, influence their values, wants, aspirations, and needs (Gonfa, 2019).

Transformational Leadership and Teacher Commitment

Numerous studies demonstrate that transformational leadership is closely associated with increased teacher commitment. For example, Nwabueze et al. (2018) found that when principals employ motivational approaches, such as enhancing teacher welfare and offering ongoing encouragement, teacher commitment and school performance improve significantly. Likewise, Malela and Gathumbi (2016) found a strong positive relationship ($r = 0.774$) between principals' inspirational motivation and teacher commitment, suggesting this approach can boost professional dedication. Numerous studies have revealed that transformational leadership has a positive influence on teacher commitment. Motivational strategies employed by principals, such as improving welfare and providing encouragement, enhance dedication and school performance (Nwabueze et al., 2018; Malela & Gathumbi, 2016). According to Lee and Kuo (2019), elements of transformational leadership, like intellectual stimulation, can sometimes lead to unintended adverse outcomes. Meanwhile, research by Mansor et al. (2021) in Malaysia demonstrated that this leadership style promotes trust in school principals, which in turn boosts teachers' commitment.

The Importance of Transformational Leadership in Schools

Transformational leadership plays a crucial role in enhancing teacher performance and commitment. Studies from Indonesia by Andriani (2018) and from Nigeria by Iroegbulam (2021) found a strong positive relationship between principals' leadership practices, such as inspirational motivation and idealised influence, and teacher job satisfaction. In Iraq, Ahmad et al. (2019) emphasised that transformational leadership improves teacher performance through the use of

motivational strategies. In Sri Lanka, Fernando et al. (2020) recognised transformational leadership as the most effective method for increasing both academic outcomes and participation in extracurricular activities.

Teachers' Transformational Leadership and Classroom Management

According to Judge & Piccolo (2004), Teachers' ability to organise classrooms and manage the students' behaviour is essential in achieving positive educational outcomes. Accordingly, discipline and classroom management are serious concerns for teachers, administrators, and the general public (Braden & Smith, 2006; Oliver & Reschly, 2007; Burkett, 2011). Teachers need leadership skills in addition to managing their classrooms to help motivate students. This means that the way a teacher leads can significantly impact how well they manage the classroom. Can (2009) explains that teachers should have a clear vision, be open to change, take risks, and be honest. He also notes that teachers, as leaders, can significantly influence their students' success, goals, and behaviour.

Methodology

The population for this study consists of all secondary school teachers within the Gampola education zone. A sample of 40 teachers was selected in four 1C-type secondary schools within this zone using a random sampling method to participate in the study. This study employs a mixed-methods design, incorporating both quantitative and qualitative approaches to investigate the impact of teachers' transformational leadership on classroom management in secondary schools. Quantitative data were collected using questionnaires and analysed using simple statistical methods to identify trends and relationships. Qualitative data were collected through interviews, and thematic analysis was applied to identify common themes related to transformational leadership and its effect on classroom management. This combination of methods provides a deeper understanding of how transformational leadership influences the learning environment, teacher development, student behaviour, and academic outcomes for students.

The main objectives of this research are:

1. Examine how teachers' transformational leadership affects classroom management dynamics.
2. Investigate the impact of transformational leadership on student behaviour and engagement.
3. Understand how transformational leadership supports teachers' professional development and enhances the learning process.

Results and Discussion

1. **RO1-** Examine how teachers' transformational leadership affects classroom management dynamics.

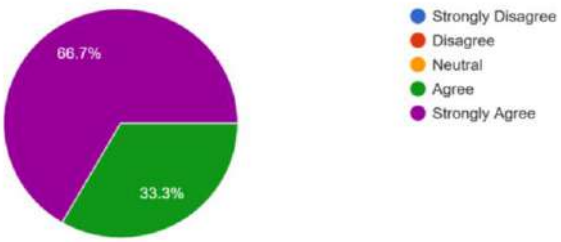

Figure 1. Teachers' agreement on maintaining a positive and respectful classroom environment

To the question "Do you maintain a positive and respectful classroom environment?", 66.7% of the teachers responded, "Strongly Agree", while 33.3% responded "Agree". This indicates a strong commitment among teachers to fostering a respectful and supportive learning atmosphere. The findings are represented in the associated chart.

Table 1

Teachers' responses to questions on encouraging creativity, recognising achievements, and providing personalised support

Question	Always	Often	Sometimes	Rarely	Never
Do you encourage your students to think and be creative?	81%	14.3%	4.8%	-	-
Do you recognise and celebrate students' achievements to encourage further efforts?	71.4%	14.3%	14.3%	-	-
Do you offer personalised feedback and support to help students enhance their performance?	52.4%	33.3%	14.3%	-	-

Based on the questionnaire data, 81% of teachers reported that they "Always" encourage students to think and be creative, 14.3% responded "Often", and 4.8% "Sometimes", indicating strong promotion of creativity in classrooms. For recognising and celebrating student achievements, 71.4% chose "Always", while 14.3% selected "Often" and 14.3% "Sometimes", reflecting a generally positive approach to student motivation. Regarding personalised feedback and support, 52.4% answered "Always", 33.3% answered "Often", and 14.3% answered "Sometimes", indicating that more than half consistently provide individualised support. These results are illustrated in the corresponding charts.

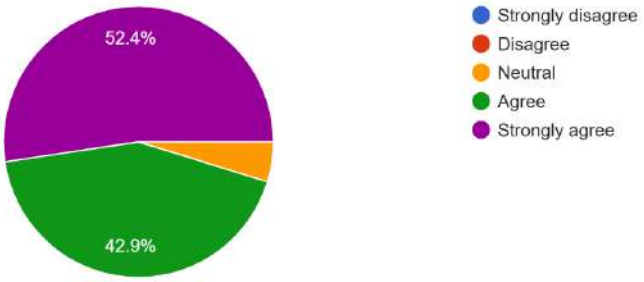

Figure 2. Teachers' responses to adapting teaching methods to meet the needs of all learners

To the question "Do you adapt your teaching methods to meet the needs of all learners?", 52.4% of the teachers responded "Strongly Agree", 42.9% "Agree", and 4.8% chose "Neutral". These results highlight teachers' efforts to implement inclusive and flexible teaching strategies. The data are visualised in the corresponding chart.

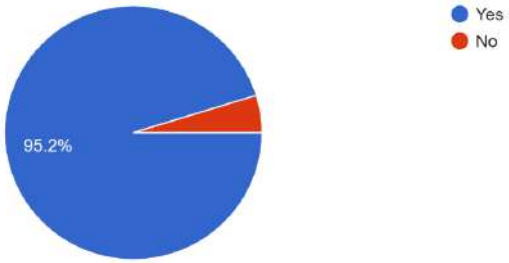

Figure 3. Teachers' responses to students' respect and cooperation in class

In response to the question "Do your students show respect and cooperation in class?", one hundred per cent of the teachers answered "Yes". This unanimous response suggests a high level of discipline and mutual respect within classrooms. The results are shown in the respective chart.

RO2-Investigate the impact of transformational leadership on student behaviour and engagement.

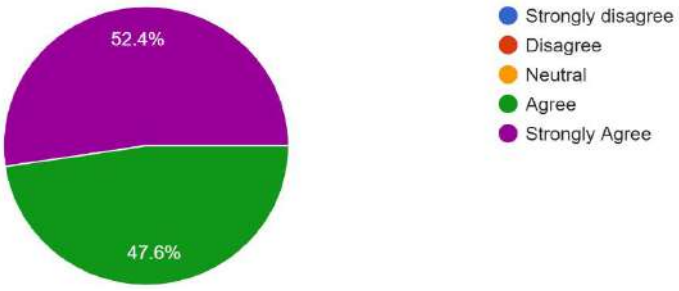

Figure 4. Teachers' Responses on Student Engagement and Motivation in the Classroom

In response to the question, "Are your students engaged and motivated to learn?" ninety-five per cent of the teachers responded "Yes", while only 4.8% responded "No". This reflects a high level of student engagement and motivation as observed by the teachers. The results are shown in the related chart.

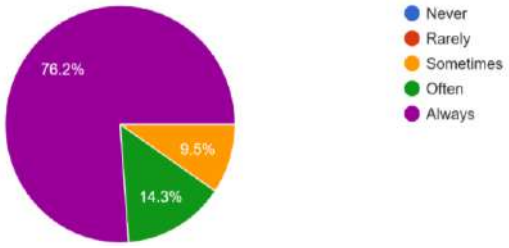

Figure 5. Teachers' Responses on Student Engagement and Motivation in the Classroom

When asked, "Have you observed improvements in student behaviour as a result of your leadership approach? 52.4% of the teachers selected "Strongly Agree", while 47.6% chose "Agree". This indicates a positive impact of teacher leadership on student conduct. The findings are presented in the relevant chart.

RO3-Understand how transformational leadership supports teachers' professional development and enhances the learning process. When asked, "Do you serve as positive role models, demonstrating ethical behaviour and professionalism in the classroom?", 76.2% of the teachers answered "Always", 14.3% answered "Often", and 9.5% answered "Sometimes". This indicates that the majority of teachers believe they set a strong professional and ethical example for their students. The responses are displayed in the relevant chart.

Table 2

Teachers' responses to openness to feedback and commitment to professional development.

Question	Yes	No
Are you open to feedback and willing to make changes in your teaching?	95.2%	4.8%
Do you seek opportunities to develop your leadership and teaching skills?	100%	-

In response to "Are you open to feedback and willing to make changes in your teaching? 95.2% of teachers said "Yes", indicating strong openness to growth. For "Do you seek opportunities to develop your leadership and teaching skills? 100% responded "Yes", showing full commitment to continuous professional development. Results are shown in the corresponding charts.

How Leadership Style Affects Classroom Management (Teachers' Responses)

Leadership Style and Classroom Management: Teachers emphasised that leadership begins with setting an example, as students tend to observe and imitate their behaviour. A democratic and student-centred approach helps in building confidence, mutual respect, and a collaborative environment. By setting clear expectations and maintaining consistent control, teachers can guide classroom behaviour effectively. Supportive leadership, paired with positive reinforcement, was noted to encourage attentiveness, motivation, and discipline, even in larger classrooms.

Challenges in Balancing Leadership and Classroom Management

Teachers reported that one of the main challenges is maintaining authority while remaining approachable and empathetic. Managing diverse student needs, including varying learning styles, language barriers, and behavioural issues, requires flexible strategies. External factors, including inconsistent parental support and administrative pressure, further complicate the role of classroom leadership. Time limitations, technological demands, and distractions, such as social media, also impact student engagement and classroom control.

Support and Training Needed for Effective Classroom Leadership

Participants emphasised the importance of ongoing professional development, particularly in areas such as classroom management, conflict resolution, emotional intelligence, and communication. They expressed a need for training on inclusive teaching, differentiated instruction, and digital tools for modern classrooms. Support from school management, expert-led workshops, and mentoring relationships with experienced colleagues were seen as key to improving leadership practices.

Suggestions to Improve Classroom Management as Transformational Leaders

Teachers suggested that building strong relationships with students and parents fosters trust and improves the classroom atmosphere. They recommended involving students in setting goals and establishing classroom norms to promote a shared sense of responsibility. Encouraging autonomy, leadership roles, and critical thinking nurtures student ownership of learning. Regular training, technology integration, and reflective practices —such as providing feedback and celebrating progress —were also viewed as essential to sustaining transformational leadership in the classroom.

Conclusion

This study examined the impact of teachers' transformational leadership on classroom management, student behaviour, learning processes, and professional development in Sri Lankan secondary schools. The findings, based on both quantitative and qualitative data, confirm that transformational leadership makes a significant contribution to enhancing classroom effectiveness and fostering a positive, student-centred learning environment. In addressing RO1, teachers consistently encouraged creativity, recognised student achievements, and provided individualised support—core elements of transformational leadership. According to Gonfa (2019), Transformational Leadership has four major characteristics (core elements): Idealised influence (II), Inspirational motivation (IM), Intellectual stimulation (IS), and Individual consideration (IC). The majority of teachers affirmed that they maintain respectful and inclusive classrooms, which increases student engagement and responsibility. Regarding RO2, the study revealed that students

are highly motivated and demonstrate improved behaviour and participation, which teachers attribute to their leadership practices. These outcomes reflect the strength of transformational leadership in shaping student attitudes and cooperation. Concerning RO3, all teachers expressed a strong commitment to professional development, actively seeking opportunities to improve their teaching and leadership capabilities. Their willingness to accept feedback and implement changes reflects a culture of continuous growth and adaptability. Despite these positive outcomes, teachers reported several challenges: managing diverse learner needs, balancing authority with empathy, coping with time constraints, and addressing external pressures from parents and school management. To overcome these challenges, additional training and institutional support are necessary.

Suggestions:

1. Professional Development: Deliver regular training on transformational leadership, inclusive teaching, and classroom management.
2. Mentorship and Collaboration: Encourage peer mentoring and collaborative professional learning.
3. Technology Integration: Provide resources and training for effective use of digital tools in the classroom.
4. Institutional Support: Minimise administrative workload and create supportive conditions for teacher leadership.

Ultimately, fostering transformational leadership among teachers is crucial to enhancing classroom practices, promoting student success, and enhancing educational quality in Sri Lanka. Future research may examine its long-term impact on school-wide improvement.

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The Influence of Electronic Devices on Academic Achievement in Social Science Subjects Among Senior Secondary Students

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Abstract

This research examines the impact of electronic devices on academic achievement in social science subjects among senior secondary students, drawing on a comprehensive review of existing literature. With the increasing prevalence of technology in classrooms and at home, devices such as smartphones, tablets, and laptops have become integral to students' learning experiences. This study examines the use of electronic devices in History, Geography, and Civics, analysing the benefits, challenges, and prior research to recommend effective integration in social science education. The literature reviewed highlights both positive and negative effects: while some findings suggest that electronic devices enhance learning through access to digital resources and interactive platforms, others point to reduced academic focus, distractions, and dependency. To analyse the reviewed materials, content analysis was employed to extract insights from quantitative studies, while thematic analysis was utilised for qualitative research. The findings underscore the importance of guided and purposeful use of electronic devices to ensure they support rather than hinder academic success. Overall, the study emphasises the role of digital literacy, teacher supervision, and curriculum alignment in optimising the educational benefits of technology for social science subjects at the senior secondary level.

Keywords: Electronic devices, academic achievement, social science education, senior secondary students, influence

Introduction

The rapid growth of digital technology has transformed education in numerous ways, particularly with the widespread use of electronic devices, including smartphones, tablets, laptops, and desktop computers. These devices have become important tools for both classroom learning and studying on your own [COMMENT: Consider replacing with 'independent study' for a more academic tone.]. They give students quick access to a wide variety of information and digital resources. In senior secondary education, especially in social science subjects such as History, Geography, and Civics, these devices are often used for research, watching videos, participating in online discussions, and completing assessments.

Although electronic devices can make learning more engaging and flexible, they also raise some concerns. Students may become distracted, lose focus, or struggle to grasp topics thoroughly. The influence of electronic devices on learning depends on factors such as the type of device, whether it’s used for schoolwork or entertainment, and the level of guidance provided by teachers. This research examines the impact of electronic devices on students' performance in social science subjects in senior secondary school. By reviewing studies from around the world, the goal is to understand both the benefits and drawbacks of using these devices in the classroom and suggest practical ideas for teachers and education planners.

Research Background

Electronic devices have significantly altered the way senior secondary students learn, particularly in social science subjects such as History, Geography, and Civics. These devices help students access up-to-date information and use interactive tools that make learning more interesting and valuable. Social science teaches important skills, such as critical thinking and understanding society, and with proper guidance, electronic devices can support these goals.

However, using devices too much or for the wrong reasons, like social media or games: Consider changing to 'non-academic purposes such as social media or gaming' for clarity.] can distract students and hurt their performance. Because the results of using devices in education are mixed, this research looks at past studies to better understand both the good and bad effects. The goal is to help teachers and decision-makers use this information to make smart choices about using technology in the classroom.

Research Problem

This research looks at how electronic devices affect how well senior secondary students do in social science subjects. These tools can help learning by giving students flexible access to study materials, but they can also cause distractions and make it harder to focus. Previous studies show mixed results—some say devices help students do better, while others show problems like students relying too much on them and getting lower grades. Even though more people are studying this topic, not much research has looked closely at how devices affect social science subjects like History, Geography, and Civics. Because of that, this study reviews past research to find common trends, challenges, and useful ways to use electronic devices more effectively in social science classrooms.

Objectives

1. To examine how electronic devices are used in the learning of History, Geography, and Civics at the senior secondary level.
2. To identify the positive effects of electronic device usage on students' academic achievement in social science subjects.
3. To explore the negative impacts and challenges associated with electronic device use in social science education.
4. To analyze existing research findings on electronic devices in social science education through content analysis and thematic analysis.
5. To propose recommendations for the effective integration of electronic devices in teaching and learning social science subjects.

Literature Review

Overview of Electronic Devices in Education

Electronic devices have changed learning by making lessons easier to access, more interactive, and flexible. Smartphones, tablets, laptops, and desktop computers give students digital textbooks, online resources, apps, and videos. Ertmer and Ottenbreit-Leftwich (2010) point out that technology helps personalize learning and keeps students interested, while Selwyn (2016) says it lets students learn at their own pace and style. In senior secondary school, these devices are important for getting students ready for college and jobs by meeting different learning needs and building important digital skills (Lei & Zhao, 2007). But using good teaching methods and having the right equipment are key to getting the most out of these tools (Tondeur et al., 2017).

Influence of Electronic Devices on Academic Achievement

Research shows that electronic devices can have both good and bad effects on how well students do in school. On the positive side, they make it easier to access learning materials, help students work together, and boost motivation (Batdi, Aslan, & Zhu, 2018). Liu et al. (2020) found that using tablets and laptops helped students understand and remember difficult ideas better. But using devices too much or the wrong way can cause distractions, reduce study time, and lead to lower grades (Lepp, Barkley, & Karpinski, 2015). Rosen et al. (2013) showed that trying to do many things on devices at once lowers focus and learning. How much devices help also depends on

students' ability to control their use and their digital skills—students who manage their devices well tend to do better (Junco & Cotten, 2012).

Electronic Devices and Learning in Social Science Subjects

Electronic devices have become important tools in social science education, giving new ways to help students learn subjects like History, Geography, and Civics. These subjects often need students to study complicated information, understand different viewpoints, and link past or geographical facts to today's issues. Digital tools like interactive maps, videos, and online archives make learning easier and help students understand difficult ideas better (Hattie & Yates, 2013).

Research by King (2017) showed that students who used tablets and laptops in social science classes improved their critical thinking and were more excited about learning. Similarly, Park and Kim (2021) found that digital storytelling and virtual simulations in Civics helped students better understand how democracy works and their role as citizens. However, how well electronic devices work in social science depends on how teachers use them in lessons and guide students. Without good planning, devices can become distractions instead of helping students learn (Wang & Reeves, 2020). So, while technology has great potential in social science education, it needs to be used carefully to get the best results.

Positive Effects of Electronic Devices on Learning

Electronic devices have many benefits that help students learn by making lessons more interesting, easier to access, and suited to each student's needs. They give quick access to things like e-books, videos, and simulations, which help students understand and remember better (Ching & Hsu, 2017). Studies show that tablets and laptops encourage students to be active learners and work together more (Shin & Kim, 2018). Cheung and Slavin (2013) found that students who used computer programs did better on tests compared to those who learned in traditional classrooms. Digital tools also help teachers adjust lessons for different students and let students learn at their own pace (Tomlinson, 2017). In social science classes, tools like virtual field trips help motivate students and improve their understanding (Mayer, 2019).

Negative Effects and Challenges of Electronic Device Usage

Although electronic devices help with learning, research points out some big challenges. Students often get distracted by social media, games, or messaging when they should be studying, which lowers their focus and grades (Junco, 2012; Ophir, Nass, & Wagner, 2009). Spending too much time looking at screens is linked to shorter attention spans and feeling mentally tired, making it harder to understand and remember information (Rosen et al., 2013). Relying too much on devices can also stop students from developing critical thinking and problem-solving skills because they look for quick answers instead (Carr, 2010). In social science classes, using devices without rules can lead to shallow learning (Wang & Reeves, 2020), and differences in access to technology and skills cause unfair learning gaps (Van Dijk, 2020). To avoid these problems, clear rules and balanced use of devices are very important.

Factors Influencing the Effectiveness of Electronic Devices in Education

The effect of electronic devices on learning depends on things like how lessons are planned, how ready teachers are, students' digital skills, and their social and economic situations. Research shows that just having technology isn't enough to improve learning; what really matters is how well it's used in teaching (Hew & Brush, 2007). Teachers who feel confident and know how to use digital tools tend to create more interesting lessons, but if teachers don't get enough training, technology won't work as well (Tondeur et al., 2017). Students who are good with technology can use devices better for learning, but those who aren't might have more trouble and get distracted more easily (van Deursen & van Dijk, 2014). Also, having reliable internet, enough devices, and a good place to study at home makes a big difference in learning outcomes (Wang, Myers, & Sundaram, 2013).

Future Research and Gaps

Even though a lot of research has been done on electronic devices in education, there are still important gaps when it comes to how they affect senior secondary students' achievement in social science subjects. Most studies focus on general education or science and technology subjects, with less attention given to History, Geography, and Civics (Ali et al., 2024; Park & Kim, 2021). There are also a few long-term studies and little focus on how regional, language, and cultural differences affect the use of technology (Wang & Reeves, 2020). Different ways of measuring device use make it hard to compare results between studies. Also, not many studies give clear advice on how to use devices effectively in social science classes. This research aims to look at existing studies to find better ways to use electronic devices in these subjects.

Methodology

This research is based on a thorough review of existing studies to understand how electronic devices affect academic achievement in social science subjects for senior secondary students. The study looked at both numbers-based (quantitative) and opinion-based (qualitative) research articles from trusted academic sources and journals. For the quantitative data, content analysis was used to find and summarize important statistics about how using electronic devices relates to academic performance. This helped find clear patterns and measurable effects across different studies. For the qualitative data, thematic analysis was done to find common ideas, themes, and views about how electronic devices are used and their impact on social science education. This helped gain a better understanding of the different situations that affect how devices are used.

Findings

The studies reviewed show that electronic devices have both good and bad effects on how well senior secondary students do in social science subjects. On the positive side, these devices help learning by giving students access to digital resources, simulations, and interactive tools that improve understanding and performance when used in moderation (King, 2017; Liu et al., 2020). However, using devices too much or for non-school activities can lower attention and the quality of learning (Junco, 2012). Also, not all students have the same access to technology or the same digital skills, which makes it harder for some to benefit (Van Dijk, 2020). How well students do with electronic devices depends mostly on how prepared teachers are, how well students can manage their own use of devices, and whether the devices are used in a balanced way. Overall, electronic devices can make a big difference in learning, but their effect depends on many different teaching and learning conditions.

Conclusion

This research shows that electronic devices can help senior secondary students do better in social science subjects when they are used properly with good support from teachers. Devices can make learning more interesting, improve understanding, and give access to useful digital tools. However, if students use them excessively or without guidelines, it can lead to distractions, reduced focus, and unfair learning disparities. The effectiveness of devices depends on the readiness of teachers, the skill level of students with technology, and whether all students have equal access to them. To maximise the benefits of technology and minimise problems, teachers should establish clear rules and balanced plans for device usage in the classroom. This will help students learn more effectively and develop strong digital skills for the future.

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Evaluating the Effectiveness of Residential English Training Programmes in Developing English Language Competence: Evidence from Selected Programmes in Sri Lanka

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Abstract

English proficiency is increasingly recognized as a key requirement for academic, professional, and social advancement in Sri Lanka. While conventional schooling often emphasises grammar and written skills, Residential English Training Programmes (RETPs) have gained popularity as an intensive and immersive alternative. This study evaluates the effectiveness of RETPs in developing the four core competencies of listening, speaking, reading, and writing. Adopting a mixed-methods approach, data were collected from 100 students and five lecturers across five RETPs through structured questionnaires and semi-structured interviews. Findings indicate that RETPs provide an interactive learning environment that enhances learners' confidence and oral communication skills, offering clear advantages over traditional and online models. However, the study also reveals limitations, including uneven attention to receptive skills, a short course duration, and a lack of alignment with international benchmarks. It concludes that while RETPs contribute positively to students' English competence, greater curricular standardisation, balanced skill development, and extended learning opportunities are required to ensure sustainable improvements.

Keywords: Residential English training programmes, English language competencies, communicative competence, immersive learning, language pedagogy

Introduction

English proficiency has become indispensable for academic advancement, employment, and social mobility in Sri Lanka. Although the language was once a colonial marker of elitism, today it functions as a "link language" in national policy and a gateway to global opportunities (Liyanage & Canagarajah, 2014; Walisundara & Hettiarachchi, 2016). However, the education system has consistently underperformed in cultivating comprehensive communicative competence. Research highlights that formal curricula often emphasise reading and writing, while neglecting listening and speaking (Indrarathne & McCulloch, 2022). Regional disparities in implementation further exacerbate inequities in English education (Corea, 2019).

These gaps have spurred the growth of alternative learning avenues, particularly Residential English Training Programmes (RETPs). RETPs promise intensive, immersive learning by combining structured classroom instruction with residency, thereby encouraging students to use English in a continuous and sustained manner. While popular among school leavers and young adults, there is little empirical evidence regarding the actual effectiveness of these approaches in developing the four competencies: listening, speaking, reading, and writing. This study critically examines the potential of RETPs to address the shortcomings of conventional and distance-learning models.

Research Problem

Despite the rising popularity of RETPs, their role in fostering comprehensive communicative competence remains underexplored. With globalisation and the digital economy heightening the demand for practical English skills (Crystal, 2000), the question is whether RETPs can provide

sustainable improvements in proficiency and meet learners' socio-academic needs more effectively than traditional classroom and online methods.

Research Questions

1. How do RETPs enhance learners' language proficiency across the four competencies?
2. Why do participants prefer RETPs over other English courses?
3. How effective are the teaching methods used in RETPs for second language acquisition?
4. Do short-duration intensive programmes produce significant improvements in proficiency?
5. What role does student–teacher collaboration play in achieving outcomes?

Aim and Objectives

To evaluate the effectiveness of RETPs in developing English language competencies among Sri Lankan learners.

Objectives

1. To assess the effectiveness of competency-based teaching strategies employed in RETPs.
2. To examine participants' motivations and perceived learning outcomes.
3. To compare RETPs with traditional and online English learning models.
4. To recommend pedagogical and structural improvements for RETPs.

Literature Review

Competency-Based Language Teaching (CBLT) emerged in the 1970s, emphasising measurable, functional skills over rote memorisation (Docking, 1994; Wong, 2008). Scholars argue that balanced development of the four competencies—reading, writing, listening, and speaking—is essential for communicative competence (Sadiku, 2015). In Sri Lanka, however, public examinations prioritise written skills, marginalising oral proficiency (Brunfaut & Green, 2019).

Krashen's (1982) Input Hypothesis underscores that meaningful, low-anxiety interaction fosters acquisition more effectively than conscious grammar instruction. Similarly, Savignon (2002) highlights that communicative competence develops through authentic discourse and negotiation of meaning. RETPs, with their immersive environments, theoretically align with these frameworks. Yet, questions remain about curricular design, skill balance, and long-term sustainability.

Methodology

A mixed-methods approach was used to capture both statistical trends and rich qualitative insights. Approximately 500 students and staff formed the broader population across five RETPs. A purposive sample of 100 students and five lecturers was selected. A structured questionnaire with 25 items (both open- and closed-ended) was distributed to students via Google Forms. Data were coded, analyzed, and represented with charts and tables in Microsoft Excel. Semi-structured interviews were conducted with five lecturers via Zoom. Transcripts were manually coded to identify recurring themes. Integration of student survey data and lecturer interviews enhanced validity and reliability.

Results and Findings

Participant Demographics and Motivation

Most participants (72%) were aged 16–25, primarily school leavers and undergraduates. Their motivations included improving general English knowledge (52%), preparing for higher education or migration (40%), and enhancing career prospects (40%).

Preference for RETPs

Students reported favoring RETPs for their immersive and interactive environment. Unlike traditional classrooms or online courses, RETPs provided continuous exposure to English and real-time opportunities for practice. Dissatisfaction with previous learning experiences characterized by limited engagement and grammar-heavy approaches was a recurring theme.

Teaching Approaches

Lecturers described adopting a blend of classroom instruction, role plays, debates, and group activities. Approximately 63% of academies combined activity-based and traditional methods. However, surveys revealed an uneven focus: speaking (40%) received disproportionate attention, while listening and reading remained under-prioritized.

Effectiveness and Student Understanding

A majority (78%) of students reported understanding lessons from the first day, suggesting a moderate baseline proficiency. However, short course durations and limited individual support constrained long-term learning gains.

Lecturer Perspectives

Lecturers highlighted RETPs' ability to motivate learners and foster authentic communication. Yet, they acknowledged inconsistencies in curricula and the absence of alignment with international frameworks such as CEFR. Concerns were raised about whether short-term immersion could ensure durable skill acquisition.

Discussion

The findings suggest that RETPs address some limitations of mainstream education by creating immersive contexts conducive to language acquisition. Consistent with Krashen's (1982) model, RETPs provide meaningful input and reduce affective barriers, fostering learner confidence. However, imbalances in skill coverage mirror systemic flaws in national education. While speaking and grammar dominate instruction, receptive skills such as listening and reading are underemphasized, leading to incomplete competence. Moreover, reliance on accelerated courses risks superficial learning, as language acquisition is a cumulative and iterative process (Galaczi, 2018). Lecturers' emphasis on motivation and peer interaction underscores the social value of RETPs. Nevertheless, the lack of standardized curricula and assessment frameworks limits comparability and scalability.

Conclusion and Recommendations

This study concludes that RETPs are **moderately effective** in enhancing English language competencies in Sri Lanka. Their immersive environment and interactive strategies provide distinct advantages over traditional and online learning models. However, limitations in programme duration, skill balance, and curricular alignment reduce their overall impact.

Recommendations

To enhance the effectiveness of RETPs, several measures are recommended. Firstly, curricular alignment should be prioritised by standardising RETP curricula with established frameworks, such as the CEFR, to ensure consistency and clarity in learning outcomes. Secondly, balanced

competencies must be maintained by giving equal emphasis to listening, speaking, reading, and writing skills, fostering holistic language development. Thirdly, personalised learning approaches should be incorporated, using diagnostic assessments and tailored learning pathways to accommodate learners with diverse proficiency levels. Fourthly, sustainability can be achieved by extending course durations or providing structured follow-up modules, ensuring reinforcement and long-term retention of skills. Lastly, professional development is essential, with lecturers receiving training in competency-based and communicative pedagogies to effectively implement these strategies. By adopting these recommendations, RETPs can evolve into robust platforms that bridge the gap between formal schooling and the communicative demands of higher education and the workplace.

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"Big Match, 1983" in the GCE O-Level Classroom: An Analysis of Learner Difficulties with Intertextual Politics in *Big Match, 1983*

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Abstract

Sri Lankan poetry in the GCE Ordinary Level syllabus often employs intertextual references to the nation's socio-political history. These references, when not properly applied, create barriers for learners lacking background knowledge, impeding a holistic education. A student survey (N=30) identified Yasmine Gooneratne's *Big Match, 1983,* a poem in the GCE Ordinary Level syllabus that critiques the 1983 anti-Tamil pogroms through cricket metaphors, as one of the most challenging poems to learn. However, why this poem poses a challenge to the students remains to be extensively addressed. Hence, this research study explores the perspectives of students and teachers regarding the poem *"Big Match" (1983)* to comprehend the rationale behind the perceived difficulty. Applying the pedagogical concepts of bell hooks (engaged pedagogy, education as liberation), Paulo Freire (critical consciousness, reading the word/world), and Stanley Fish (interpretive communities), this mixed-methods study examines how context profoundly influences the learning of literary content. The study's findings illustrate the varying views of students regarding the poems, which depend on their geographical location and their connection to either a metaphorical event or a real incident. Furthermore, this research study examines the (im)practicalities of teaching and learning periodical literature in the current geopolitical landscape, advocating for distinct approaches to reading literature. Therefore, the poem *"Big Match" (1983), identified as one of the difficult poems in the syllabus, is often overlooked. However, it precisely or irrespective of this delineates how poetry is infused in the sociopolitical fabric of a nation, the understanding of which is crucial to promoting* holistic education to students.

Keywords: "Big Match, 1983, GCE O-Level classroom, analysis, learner difficulties with intertextual politics

Introduction

Sri Lankan literature in the GCE Ordinary Level syllabus frequently embeds intertextual references to the nation's contested socio-political history, demanding contextual awareness for meaningful learner engagement. Accordingly, Yasmine Gooneratne's *Big Match, 1983*, exemplifies this challenge. The poem employs cricket as an extended metaphor to critique the 1983 anti-Tamil pogrom, which was a traumatic event in Sri Lanka's civil conflict. The interweaving of cricket and violence creates a complex literary-political tapestry that is inaccessible to learners lacking a historical grounding. A preliminary survey (N=30) identified this poem as among the syllabus's most challenging poems, yet the specific nature of these difficulties remains underexplored. Hence, this research addresses this gap by investigating how intertextual politics, historical disconnects, and pedagogical approaches converge to hinder comprehension, arguing that such barriers undermine holistic education —a concept central to transformative pedagogies.

Aim and Objectives

This study aims to:

1. Identify the precise sources of difficulty students encounter when engaging with *Big Match, 1983*.
2. Examine teacher and student perspectives on the poem's pedagogical challenges.

3. Analyse how learners' geographical, social, and historical positioning shapes interpretation.
4. Propose context-sensitive strategies for teaching politically intertextual literature within the current Sri Lankan educational landscape.

Theoretical Framework and Methodology

Employing a mixed-methods approach, this study integrates:

- Qualitative data: Semi-structured interviews with O-Level teachers (n=8) and focus groups with students (n=30). A challenge the study is currently undergoing is the stratification process of the students and teachers based on location and ethnic background.
- Quantitative data: Pre/post-intervention questionnaires assessing comprehension shifts after scaffolded teaching.

Theoretical Frameworks- Three interconnected theoretical lenses guide analysis:

1. Bell hooks' "engaged pedagogy" and "education as liberation": Framing classroom practice as a space for critical consciousness and empowerment. (hooks, 1994)
2. Paulo Freire's "critical consciousness" and "reading the word/world": Emphasising the necessity of contextualising textual analysis within socio-political realities. (Freire,1970)
3. Stanley Fish's "interpretive communities": Exploring how shared cultural/historical contexts shape meaning-making within learner groups. (Fish, 1980)

Key Findings

Historical-Contextual Disconnect: 87 per cent of students lacked awareness of the 1983 pogroms. Those who were unfamiliar with both cricket and the historical event struggled significantly with the poem's core metaphor, perceiving it as abstract or nonsensical.

Pedagogical Tensions: Teachers reported:

- Insufficient training/resources to teach historical trauma effectively and ethically, as they were either distant from the event or highly involved in it.
- Pressure to prioritise exam-focused "decoding" over critical engagement.

Impact of Theoretical Framing: Activities applying Freire's (1970) "reading the world" (e.g., analysing news clippings from 1983 alongside the poem) significantly improved comprehension but required careful facilitation to avoid distress. Hooks' concept of "engaged pedagogy" resonated as an ideal, yet a practical implementation faced institutional hurdles.

Discussion and Implications

This study demonstrates that difficulty with *Big Match, 198*3 stems not merely from literary complexity, but from the intersection of intertextuality, historical amnesia, and pedagogical unpreparedness. The poem acts as a microcosm of broader challenges in teaching periodical literature. The Necessity of Context: Understanding literature like *Big Match (1983) requires confronting uncomfortable national history and stimulating a past that is often considered best left* undisturbed. Ignoring context reduces learning to superficial metaphor-spotting, failing Hooks' (1994) and Freire's (1970) vision of liberatory education. The Role of Interpretive Communities (Fish, 1980): Learner backgrounds fundamentally shape reception. A monolithic teaching approach is ineffective; strategies must acknowledge diverse starting points and vulnerabilities. (Im) Practicalities in the Current Landscape: While theoretically vital, profound contextual teaching faces practical constraints, including time limitations, a lack of teacher support, political

sensitivities, and assessment criteria and an examination system that often prioritises technical analysis over critical socio-political understanding.

Conclusion and Contribution

Big Match, 1983, exemplifies how poetry is intrinsically woven into a nation's sociopolitical fabric. This research argues for distinct, contextually adaptive ways of reading literature within the Sri Lankan O-Level syllabus and similar contexts:

- Integrate Context Systematically: Develop age-appropriate, sensitive historical primers for politically intertextual texts.
- Empower Teachers: Provide specialised training and resources on trauma-informed pedagogy and facilitating difficult dialogues.
- Re-evaluate Assessment: Move beyond purely textual analysis to include reflections on context and interpretation that promote deeper critical engagement.
- Comprehensive Syllabus Reviews: The need to possess a multifaceted understanding of the sociopolitical landscape of the country in choosing content for the syllabus renewals and using education practically to eradicate social barriers rather than reinstate them.

Ultimately, confronting the challenges posed by poems like *"Big Match, 1983" is not merely about literary comprehension,* but is fundamental to achieving the holistic, emancipatory education necessary for postwar reconciliation and critical citizenship in post-conflict societies.

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Development of Soft Skills for Positive Interpersonal Relationships among Prospective Teachers of the National Colleges of Education

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Abstract

The National Colleges of Education (NCoEs), which are pre-service teacher training institutions, play a significant role in teacher training. In this pre-service teacher training, prospective teachers are expected to develop positive interpersonal relationships. An examination of the research literature reveals that researchers have not paid sufficient attention to the development of soft skills related to positive interpersonal relationships among prospective teachers of NCoEs. The objectives of this research are, identifying the soft skills related to interpersonal relationships among prospective teachers of NCoEs, examining the contribution of the National College of Education curriculum to the development of soft skills related to interpersonal relationships among prospective teachers of NCoEs, identifying the problems faced in the development of soft skills related to interpersonal relationships among prospective teachers of NCoEs and proposing interventions through soft skills development to build positive interpersonal relationships among prospective teachers of NCoEs. The philosophical basis of this research is pragmatism. The research methodology used is a mixed-methods approach, specifically the convergent parallel/concurrent mixed layout. A design-based research approach is also employed. Five NCoEs conducting primary courses in the Sinhala medium were selected for the study. A sample of 296 teacher trainees and 75 lecturers was selected using a random sampling method. Questionnaires, interviews, and scales were used for data collection. Both qualitative and quantitative methods were applied for data analysis. The findings of this research aim to enhance interpersonal relationships among prospective teachers of NCoEs. Additionally, introducing an appropriate action plan for the development of soft skills among prospective teachers of NCoEs will make a valuable contribution to the future effectiveness of the educational system.

Keywords: Prospective teachers, soft skills, positive interpersonal relationships

Introduction

The National Colleges of Education (NCoEs) in Sri Lanka were established in 1986 as institutions providing pre–service teacher education, as per the Educational Institutions Act. Published under No.30 of 1986, provided the legal foundation for the establishment of NCoEs. This marked the beginning of the network of pre–service teacher training institutions known as the NCoEs. According to the National Institute of Education (2017), the NCoEs course consists of two years of institutional training followed by a one–year internship period. During the two–year institutional training, students engage in academic experiences related to professional, special, and general subject areas, as well as educational practices and curricular programs. As the National Education Commission (2017) points out, some subjects in the college curriculum fail to develop any skills, while others encompass an overly broad range of subject areas. As Jan (2017) points out, to address the problems arising from changes in all 21st-century fields social, economic,

environmental, and political teachers must develop a generation of students with 21st-century soft skills. For this, the teacher must be someone who has developed soft skills. Therefore, the development of soft skills of prospective teachers in pre–service teacher training courses is important. Kumari (2024) has emphasised the need for more attention to be paid to enhancing the soft skills of pre–service teachers in her study of teacher educators' perceptions of soft skill development in prospective teachers. When focusing on the soft skills that need to be developed in teachers, it was revealed that researchers have not sufficiently emphasised the development of the soft skills necessary for positive interpersonal relationships.

Research Problem

According to Fan (2009), while many current teachers possess strong technical skills, they often lack soft skills, resulting in strained teacher–student relationships in many schools. Research has shown that both hard and soft skills are essential indicators of professional performance. Hashim & Yunns (2014) reported that only 15% of job success depends on technical skills and knowledge, while 85% relies on soft skills. Many studies emphasise that teacher training institutions should contribute to the development of soft skills.

> "Teacher education aims to produce teachers with professional competence, and the role of teachers is no longer limited to teaching. They should be thoroughly professional. They should be fully equipped with both educational and practical skills, meeting high educational standards. The professional success of every professional largely depends on up-to-date knowledge, dedication, and efficiency. Teacher education should develop the soft skills that a future teacher needs to become an excellent professional teacher." Pachaiyappan & Sadayakumar (2018).

Among the soft skills that a future teacher should possess, soft skills related to interpersonal relationships receive special attention. Tang's (2015) study on integrating soft skills in teaching revealed that the four–year training period at university has not been optimally utilised for developing teachers' soft skills. Shakila (2016) has also emphasised in her study on the interpersonal relationships of future teachers that these teachers should learn to improve their interpersonal skills for the benefit of their profession as well as society. The two–year compulsory residential training in the NCoEs course is an important opportunity for teacher trainees to develop soft skills related to interpersonal relationships. It is clear that prospective teachers currently face several problems related to interpersonal relationships. This is due to a lack of development of their soft skills. Therefore, the current research focuses on the development of soft skills related to interpersonal relationships in prospective teachers of the NCoEs.

Objectives

1. Identifying the soft skills related to interpersonal relationships among Prospective teachers of NCoEs.
2. To examine the contribution of the NCoEs curriculum to the development of soft skills related to interpersonal relationships of prospective teachers.
3. Identifying the problems faced in the development of soft skills related to interpersonal relationships among prospective teachers of NCoEs.

4. Intervention through soft skills development for building positive interpersonal relationships of prospective teachers of NCoEs.

Literature Review

This is ongoing research. This research abstract presents the literature review conducted in relation to the research objective of developing soft skills related to interpersonal relationships. The term 'Soft Skills' is used in different countries to describe different fields. According to the Australian National Training Authority (2003), Soft skills are defined through terms such as Transferable Skills, Generic Skills, Employability Skills, Key Skills, Common Skills, Necessary Skills, and Competencies. Soft skills are non–technical, transferable skills that enable individuals to interact effectively. Soft skills, such as Communication skills, listening skills, problem–solving skills, decision-making skills, teamwork skills, Adaptability, Leadership skills, Empathy skills, Organisational skills, and Emotional Intelligence skills, are essential for effective interpersonal relationships. Three theories related to soft skills were identified under the theoretical foundations of the research.

Howard Gardner's Theory of Multiple Intelligences

As Indrawati (2021) points out, multiple intelligence is the existence of eight basic intelligences. Interpersonal intelligence is important for positive interpersonal relationships. These intelligent individuals, who are empathetic to others in society and have a special ability to understand the feelings, goals, aspirations, gestures, and cues of others, achieve a high level of social adaptation.

Daniel Goleman's Emotional Intelligence

According to Goleman (1998), emotional intelligence is the ability to effectively manage one's own and others' emotions by recognising the differences between them and using this information to guide one's thinking and actions.

Albert Bandura's Social Learning Theory

Social learning theory is one of the most influential psychological concepts introduced by American psychologist Albert Bandura and other behavioralists in the 1940s and 1950s. The learning medium of social learning theory is 'Pattern observation', and it shows four situations.

- The situation of attention
- The situation of absorption
- The situation of representation
- The situation of motivation

The core of social learning theory is that students learn through observation and imitation. Several Soft skills development models were identified during the literature review related to the research. A holistic approach is adopted to plan and implement soft skills for students in higher education. As Pachori & Yadev (2019) point out, there are three universally accepted models for developing soft skills.

The isolated subject model: This is a training process for students that provides opportunities for them to develop soft skills through carefully designed, specialised courses.

The embedded model: This is a teaching and learning approach that inculcates soft skills in all subjects. Unlike the isolated subject model, this model does not involve studying specific courses. Various methods, including questioning, class discussions, brainstorming, group work, role-playing, and simulation, are employed in this model.

The relationship between the isolated subject model and the embedded model: This model attempts to incorporate the best features of both the isolated subject model and the embedded model. The isolated subject model has more advantages when considering aspects such as framework, planning, implementation, and assessment. The embedded model is challenging. This model is more effective in developing and acquiring soft skills because it combines elements of both the above models.

Nagimove & Fakhredinova (2018) have shown that the soft skills development model of learners in vocational education institutions resembles a three–layer ellipse and consists of three development zones.

- Nuclear Zone
- Flexible Zone
- Forward vision Zone

Based on the above information, a teacher's soft skills development model that includes skills and values can be developed. Various researchers have developed methods and techniques for soft skills through their research. Arat (2014) conducted a study on the acquisition of soft skills at the University. This study introduced several activities designed to develop soft skills at the University.

- Long–term apprenticeships
- Sports
- Volunteer work and projects
- Art and design
- Projects
- Long–term work groups and classes
- Domestic and international trips
- Learning to play an instrument

Kostikova, Holubny, Girich, and Movmyga (2021) conducted a study on the development of soft skills among university students. It demonstrated the impact of game–based teaching on the development of soft skills in university students. Through the literature review of the research, it was possible to explore information on the introduction of soft skills, their classification, theories related to soft skills, models for soft skills development, methods for developing soft skills, and techniques.

Methodology

The philosophical basis of this research is pragmatism. Pragmatism is commonly used for mixed methods research. Pragmatists argue that reality is continually interpreted and negotiated. Makombe (2017) states that in pragmatism, both positivist and constructivist philosophical foundations will be used in the same research. The research methodology employed in this study is a mixed-methods approach. Additionally, a creative design–based research approach is employed. A quantitative or qualitative research approach examines the research problem from a single perspective. However, George (2021) has shown that using both these perspectives in a mixed method will allow a complete picture of the research problem to be obtained. Johnson & Christiansen (2017) define mixed-method research as a method in which a researcher or research team combines both quantitative and qualitative research approaches. The research population comprises the 19 National Colleges of Education in Sri Lanka, along with their respective student populations. The number of colleges implementing the Sinhala medium primary course, which enrols the most significant number of students in the National College of Education, is 12. The target population of the research is the first- and second-year prospective teachers and lecturers of those colleges. Five colleges were selected for the research sample through simple random sampling. Slovin's formula was used to determine the sample size. A total of 296 prospective teachers, 148 from each of the first and second years, were selected for the research sample through stratified random sampling. Seventy-five lecturers were selected through purposive sampling. The total research sample was 371. Research instruments, including questionnaires, interviews, documentary surveys, and checklists, were used to collect data related to the research objectives. Data is analysed quantitatively and qualitatively.

Discussion

The discussion highlights that developing a soft skills program for prospective teachers should incorporate the theory of multiple intelligences to address the diverse strengths of learners. Emotional intelligence plays a vital role, as it directly influences interpersonal soft skills. Drawing on Social Learning Theory, particularly pattern observation, can enhance the learning process. Furthermore, adapting soft skills models from vocational education can provide a helpful framework. The Game Method is also recommended to make learning an interactive and engaging experience. Ultimately, a contextually adapted soft skills intervention model can effectively guide future curricular reforms in Sri Lankan teacher education.

Conclusions

The development of soft skills related to interpersonal relationships among pre–service teacher training students of the NCoEs has become a timely need. The objectives of this research are, Identifying the soft skills related to interpersonal relationships among the prospective teachers of NCoE, To examine the contribution of the National College of Education curriculum to the development of soft skills related to interpersonal relationships among the prospective teachers of NCoE, Identifying the problems faced in the development of soft skills related to interpersonal relationships among the prospective teachers of NCoE, Intervention through soft skills development of build positive interpersonal relationships among the prospective teachers of NCoE. The results of this

research will help new teachers who contribute to the education system through the NCoEs become effective teachers who successfully perform their duties by building positive interpersonal relationships.

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Integrating Music Activities into Mathematics Instruction to Enhance Cognitive Skills in Primary Education: A Systematic Literature Review

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Abstract

Worldwide, several studies have found that music education makes a significant contribution to the cognitive, emotional, and social development of children in primary education. This systematic literature review examines the integration of music activities with mathematics and cognitive skill development for primary students. It used PRISMA guidelines to select ten peer-reviewed studies, and a four-phase screening process was performed: identification, screening, eligibility assessment, and inclusion. Both qualitative and quantitative studies were considered, including empirical evidence that demonstrated the effective integration of music and mathematics. This study is grounded in Piaget's Theory of Cognitive Development, Gardner's Multiple Intelligences Theory, and Vygotsky's socio-cultural perspective on symbolic learning, which together provide a neurological and pedagogical foundation for linking music with mathematical cognition. Findings demonstrate that music-based pedagogies (rhythm, melody, movement, and symbolic notation) positively improve cognitive skills, including patterning, memory, spatial-temporal reasoning, and symbolic reasoning, all skills required for mathematical learning (Trinick et al., 2015). Programmes such as Academic Music and MusiMath have been shown to promote positive student achievement in arithmetic and fractions (Azaryahu et al., 2020; An & Tillman, 2015). Teacher portraits and case studies revealed increased student motivation, greater confidence, and teacher awareness in interdisciplinary approaches to working. The review concludes that, in terms of teaching practices, integrating music into mathematics offers a compelling, enjoyable, and cognitively enriching approach to primary education, and calls for additional research and professional development to improve the successful implementation of this model further.

***Keywords*:** Music activities, primary education, curriculum integration, educational challenges, cognitive skills

Introduction

Both music and mathematics are intrinsic components of primary education, each uniquely contributing to the psychological growth of young children. (Arnal-Palacián et al., 2020; Sanders, 2018). Mathematics improves logical reasoning, number understanding, and abstract thought (National Research Council, 2001), while music improves auditory perception, pattern recognition, memory, hand-eye coordination, and emotional intelligence. (Hallam, 2010). Over the last twenty years, an increasing international interest in interdisciplinary learning strategies that combine music and mathematics has emerged to enhance learning achievements further. (Rauscher & Hinton, 2011). Building on such studies, this literature review aims to systematically examine how the use of music within mathematics instruction facilitates the greater development of cognitive skills among primary school students. The review places a particular focus on skills such as memory, sequencing, symbolic processing, and spatial-temporal thinking. (Gordon, 2007; Rauscher & Zupan, 2000). The motivation for conducting this research stems from the potential of music-based interventions to make mathematics more tangible and comprehensible, thereby enhancing learning and cognitive abilities. (Spelke, 2017). Based on the analysis of a screened set of studies, this review demonstrates the potential for combining music and mathematics in curriculum planning and pedagogic approaches, with implications for professional development. (Hallam, 2010; Southgate & Roscigno, 2009).

Purpose and Objectives of the Study

This literature review aims to compile and critically evaluate existing research on the integration of music activities in mathematics learning and their impact on the cognitive development of primary school children. It investigates the rhythmic patterns, melodic sequencing, and movement that can contribute to overall cognitive development (Gordon, 2007; Rauscher & Zupan, 2000; Anvari et al., 2002). In addition, the review examines how cross-disciplinary methods can make abstract mathematical ideas more accessible and engaging for young students (Spelke, 2008). Lastly, it highlights the implications of this research for teacher education and curriculum development, and provides recommendations for education policy and practice that support holistic cognitive development in primary education (Southgate & Roscigno, 2009; Barrett et al., 2007). Despite progress in scholarship from the Global South, a substantial gap remains in evidence-based research in the South Asian setting, particularly in countries such as Sri Lanka.

Methodology

This systematic literature review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines proposed by Moher et al. (2009). The review process was conducted in four distinct phases: identification, screening, eligibility, and inclusion. A general search approach was employed for searching relevant research studies for review inclusion. The databases utilised in the search were ERIC, JSTOR, Scopus, Google Scholar, and ProQuest, all of which provide access to peer-reviewed scholarly studies in education and cognitive development. Studies with specific inclusion criteria were included in the analysis: they had to be peer-reviewed journal articles published between 2000 and 2024, specifically targeting primary education (ages 5–12). A total of 128 records were initially found from database searches. After eliminating duplicates, the rest of the studies were screened by title and abstract to limit the list to 42 potentially relevant papers. The 42 papers were then read in full to see whether they all met the inclusion criteria. 10 studies were finally selected for final analysis. All 10 studies were then systematically analyzed, and key data were extracted using a standardized template.

Theoretical Frameworks

This research is underpinned by a collection of cognitive and educational theories that all advocate for the use of music activities with mathematics as a medium for cognitive advancement in primary school education. Piaget's Theory of Cognitive Development (1952) highlights the essential values of structured, experiential, hands-on learning for children at the concrete operational stage. Gardner's Multiple Intelligences Theory (1983, 1997) defines interdisciplinary learning by merging musical and logical-mathematical intelligences, which can fit multiple learning styles. Vygotsky's Socio-Cultural Theory (1978) emphasizes learning through socio-emotional interaction and symbolic tools, such as musical scores and math symbols. Gordon's Music Learning Theory (2007) supplements audiation, thinking in terms of music patterns alongside mathematical thinking in patterning and proportion thinking. These theories together legitimize the use of music as a sensory and cognitive bridge to enable mathematical understanding and general cognitive skill acquisition in young students.

Results and Thematic Argument of Findings

The direct application of music in primary mathematics, as addressed in the ten studies, revealed three broad themes through which music aids cognitive development in children: cognitive and mathematical skill development, classroom practices and pedagogical approaches, and socio-emotional change and motivational outcomes. A systematic review of articles revealed standard features in musical interventions that influenced mathematical knowledge, cognitive development, and classroom pedagogy.

Theme 1: Cognitive and Mathematical Skill Development through Music

It has been found that integrating mathematics and music in primary school significantly improves the cognitive abilities essential for learning mathematics. The ten studies reviewed included eight that claimed significant enhancements in abstract thinking, number estimation, attention, problem-solving, and pattern recognition through structured music-math integration. The same cognitive gains were attributed to the use of rhythmic systems, melodic patterns, and embodied learning strategies, which enhanced cognitive processes and symbolic reasoning.

Improvement of Abstract thinking and critical reasoning

An important cognitive outcome highlighted in the literature is the development of abstract thinking and higher-order reasoning. Six studies (Chao-Fernández et al., 2020; Trinick et al., 2016; An et al., 2013; An and Tillman, 2015; Still and Bobis, 2004; Azaryahu et al., 2019) have found that students who experienced music-integrated mathematics had a much higher level of ability to think abstractly than the control groups. Indicatively, Chao-Fernández et al. (2020) and Trinick et al. (2016) established that the meaning-making of rhythmic patterns increased students' capacity to conceive non-concrete mathematical concepts. An et al. (2013) found, in turn, that symbolic manipulation and cognitive flexibility were better in students who received music instruction.

Increase in Number Estimation and Magnitude Processing

Five studies presented evidence of improved number estimation and magnitude comparison skills following rhythmic or melodic intervention (Łuczak, 2021; An et al., 2013; Chao-Fernández et al., 2020; Azaryahu et al., 2019; Still & Bobis, 2004). For example, Łuczak (2021) found that rhythm-based training significantly enhanced children's abilities to estimate and compare numerical magnitudes. Similarly, Chao-Fernandez et al. (2020) also found an association between rhythmic clapping activities and the improvement of estimation and measurement accuracy, suggesting that temporal organisation in music facilitates counting in mathematics.

Improved Concentration and Code Switching

The role of music in maintaining attention and enhancing symbolic manipulation was pointed out in four studies (An and Tillman, 2015; Courey et al., 2012; Lovemore et al., 2021; Azaryahu et al., 2019). Using a time-series design, An and Tillman (2015) demonstrated that students experienced improvements in long-term attentional control and symbolic reasoning after engaging in rhythmic sequencing activities. Similar results were reported in studies by Coupey et al. (2012) and Lovemore et al. (2021), which showed increased attention and concentration during fraction-based rhythm training. Additionally, Azaryahu et al. (2019) demonstrated evidence of transfer effects to non-musical symbolic tasks.

Improvement of Problem-Solving and Pattern Recognition

The results of seven studies (Still and Bobis, 2004; Trinick et al., 2016; Chao-Fernandez et al., 2020; Azaryahu et al., 2019; Courey et al., 2012; Lovemore et al., 2021; An et al., 2013) showed that music activities had a significant positive impact on the problem-solving ability and pattern recognition skills of students. Still and Bobis (2004) observed that rhythmic narratives enhanced students' skills in identifying mathematical regularities and applying them in the context of story-based problems. The results of a study by Azaryahu et al. (2019) confirmed that the cognitive transfer of the participants in the MusiMath group was more general in the range of content-specific problems, which supports the idea that rhythmic structure is associated with solving mathematical problems.

Theme 2: Classroom Practices and Pedagogical Approaches

One of the common findings of the reviewed research is that integrating music into a mathematics course is best supported when clear pedagogical models and effective teacher behaviours back it. Among the ten studies analysed, eight used student-focused, constructivist, or culturally-based methodologies; five of them directly discussed teacher beliefs, competencies, and professional needs as vital aspects influencing integration. These results indicate that an effective music-math integration is not just the content delivered, but also the mechanism through which the content is offered and the teachers' ability to do so successfully.

Active-learning and Student-Centred Pedagogies

Seven articles (Still and Bobis, 2004; Trinick et al., 2016; Lovemore et al., 2021; An et al., 2013; An et al., 2008; Łuczak, 2021; Chao-Fernandez et al., 2020) focused on active learning and student-centred approaches to classroom teaching. Still and Bobis (2004) also demonstrated how narrative-based pedagogy integrates learning in mathematics and music through students' participation and imagination in rhythms. Likewise, Trinick et al. (2016) employed a culturally responsive model that incorporated indigenous songs and community music practices into the mathematics curriculum, enabling students to develop conceptual knowledge through culturally meaningful tasks. Lovemore et al. (2021) also emphasised the importance of participatory action research, in which teachers collaboratively create rhythm-based lessons tailored to the classroom setting, thereby leading to increased student participation and conceptual knowledge. In these studies, music-based activities consistently provided abundant opportunities for inquiry, collaboration, and experiential learning.

Exploratory and Workshop-Based Instructional Strategies

Three studies (An et al., 2013; An et al., 2008; Łuczak, 2021) used either an exploratory or workshop-based teaching model that directly connected musical and mathematical patterns. These methods encouraged students to explore thematic connections (such as rhythm and ratio, or melody and measurement) in order to gain a deeper conceptual understanding of the structural similarities between the two fields. This model also favoured inquiry-based learning, where students developed meaning by actively exploring rather than passively being taught.

Structured Instructional Designs and Experimental

Three studies (Azaryahu et al., 2019; An and Tillman, 2015; Courey et al., 2012) used quasi-experimental or experimental designs, where cognitive outcomes were considered the dependent variables of a particular intervention. An example by Courey et al. (2012) demonstrated how explicitly connecting fractional notation to rhythmic values enhanced students' understanding of fractional equivalents. Similarly, An and Tillman (2015) quantified the differences between rhythm-based and no intervention on symbolic manipulation. In contrast, Azaryahu et al. (2019) tested the differences in the impact of rhythm- versus melody-based programs on mathematical achievement. There was evidence, even in non-experimental designs, such as Chao-Fernández et al. (2020), that integrating music was associated with improvements in mathematical cognition.

Teacher Beliefs, Professional Development, and Implementation Capacity

Teacher attitude and competency came up as one of the key dimensions affecting the success of music-math integration. Teacher knowledge, teacher confidence, and teacher beliefs were identified as important variables in five studies (Still and Bobis, 2004; An et al., 2013; An and Tillman, 2015; Trinick et al., 2016; Lovemore et al., 2021). Still and Bobis (2004) found that teachers with a high musical background and a developmental philosophy based on the whole child were more likely to incorporate music meaningfully into mathematics lessons. Nevertheless, An et al. (2013), Trinick et al. (2016), and An and Tillman (2015) noted that a significant portion of teachers, even those interested in interdisciplinary teaching, were less confident and needed

professional assistance to use these approaches in practice. The authors indicated that the lack of resources and training prevented teachers from planning cross-disciplinary lessons.

Theme 3: Socio-emotional Changes and Motivational Outcomes

In the studies reviewed, incorporating music into mathematics education had a significant socio-emotional and motivational impact on primary students. Juxtaposed with other learning methods, music-based approaches provided meaningful learning environments, which facilitated confidence, enjoyment, collaboration, and positive attitudes toward the learning process. These results were evident in the students' reactions to music as a context in mathematics teaching, highlighting the significant role of emotions and motivation in cognitive development. The analysis yielded two key sub-themes.

Improved Stimulation, Pleasure, and Driving Forces

Eight articles (Still and Bobis, 2004; Trinick et al., 2016; Lovemore et al., 2021; An et al., 2013; An et al., 2008; Laczak, 2021; Chao-Fernandez et al., 2020; Azaryahu et al., 2019) reported that music, when included in mathematics, enabled students to be more engaged and motivated. Rhythmic exercises, teaching through songs, and joint music-making created mathematics as a livelier and more familiar subject. Still and Bobis (2004) found that participation was promoted through narrative and rhythmic approaches, whereas Trinick et al. (2016) discovered that indigenous songs related learning to the students' cultural identities. According to Lovemore et al. (2021), rhythm-based teaching provides a stimulus to curiosity and active exploration, emphasising motivation as a key mechanism for learning benefits.

Confidence, Positive Relations and Attitudes to Learning

Seven articles (An and Tillman, 2015; An et al., 2008; Lovemore et al., 2021; Still and Bobis, 2004; Trinick et al., 2016; Courey et al., 2012; Chao-Fernandez et al., 2020) highlighted that integrating music enhanced confidence, social interaction, and positive attitudes towards mathematics. Music-based group activities enhanced interaction with peers and the process of solving problems (An and Tillman, 2015; Lovemore et al., 2021), whereas rhythmic engagement created a supportive classroom atmosphere (Still and Bobis, 2004). Courey et al. (2012) and An et al. (2008) found that connecting musical notation with fractions led to a reduction in math anxiety. In general, music served as a socio-emotional scaffold, which encouraged confidence, cooperation, and positive learner dispositions.

Discussion

The three major themes of this review include Cognitive and Mathematical Skill Development through Music, Classroom Practices and Pedagogical Approaches, and Socio-emotional Changes and Motivational Outcomes, all of which highlight the benefits of music integration in developing thinking skills, enhancing teaching strategies and methods, and fostering positive attitudes and motivations in learning. These themes are well corroborated by the findings of the ten reviewed studies and indicate that the application of music activities in primary mathematics not only enhances cognitive skills (memory, attention, reasoning, and problem-solving) but also enhances conceptual understanding and skills in manipulating symbols (An et al., 2013; Chao-Fernandez et al., 2020; Azaryahu et al., 2019). These enhancements are indicators of the concrete operational stage of Piaget, in which practical and sensual experiences play a key role in achieving abstract thinking, and are also supported by the Music Learning Theory put forth by Gordon, which opines that audiation can be a successful mediator of musical and mathematical cognition and therefore the smooth transfer of symbols and the resulting increase in learning. The mathematical concepts addressed through music integration were varied; fractions, time, number sense, and arithmetic were the most common, as seen in seven out of ten studies. Fractions and proportional thinking were generally associated with rhythmic notation and time, which established a natural

correspondence between music and mathematics. Courey et al. (2012) and Lovemore et al. (2021) demonstrated that rhythmic exercises enhance the understanding of fractional equivalence and division. Still and Bobis (2004) combined tempo and rhythm with subtraction and clock-based concepts. An et al. (2013) matched music activities with the main arithmetic activities, enhancing the procedural fluency and comprehension of these concepts. Such results indicate that teachers can effectively plan the integration of musical elements with mathematical subjects, incorporating rhythmic or symbolic arrangements.

There were varying levels of music integration, ranging from rhythm-only activities to complex musical, compositional, and performance integration (An et al., 2008). The most commonly used element was rhythm, as it is patterned, countable, and can be inherently understood numerically. For example, Trinick et al. (2016) and An and Tillman (2015) employed clapping and chanting activities to support the learning of number patterns and multiplication tables. More intensive interventions, such as the one described by Azaryahu et al. (2019) under the title of the MusiMath program, integrated melody and rhythm, resulting in wider benefits and a longer attention span. This fact confirms the notion that course designers must incorporate simple rhythmic activities and other complex musical experiences to produce the highest cognitive and motivational outcomes.

The pedagogical methods employed in the studies were primarily constructivist, experiential, and student-centred. Narrative pedagogy, based on stories, action research structures, and quasi-experiments, has proven helpful in facilitating engagement and cognitive development (Still and Bobis, 2004; Lovemore et al., 2021; An and Tillman, 2015). The interdisciplinary approach, combined with collaboration in planning and reflective practices, was found to be more effective in increasing confidence and creativity in lesson planning among teachers who employed these strategies. It has been demonstrated that professional development is a crucial factor, with teacher preparedness and teacher assistance having a direct impact on the success of music-mathematics integration (Trinick et al., 2016; An et al., 2013; Lovemore et al., 2021).

Based on the evidence, several practical recommendations can be derived. To teachers, mathematics lessons should be organised with rhythm-based and melodic activities to maximise attention, symbolic processing, and engagement. Motivation and socio-emotional development can be even further enhanced with the help of collaborative and culturally responsive techniques (adding indigenous songs or story-based learning). Music-math integration guidelines, particularly in fractions, time, and number sense, are to be incorporated into the curriculum with flexibility to adapt to various classroom settings. Professional development programs that instil teacher confidence and interdisciplinary competencies, along with resources and guidance for implementation, should be the priorities of policymakers, ensuring consideration and cultural responsiveness. In general, the results suggest that music-mathematics integration may yield considerable cognitive, motivational, and socio-emotional benefits if it is delivered with consideration for teacher preparation, curriculum-related congruency, and cultural context. However, empirical support in the context of South Asia, including Sri Lanka, is lacking, marking a valuable field of future research.

Limitations

The studies reviewed had a wide range of research designs, intervention lengths, and sample sizes, which makes generalising results from the reviewed studies difficult. Most studies also took place within a specific cultural context, such as the USA, France, China, or New Zealand, which could raise issues regarding applicability to other educational systems. Several studies were short interventions, and short interventions might not capture the holistic contributors to long-term change in cognitive abilities related to music-math uptake. Some reported teacher-created outcomes may also have some teacher bias. Future intervention research could adopt a more standardised, mixed-methods approach, while also focusing on the long-term impacts of music and

its effects on cognition to clarify better how music affects cognitive development in mathematics education.

Conclusion

As this literature review demonstrates, incorporating music activities into the primary mathematics teaching process can effectively promote cognitive development among young learners. Based on the ten studies reviewed, there is evidence that the rhythmic and symbolic qualities of music offer a valuable avenue for improving mathematical learning, particularly in areas such as fractions, patterns, measurement, sequencing, memory, spatial-temporal reasoning, and symbolic processing. The relationship between musical rhythm and mathematical concepts has become one of the primary mechanisms that help students interact with abstract concepts by listening to music and through other kinesthetic means. Activities based on music not only enhanced cognitive abilities but also encouraged engagement, motivation, and attentional control, providing learning conditions where students could practice repetition, beat matching, and pattern recognition, which in turn reinforced problem-solving and logical thinking skills. The role of the teacher also played a critical role: teachers who used interdisciplinary and student-centred pedagogies were more confident, creative, and efficient in planning lessons, which contributed to even greater improvement in cognitive results. Other programs, such as MusiMath in France and Academic Music in the United States, yielded promising results; however, their success was contingent upon alignment with the curriculum, teacher readiness, and students' familiarity with musical practices. Overall, the results suggest that integrating music and mathematics may produce substantial improvements in cognitive outcomes when applied in culturally relevant and situation-driven ways. Nevertheless, practical evidence in South Asian contexts, including Sri Lanka, remains scarce and presents a significant gap that warrants further investigation in the future.

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Promoting the 13-Year Guaranteed Education Program among Students: The Contribution of School Career Guidance Programs

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Abstract

A significant number of students in Sri Lanka drop out of school after failing to meet the minimum requirements for further education following the G.C.E. Ordinary Level (O/L) examination. These students often encounter considerable challenges in pursuing their educational and career aspirations. To address this issue, the Ministry of Education introduced Circular No. 37/2017, establishing a vocational stream within the G.C.E. Advanced Level, thereby guaranteeing thirteen years of continuous education through the Thirteen-Year Guaranteed Education Program (13YGEP). This study aims to analyze existing literature on the role of career guidance programs in government schools in supporting the effective implementation of the 13YGEP. It also emphasizes the need to cultivate a school culture that values and systematically integrates career guidance, ensuring that the entire school community recognizes its significance and facilitates the organization of related interventions. The specific objectives are to identify the importance of the 13YGEP, review prior research on the contribution of career guidance to students' career choices, and highlight knowledge gaps that warrant future investigation. A systematic literature review was conducted covering studies published between 2018 and 2024. Databases such as Google Scholar and JSTOR were utilized with keywords including career, vocational stream, government schools, and NVQ. A qualitative research methodology was adopted, using thematic analysis to synthesize findings. The study reveals that maintaining effective career guidance programs requires the development of comprehensive monitoring and evaluation systems, alongside systematic processes to manage data on student achievement and career interests. Furthermore, enhancing the attitudes and competencies of career guidance teachers and establishing robust data systems on students who fail the O/L examination are critical. However, the current support provided by school-based career guidance for the 13YGEP remains insufficient. The study concludes by highlighting the need for further in-depth research into stakeholder perspectives and ground-level practices to strengthen the integration of career guidance and vocational education.

Keywords: Vocational subject, career guidance, 13-year guaranteed education program

Introduction

In Sri Lanka, a significant number of students drop out of the formal education system after failing to qualify for further education through the G.C.E. (Ordinary Level) examination. These students, often motivated to enter the workforce early, lack the necessary vocational training and skills to secure stable employment. Even those who engage in short-term vocational programs frequently face unemployment, highlighting a critical gap in the transition from education to work. According to the Department of Examinations (2022), 1.8% of students fail all subjects in the O/L examination, while 25.5% do not meet the minimum criteria for higher education, resulting in over 26% of students exiting the education system prematurely.

In alignment with Sustainable Development Goal (SDG) 4.3, ensuring equal access to affordable, high-quality technical and vocational education by 2030, the Ministry of Education introduced the Thirteen-Year Guaranteed Education Program (13YGEP) under Circular No. 37/2017. This initiative added a vocational stream to the existing six Advanced Level subject streams, aiming to equip students who fail the O/L examination with technical, vocational, and social skills essential for meaningful economic participation. Upon completing the two-year program, students may qualify for National Vocational Qualification (NVQ) Level 4, enabling

entry into advanced vocational training and improving their employability. As per the Annual School Census Report (2023), there are 10,096 government schools in Sri Lanka and 606 schools offering a vocational stream. To achieve the desired results, the number of students shown in the above figures for all these schools should be included in the 13YGEP. For example, the number of students who did not qualify for the G.E. in the year 2023 was 80,234. However, the number of students included in the 13YGEP is 10,163 (Annual Census Report, Ministry of Education, 2023).

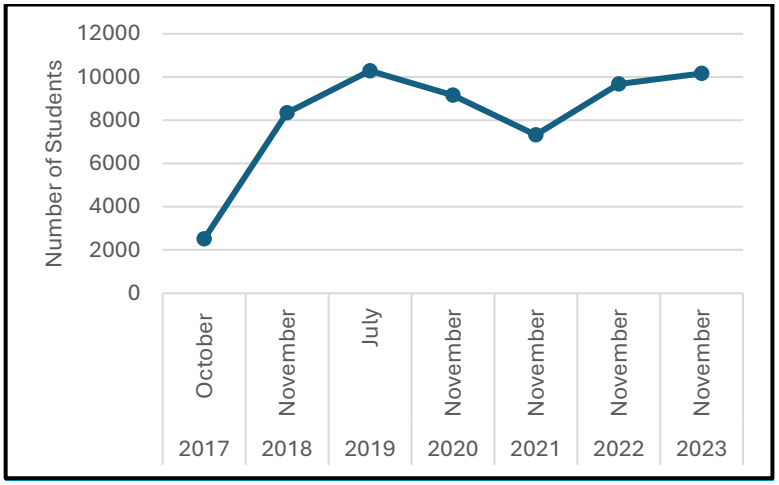

Figure 1. Number of students enrolled in schools in Sri Lanka for 13YGEP (2017 – 2023)

Source: Annual School Census Report, Ministry of Education(2023)

The primary objective of 13YGEP is to develop competent, self-reliant individuals with strong career skills and personal growth, ultimately contributing to Sri Lanka's workforce. However, despite its potential, the program has faced challenges in student enrollment. One of the most effective strategies for increasing awareness and participation is through comprehensive school-based career guidance. Yet, awareness about 13YGEP remains limited due to its inconsistent implementation across schools and insufficient understanding among school administrators and teachers. This study was undertaken in response to a recognized research gap and the urgent need to examine how schools can leverage career guidance mechanisms to enhance enrollment in the 13YGEP. The research seeks to provide insights into improving support systems and increasing student engagement with vocational education pathways.

Research Question

1. What is the contribution of career guidance programs in schools to the implementation of 13YGEP?

Research Objectives

1. To examine the significance and intended impact of the Thirteen-Year Guaranteed Education Program (13YGEP) within Sri Lanka's educational and vocational development strategies.
2. To explore existing research on the role and effectiveness of school-based career guidance programs in influencing students' career choices, particularly toward vocational education pathways.
3. To identify and assess gaps in the current body of knowledge to inform future research and enhance the integration of career guidance with the implementation of the 13YGEP.

Research Methodology

This study adopts a qualitative research approach to examine the existing literature on the contribution of career guidance programs in government schools in Sri Lanka to the implementation of the Thirteen-Year Guaranteed Education Programme (13YGEP). The research is based exclusively on a systematic literature review, utilizing secondary data sources such as academic articles, research reports, census data, and unpublished theses. These materials were primarily accessed through academic databases, including Google Scholar, to ensure the inclusion of credible and relevant scholarly work.

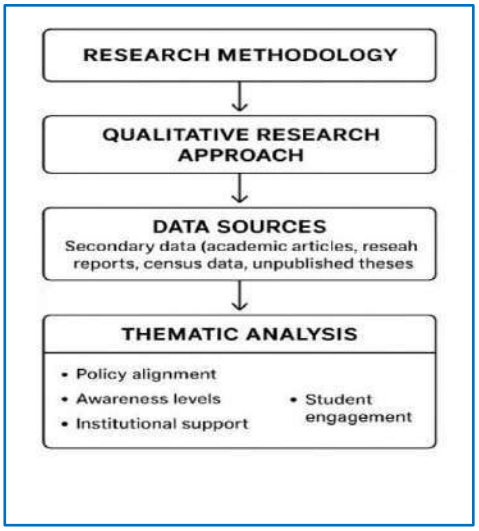

Figure 2. Research Design

Given the qualitative nature of the study, a thematic analysis was employed to identify and interpret key patterns and concepts within the literature. This method allowed for a comprehensive understanding of how career guidance initiatives are currently aligned with the objectives of 13YGEP, the challenges faced in their implementation, and the potential strategies for enhancing their impact. The thematic approach facilitated the categorization of findings under core themes, such as policy alignment, awareness levels, institutional support, and student engagement, thereby enabling a nuanced exploration of the subject.

Discussion and Findings

The significance of initiating career guidance during secondary and senior secondary education has been widely acknowledged in educational research. Early exposure to career guidance enables students to systematically explore diverse career options and progressively refine their aspirations, thereby facilitating effective long-term planning. Such guidance plays a crucial role in fostering student interest and commitment toward continuous education programs, including the Thirteen-Year Guaranteed Education Program (13YGEP). Within the school community, there is a consensus that career guidance delivered in the latter half of Grade 11, particularly by trained career guidance teachers, can be highly effective. Tailoring guidance to align with students' individual strengths, interests, and goals is essential, especially when introducing them to the vocational stream at the Advanced Level. Career guidance programs serve as vital platforms for imparting relevant knowledge about career pathways that correspond to student needs, thus directing them toward appropriate educational and vocational choices. Integrating career guidance with the vocational stream curriculum is another critical area warranting attention. International trends suggest that linking career exploration directly to subject content enhances students' understanding of the practical relevance of their studies, which can increase engagement and

motivation. Such integration can make the educational experience more meaningful and help students better appreciate how academic subjects relate to future career opportunities.

Literature review

Literature review conducted under the title promoting the 13-Year Continuous Education Program among Students: The Contribution of School Career Guidance Programs is presented through research objectives that are expected to guide the research.

The Impact of Career Guidance on Student Motivation and Educational Engagement

Research consistently demonstrates that students engaged in career guidance programs exhibit greater preparedness for their future educational and vocational pursuits. These programs facilitate self-awareness regarding strengths and interests, align aspirations with viable career options, and develop critical decision-making skills (Lissitsa & Chachashvili-Bolotin, 2021). Consequently, embedding the 13YGEP within the framework of school career guidance units appears to be an effective strategy for student education and retention. Career guidance establishes a clear connection between academic efforts and career goals, which enhances students' motivation to learn (Jayaratne & Prabodhani, 2024). Students who possess defined career objectives, particularly those in vocational streams, are more likely to recognize the relevance of their studies and remain academically engaged.

Barriers and Inequities in Implementing Effective Career Guidance for 13YGEP

Evidence indicates that students who receive structured career guidance are more likely to pursue higher education opportunities. This is especially pertinent for those who initially drop out after failing the O/L examination but are subsequently re-engaged through vocational streams. Career guidance provides essential information regarding vocational institutions, training options, financial aid, and application procedures, thereby enabling informed career planning. Conversely, some studies report that the promotion of external career courses within schools may inadvertently reduce enrollment in the A-level vocational stream, highlighting a need for better coordination between internal and external guidance efforts. Limited awareness among school principals and teachers about the A/L vocational stream diminishes the effectiveness of career guidance programs. Often, schools bear the sole responsibility for promoting 13YGEP, which restricts broader institutional support and student outreach. Many studies emphasize disparities in access to quality career guidance, particularly in under-resourced and rural schools. Students in these contexts frequently receive less comprehensive support, adversely affecting their career awareness and attitudes toward vocational education streams. This inequity undermines efforts to expand 13YGEP participation and calls for targeted interventions to bridge these gaps.

Evolving Approaches and Evidence on the Role of Career Guidance in Supporting Educational and Employment Outcomes

Career guidance has been widely recognized as a crucial factor in supporting students' educational and vocational development, particularly in relation to initiatives such as the Thirteen-Year Guaranteed Education Programme (13YGEP). Oliver and Spokane (1988), through a meta-analytic review, demonstrated that career guidance interventions significantly aid students in identifying their interests and directing them toward suitable educational and vocational pathways. Their findings advocate for the strategic incorporation of career guidance within school systems to foster enhanced career aspirations.

Folsom and Reatig (2000) conducted a review of school-based career guidance programs, emphasizing their dual impact in strengthening both students' career identity and academic performance. This research highlights the importance of structured guidance in preparing students for future employment. More recently, Liang and Sarker (2021) explored the integration of artificial intelligence (AI) in career guidance, concluding that AI can deliver personalized career

advice tailored to individual profiles. Similarly, ScienceGate (2019) identifies AI's potential to customize counseling by analyzing student data and interests, suggesting new avenues for technology-enhanced career services. Parsad et al. (2003) examined a collaborative, team-based approach to career guidance involving counselors, teachers, and parents, finding that such integration effectively embeds career guidance within the broader educational experience. In a qualitative study of Ghanaian high school students, Amartei and Adentwi (2020) emphasized the need to identify existing career guidance practices and address challenges in supporting students' informed career choices. Their work calls for strengthening guidance frameworks during critical educational transitions.

In the Sri Lankan context, Jayaratne and Prabodhani (2024) compared employment outcomes between 13YGEP graduates and non-participants, revealing similar short-term employment rates. However, they caution that these findings may reflect limited job market experience among graduates and suggest that those outside the program may compensate through early work exposure. Their study underscores the necessity for ongoing evaluation of 13YGEP's long-term impact on employment and income potential.

Ways to contribute to the -13year guaranteed education program through career guidance

Career guidance has identified many ways in which it can contribute to the 13-year continuous education program. The responsibility for this lies with the school administration, which provides opportunities for students to be motivated. The methodology presented jointly by the Co-Curricular, Guidance and Counseling Branch, Ministry of Education, and Room to Read Sri Lanka can help attract students to the 13YGEP.

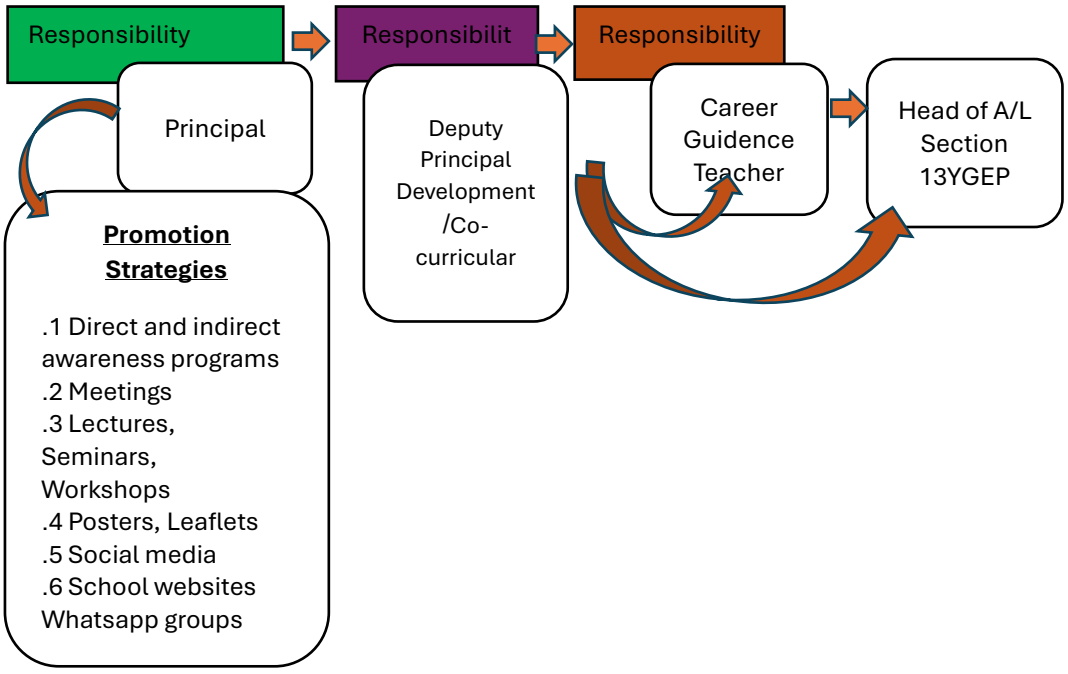

Figure 3. Promotion that can be done at the school level

Source: Handbook on the Management of School Counseling and Career Guidance Units, Ministry of Education (2024)

Conclusion

Under this stream, opportunities are provided for institutional training even for a vocational subject that is not taught in school. Due to good ministerial-level intervention, this program seems to be implemented better in national schools. There is a lack of attention for provincial schools. Although

this stream was started in schools with a focus on many objectives, it has been observed that there are clear disparities in the implementation of this stream among schools due to resource allocation, not being implemented in every school with A-level classes, and the administrative and management style. Since 26 subjects are included in the 13YGEP, it seems that school career guidance programs can significantly help students choose the subjects they want. If placement for institutional training is delayed, sometimes students in this stream also drop out. It was also seen that this situation can be minimized by educating students through school career guidance programs.

In conclusion, this study highlights the need for further research into the perceptions of subject experts and key stakeholders regarding the career guidance process. It highlights the importance of improving and refining career guidance strategies to effectively attract and retain students in the career stream in schools. Emphasis should be placed on investigating and documenting grassroots practices to develop contextually relevant and sustainable interventions.

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Developing Teacher Professionalism in Sri Lanka: A Comprehensive Literature Review on Practices and Challenges

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Abstract

Teacher professionalism is a pivotal component in enhancing educational quality and school effectiveness. This systematic literature review (SLR) critically examines the practices and challenges associated with developing teacher professionalism in Sri Lanka, with a focus on School-Based Professional Teacher Development (SBPTD). Drawing on a comprehensive review of national and international literature, this study synthesizes conceptual frameworks, policy directions, and empirical findings related to SBPTD implementation in Sri Lankan government schools. Using the systematic literature review (SLR), 50 articles were selected, and among them, 20 articles were selected using the inclusion and exclusion criteria. The findings reveal that although SBPTD is endorsed in Sri Lankan education policies, its conceptualization and implementation vary across settings. Principals and teachers tend to view the concept as a continuous process to be implemented within schools through self-study rather than as a workshop conducted by an external party. The effectiveness of SBPTD is influenced by factors such as leadership quality, institutional culture, teacher agency, and availability of resources. Moreover, the literature identifies a gap between policy intent and school-level practice, where SBPTD is often reduced to a compliance activity rather than a meaningful learning process. The review also highlights international best practices that promote teacher autonomy, peer collaboration, and contextual learning principles that are underutilized in the Sri Lankan education system. This review highlights professionalism as directly linked to teachers' ability to make decisions, experiment with new methods, and take ownership of their professional growth. A key challenge is that the success of School-Based Professional Teacher Development (SBPTD) is highly dependent on individual school principals. According to the literature, many leaders treat it as a "bureaucratic necessity," focusing on checklists and paperwork rather than fostering a genuine culture of inquiry and pedagogical improvement. By aligning it with global discourses, this study contributes to the theoretical understanding and practical advancement of teacher professionalism in Sri Lanka. It offers clear recommendations for education leaders, policymakers, and school practitioners seeking to improve professional development outcomes through localized, school-led approaches.

Keywords: Teacher professionalism, school-based development, professional learning, Sri Lanka, educational reform

Introduction

It is widely agreed that teacher professionalism is a key component of education system differentiation and quality, as well as student outcomes (Becher, 2024; Mark et al, 2023). Professional development (PD) is essential to ensure high-quality teaching, effective teacher preparation, and enhanced professionalism required to achieve educational goals (Sasere & Makhasane, 2020; Meyer & Mills, 2021; Kasthuriarachchi, 2019). In the contemporary educational journey, school-based professional teacher development (SBPTD) has emerged as a critical approach for 21st-century teachers, especially to enhance their teaching skills (Athurupana et al, 2022; Athurupana et al, 2013; Bandara, 2018ab; Kasthuri Arachchi, 2015)

The School Management Guidelines (MOE, 2020) also outline the role of the principal in promoting school-based professional teacher development. The School Improvement Programme (PSI) was also initiated as a school improvement programme. The National Education Commission

(NEC, 2016) states that SBPTD is one of the most important ways to improve the quality of teaching. Despite educational policy, teachers generally view SBPTD as a series of externally imposed, short-term training sessions rather than a long-term, school-based, and reflective learning process (Abeywickrama, 2020a; Wijekoon & Kumari, 2021). In many Sri Lankan schools, professional development has become more about empowering teachers, following rules rather than questioning how to deliver student-centered education. Global research demonstrates that effective professional learning occurs through authentic teaching situations, supported by mentoring, peer collaboration, and reflective inquiry (Cramer et al., 2023; Popova et al., 2022). Yet Sri Lanka's implementation remains unclear. This review uniquely addresses this gap by systematically synthesizing how teacher professionalism is conceptualized, practiced, and challenged within Sri Lankan SBPTD contexts, providing a critical analysis absent from existing literature that typically examines these dimensions in isolation.

Research Objectives

1. To explore how existing literature identifies teacher professionalism within the SBPTD framework.
2. To review documented practices of SBPTD that aim to enhance teacher professionalism.
3. To identify key challenges reported in the literature regarding the implementation of SBPTD for promoting teacher professionalism.

Literature Review

According to current educational research, teacher professionalism encompasses a broader range of characteristics that are essential for teachers to be more effective in their jobs. These include being ethically responsible, thoughtful, independent, and responsive to students' needs and diversity (Tatto, 2021). This multi-faceted view of teacher professionalism is seen as necessary to improve teaching quality, foster equity, and create long-term change in schools. Globally, SBPTD is considered most effective when embedded in classroom practice, supported by mentoring, peer collaboration, and collective reflection (Cramer et al., 2023; Popova et al., 2022).

However, in Sri Lanka, how teacher professionalism is understood and how it is implemented in practice, particularly concerning SBPTD, is questionable. Research shows a gap between policy and practice in the Sri Lankan context (National Education Commission, 2016). Professional development is not seen as a continuous process for the teacher, but rather as a requirement for attending workshops or training sessions provided by external organizations (Abeywickrama, 2020b; Wijekoon & Kumari, 2021). This lack of understanding contradicts the core ideas of SBPTD, which are based on the premise that professional learning should be part of the role of teachers, based on their needs, reflections, and reality, and supported by supportive structures in the school environment (Bandara, 2018a; Rosimela, 2020).

The School Improvement Programme (SIP) and other national policies strongly support decentralized, school-led approaches to teacher development. Bandara (2018b) states that the use of SBPTD in Sri Lankan government schools is inconsistent. Some schools are using innovative and structured collaborative practices such as lesson study, peer coaching, and reflective guidance methods, while others still treat SBPTD as an administrative routine (Rozimela, 2020; Bandara, 2018a). This inconsistency highlights weak leadership, resource constraints, and limited teacher agency as recurring obstacles (Nawastheen et al., 2021).

International evidence supports SBPTD effectiveness. Alkhawaldeh (2017) found that formal peer guidance systems and school-based reflection cycles helped teachers improve their teaching. Rachmadtullah et al. (2024) show that teacher Professional Development in Indonesia is also shifting towards teacher-led approaches that give teachers more control over their development and allow them to learn from their peers in their school communities. These global

examples demonstrate how important it is to move away from hierarchical and externally driven professional development models to situational, inclusive, and practice-focused ones.

Leadership emerges as a critical success factor. The Ministry of Education (2014) emphasizes that effective SBPTD requires strong senior management commitment. Schools with strong, visionary, and supportive mentors develop collaborative professional cultures where teachers are encouraged to engage and come up with new ideas, and in such settings, mentors are more likely to take charge of their professional development, engage in group decision-making, and use new teaching methods in their classrooms. (Kumari, 2022; Abeynayake and Neranjani, 2021). Conversely, schools with top-down leadership that views SBPTD bureaucratically result in low participation and minimal teaching quality impact (Nawasteen et al., 2021).

Also, the importance of organizational culture and teacher motivation is equally vital. A school environment that encourages trust, shared responsibility, and a willingness to try new things is an ideal place for professionals to flourish (Abeynayake & Neranjani, 2021). However, limited resources, inflexible school structures, and a lack of teacher agency make it very difficult to have effective SBPTD. Teachers typically do not have the time, institutional recognition, or freedom to conduct long-term professional research, which reduces their chances of fully participating in development programs (Abeywickrama, 2020a). What remains unexplored as a gap this review addresses is a systematic synthesis of how these conceptual, practical, and contextual factors intersect specifically within Sri Lankan SBPTD implementation?

Methodology

In this study, a Systematic Literature Review (SLR) is used to explore how teacher professionalism can be better understood and strengthened through School-Based Professional Teacher Development (SBPTD) in Sri Lanka. This approach helps bring together insights from many previous studies in a clear and consistent way, allowing the research to build on existing knowledge and provide well-grounded conclusions (Creswell & Creswell, 2018).

Articles were identified through academic databases, namely ERIC, ResearchGate, and institutional repositories, using keywords such as "teacher professionalism," "school-based development," and "Sri Lanka." 50 research papers were selected that met the criteria, which included peer-reviewed articles, policy documents, and dissertations. We made sure that both qualitative and quantitative studies were included so that we could get a good mix of theoretical and practical insights. The major reasons for excluding anything were that it was published between 1996 and 2025, only in English and Sinhala, and it was relevant to the research setting. There were 20 publications chosen for the study among the 50 that met these exclusion criteria.

Thematic analysis is used to group the findings into three primary areas aligned with research objectives: (1) Understanding teacher professionalism on the conceptual level, (2) documented implementation practices and influencing factors, and (3) Implementation Challenges. This method has made it possible to critically examine existing gaps and synthesize a coherent understanding of SBPTD in Sri Lankan contexts.

Findings

Understanding Teacher Professionalism on the Conceptual Level

This review revealed different understandings of teacher professionalism. International literature emphasizes autonomy, reflective practice, collaboration, and continuous learning as fundamental professional attributes (Becher, 2024; Menter & Flores, 2021). SBPTD helps teachers in their schools develop ethical standards, try out new teaching strategies, and engage in collective inquiry (Abeywickrama, 2020a; Alvunger, 2024).

The systematic review showed that Sri Lankan teachers largely think of teacher professionalism through a compliance framework in which professional development is only about meeting external training needs rather than creating a culture of self-directed, reflective, and continuous learning (Abeywickrama, 2020a; Wijekoon and Kumari, 2021). Through programs like School-Based Management (SBM) and the Programme for School Improvement (PSI), employed to assist Sri Lankan teachers (Aturupane et al., 2013; Kasturiarachchi, 2019), according to Abeynayake and Neranjani (2021), teachers' involvement in decision-making is another aspect of professionalism. This narrow interpretation fundamentally misaligns with SBPTD's theoretical foundations.

Documented Implementation Practices and Influencing Factors

Effective SBPTD practices identified include mentoring, collaborative lesson planning, peer observation with feedback, and action research (Rozimela, 2020; Bandara, 2018a). National initiatives, School-Based Management (SBM) and the Programme for School Improvement (PSI) have introduced these approaches to varying degrees (Aturupane et al., 2013; Kasturiarachchi, 2019). Implementation quality varies significantly across schools. Innovative schools employ structured collaborative practices: lesson study protocols, peer coaching systems, and guided reflection cycles. These schools demonstrate stronger professional learning cultures. However, many schools implement SBPTD superficially, treating activities as administrative obligations rather than genuine professional inquiry (Rozimela, 2020; Bandara, 2018a). This inconsistency highlights how contextual factors, particularly leadership quality, mediate SBPTD effectiveness.

Implementation Challenges

Nevertheless, there are numerous problems with getting SBPTD to work. These include a lack of time (Abdal-Haqq, 1996), a lack of teaching resources (Nawastheen et al., 2021), a lack of administrative support (Wijekoon & Kumari, 2021), and a school culture that discourages some teachers from working together (Wijenayake & Danushka, 2018). Furthermore, there are insufficient systems to track progress and no strong national plan to guide schools (National Education Commission, 2016). This shows a gap between policy and practice, with limited teacher engagement. Effective SBPTD depends heavily on strong leadership, shared decision-making, and collaborative school cultures (Kumari, 2022; Abeynayake & Neranjani, 2021). However, barriers like a lack of planning, time, and institutional support reduce its impact (Aturupane et al., 2013, 2022). Global research emphasizes teacher agency, mentoring, and classroom-based learning as essential to successful PD models. However, many Sri Lankan public schools still lack these and have not been adequately developed (National Education Commission, 2016). This highlights the importance of having school-generated SBPTD frameworks that are sensitive to the needs of the school and instructors.

Discussion

The results of this review suggest that there is a significant difference in how Sri Lankan public schools think about and implement professional development. According to Wijekoon and Kumari (2021), many teachers and school leaders still see professional development as a separate, formal training session. Additionally, they think this often requires external sources, rather than as an ongoing part of their professional identity, which limits the transformative power of SBPTD. Therefore, it reduces its potential to drive real improvements in schools' cultures of teaching and long-term professional learning (Abeywickrama, 2020b; Wijekoon & Kumari, 2021).

There are a variety of issues that arise when trying to implement something. Different schools have different leaders, which makes it difficult to sustain and deepen SBPTD programs. When principals are not involved or see SBPTD as just another administrative task, programs often become compliance exercises that focus on paperwork, attendance, and checklists rather than real reflection or pedagogical inquiry (Wanasinghe, 2022; Wijenayake & Danushka, 2018). Also, the

lack of involvement of many teachers in planning and the lack of adequate resources, such as time, institutional support, and recognition, further frustrate current practices (Bandara, 2018b; Kumari, 2022). This pattern suggests that policy implementation requires not just structural mechanisms but cultural transformation in school leadership approaches.

To overcome these issues, the literature strongly supports a shift in the way professional development is delivered to school-led, participatory, and action-focused frameworks. Effective models place collaborative lesson preparation, peer observation, mentoring, and structured reflective dialogue at the top of their list (Kasturiarachchi, 2019; Popova et al., 2022). These approaches not only give instructors more freedom and a sense of ownership but also make professional learning a regular part of classroom life. To create this kind of school culture, visionary leaders, clear policy direction, and ongoing efforts to build capacity are needed. When used thoughtfully, SBPTD has great potential to improve teacher professionalism and the quality of teaching in Sri Lankan schools.

Conclusions and Suggestions

This systematic review suggests that Sri Lanka needs to approach teacher professionalism differently. Although policymakers are aware of it, SBPTD is still not always followed and is often not linked to the learning and teaching process in the classroom. The focus on external training needs to change to include school-led, ongoing, and teacher-led activities. Leadership, school ethics, and teachers' decision-making are all important for developing professional learning environments. A new SBPTD framework based on working together, asking questions, and learning in context can help connect policy and practice.

Recommendations

For policymakers, there is a need to develop comprehensive national guidelines for the implementation of SBPTD that include clear monitoring and evaluation mechanisms. Such guidelines should move beyond policy statements and provide practical directions to schools. In addition, recognition and incentive systems should be established to reward teachers for sustained professional inquiry and reflective practice, rather than simply attending workshops. Policymakers must also ensure that schools are allocated dedicated time within their schedules for collaborative professional learning activities, so that professional development becomes an integrated part of teachers' working lives rather than an added burden.

For school leaders, the emphasis must shift from viewing SBPTD as an administrative requirement to seeing it as a tool for pedagogical growth. Principals and senior staff should build collaborative school cultures by promoting structured peer learning opportunities such as lesson study, mentoring programs, and reflective dialogue. Equally important is engaging teachers meaningfully in the planning and decision-making processes of SBPTD. When teachers are involved in shaping these initiatives, they are more likely to develop a sense of ownership and commitment to professional learning.

For future research, longitudinal studies are needed to examine how leadership development programs affect the quality and sustainability of SBPTD. Further studies should also focus on identifying effective strategies for shifting the paradigm of teacher professionalism in Sri Lanka from a compliance-based model to one centered on inquiry and reflection. Additionally, researchers could investigate the contextual factors that enable schools in resource-constrained environments to successfully implement SBPTD. Such insights would provide valuable lessons for strengthening professional development practices in diverse educational settings.

Implications

The findings of this review suggest that authentic teacher professionalism in Sri Lanka can only be developed if SBPTD is transformed from a compliance-driven exercise into a process of genuine

professional learning embedded in classroom practice. Achieving this transformation requires more than structural reforms; it calls for coordinated efforts across policy, leadership, and school culture. Policies must support teacher agency and reflection, school leaders must create collaborative professional environments, and teachers must be encouraged to engage in sustained inquiry into their own practices. Ultimately, this shift represents a fundamental change in how professional development is understood and enacted in Sri Lankan schools, moving from externally imposed activities toward a culture of continuous, meaningful, and context-sensitive professional learning.

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Development of Ethical Concepts in the Subject of Buddhism for the 21st Century Secondary School Students: A Critical Review

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Abstract

The aim of this paper is to critically explore the development of ethical concepts within the subject of Buddhism for 21st-century secondary school students, addressing the urgent need to nurture moral values amidst modern societal challenges. The transformation of adolescent experiences by globalization, digital media, and competitive lifestyles has led to a growing concern regarding ethical dilemmas, increased stress, and declining empathy. Buddhist teachings, which are profoundly rooted in teachings such as the Five Precepts (pañca sīla) and the cultivation of compassion and mindfulness, provide a timeless framework to guide the development of ethical concepts in the subject of Buddhism. Nevertheless, traditional methods of teaching Buddhism frequently prioritize rote memorization over internalization and practical application, thereby restricting their transformative potential, despite their profound relevance. This study examined the theories and latest research to obtain an overall view of the research conducted so far on the moral development of secondary school children. Theories like Krathwohl's affective domain and Piaget's theory of moral development emphasize the importance of internalizing values with education. The latest research findings also show the critical role of educators as ethical role models and the significance of establishing a supportive school environment that consistently reinforces values such as mindfulness, respect, and nonviolence. It expects the development of favorable results, including improved empathy, self-discipline, responsible decision-making, and a decrease in antisocial behaviors such as dishonesty and bullying. In conclusion, this research emphasizes a practical, dynamic process that equips students to navigate the moral complexities of the 21st century, rather than solely as doctrinal knowledge. Its objective is to cultivate students who are socially responsible and ethically grounded, thereby promoting both personal and societal well-being, by contributing to their holistic development.

Keywords: Buddhist ethical concepts, practical application, ethical values

Introduction

Secondary school students face new moral, social, and pedagogical challenges in the 21st century. They are increasingly exposed to rapid technological developments, a wide range of global influences, and moral issues. In this situation, Buddhist education is very important for teaching people how to be responsible citizens, behave ethically, and deal with their emotions. The study of value education or religious education helps students develop a strong sense of self-awareness and emotional intelligence. Understanding values such as empathy, respect, and kindness, students are in a better position to handle their emotions and build positive relationships. That education translates into the child's behavior towards his peers, reducing instances of bullying or disruptive behavior, therefore creating security at schools.

Especially in Asian countries like Sri Lanka, providing religious education has been a tradition from ancient times. Religious education provides a wide range of knowledge to internalize the values to develop the students' well-being. But, in the last few years, social injustice and the anti-social activities done by the school students have been raised. Many students nowadays are certainly more curious and critical of conventional teachings, including religious ones. This change shows a more general societal movement toward challenging accepted standards and looking for evidence-based thinking. An intriguing idea is to include good traits from Western moral education into religious education to improve moral growth. Western moral education sometimes stresses

values like critical thinking, compassion, and ethical reasoning, which could enhance religious teachings in promoting well-rounded moral development. Certainly, this kind of awareness fosters a feeling of identity and respect for variety, which is very important in the course of personal development and social harmony. This study looks closely at how secondary schools teach, understand, and put into practice the moral ideas that are part of Buddhism. The study shows how important Buddhist teachings like Sīla (moral discipline), the Five Precepts, and the Noble Eightfold Path are in helping teens act in a moral way.

Research Problem

Even while the Buddhist curriculum includes lessons on ethics, there isn't much proof that these lessons are being used in how students act and how the school culture is. Textbooks and lessons in school often teach moral standards that don't always lead to people acting in an ethical way. Also, the way we teach now may not meet the mental and emotional needs of 21st-century students. This study wants to look into the difference between what the curriculum says it would do and what it actually does to help students grow morally.

Research Questions

1. How are ethical concepts in Buddhism presented in the secondary school curriculum?
2. To what extent are these concepts understood and applied by students?
3. What are the novel strategies and discoveries that have been proposed by the most recent empirical literature and theories?

Main Objectives

1. To review the current representation of ethical concepts in Buddhist education.
2. To evaluate the impact of Buddhist ethical teachings on students' moral behavior.
3. To identify and critically examine the novel strategies and key findings presented in the most recent empirical studies and theoretical frameworks relevant to the field.

Literature Review

Piaget's Theory of Moral Development looks at how kids' understanding of right and wrong develops as they become older, which is a sign of bigger changes in how they think. Jean Piaget, a Swiss developmental psychologist, was one of the first people to study how kids think about right and wrong in a systematic way. He proposed that children's moral thinking develops in stages, transitioning from a rigid adherence to rules to a more flexible and autonomous understanding of right and wrong (Piaget, 1932/1965). Piaget's study on how moral thinking changes with age is the basis for Kohlberg's Stages of Moral Development, which is a more precise and organized theory. American psychologist Lawrence Kohlberg came up with this idea, which says that people go through three main phases of moral thinking: pre-conventional level, conventional level, and post-conventional level. Kohlberg said that moral development is more about how people think about moral issues than the decisions they make (Kohlberg, 1981).

Krathwohl's Affective Domain is very important for moral education because it shows how students grow emotionally, morally, and in their attitudes, not just in their minds. The affective domain explores five sequential stages of internalizing values: Receiving, Responding, Valuing, Organization, and Characterization. Every level signifies an increased level of personal involvement with moral and ethical principles (Krathwohl, Bloom, & Masia, 1964). The main purpose of moral education is to help people go from just knowing about moral ideals to living by them. This path helps with that.

The secondary level Buddhist curriculum expands with 10 themes as Biographies, Buddhist concepts, Buddhist way of life, Meditation, Customs and rituals, History of Buddhism,

Poems and stanzas, Buddhist Economic and Administrative Guidance, Sri Lankan Buddhist Culture, and Environment. (Dahanayake, 2024). Under those themes and the teachings, previous research (Gethin, 1998; Gunawardana, 2017; Jayasekara, 2018) has shown how important Buddhist ethics are for shaping a person's character. The Five Precepts and the Noble Eightfold Path tell us how to live morally. At the same time, researchers in curriculum delivery have investigated how it affects student conduct (Samaratunge, 2020). This assessment also looks at modern problems that make it harder for teens to develop their morals, like internet distractions and peer pressure.

Methodology

The study uses a qualitative research design and content analysis as its main method to investigate how ethical ideas have changed over time in the subject of Buddhism for secondary school pupils. This method lets us look closely at the moral and ethical ideals that are built into the curriculum and the resources used to teach it. The study's main focus is on looking at the Buddhist textbooks that are being utilized in Sri Lankan secondary schools. We look at these writings in a structured way to find common moral ideas, concepts, and teaching methods that are used in Buddhist moral training, like the Five Precepts, the Noble Eightfold Path, and the ideas of self-control and compassion. The study not only looks at textbooks, but also at contemporary empirical literature, such as peer-reviewed journal articles, research reports, and theoretical papers. The goal of this part is to find out what modern tactics and ideas exist about ethical education and how well it works to shape students' character and behavior. Combining textbook material with new research makes it possible to compare what is said in theory with what happens in real life in the classroom. The qualitative content analysis method is perfect for this study since it focuses on figuring out what the textual data means. This gives us a lot of information about how Buddhist ethics are understood and taught to secondary school students in the 21st century.

Analysis

Thematic analysis was used to look at the data and find important patterns and insights about how Buddhist moral ideas can be observed and shared. The study looked at three main areas: how ethical principles were taught in the curriculum, how well students understood and interpreted Buddhist moral teachings, and the methods and interactions utilized to teach ethics. With this method, the researcher was able to find common themes, differences in student answers, and how well different teaching methods worked. Also, differences between the anticipated curricular goals and what really happened in the classroom, or how students acted, were pointed out. This gave important information about the strengths and weaknesses of moral education.

Discussion of Results

The results show that the ethical teachings in the Buddhist textbooks for secondary school students are very effective. The Five Precepts (pañca sīla), the Noble Eightfold Path, and virtues like compassion, honesty, and self-discipline are all very important. But it seems that pupils don't use these teachings in real life often enough. Many students could recite the Five Precepts, but they had a hard time connecting these moral rules to how they acted and made choices every day. Gunaratna (2002) says that this difference between what people know about ethics and how they act shows that they haven't internalized such ideals.

Teachers said that there are a number of problems that make it hard to teach ethics well. Some of these are not enough professional growth in moral pedagogy, too many students in a class, not enough time for reflective activities, and a general lack of enthusiasm or motivation among students to use Buddhist ethics in actual life (Perera, 2015). These kinds of problems make it hard to create a learning environment based on values. The study also found that schools with regular religious activities like Dhamma discussions, meditation sessions, and Poya days, as well as strong support from parents and community leaders, had students who were more likely to act ethically

(Silva & Fonseka, 2019). These results show how important it is to teach morals in a way that goes beyond books and into real life in safe places.

Conclusion

The study concludes that while the Buddhist curriculum contains valuable ethical content, its delivery and reinforcement are inconsistent. Ethical development in students requires not only content knowledge but also emotional engagement, role modeling, and reflective practices. A shift in pedagogical strategies and the integration of more interactive and reflective teaching methods is essential for meaningful moral education.

Recommendations

- Integrate more interactive and reflective teaching methods (e.g., group discussions, storytelling, and real-life case studies).
- Conduct teacher training workshops on moral pedagogy and student psychology.
- Strengthen school-community partnerships to support ethical behavior outside classrooms.
- Revise textbooks to include contemporary moral dilemmas aligned with Buddhist values.
- Encourage student-led projects that apply Buddhist ethics in community service.

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Exploring the Pedagogical and Ethical Implications of Integrating Artificial Intelligence (AI) Tools in Flipped Learning

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Abstract

In the "new normal," higher education has increasingly shifted to online and blended learning. Flipped learning, where students acquire foundational knowledge outside of class to focus on higher-order thinking (HOTS) during in-class sessions, has gained prominence. This study explored the integration of Artificial Intelligence (AI) tools within a flipped classroom approach to examine student engagement, effective learning practices, and related pedagogical and ethical concerns. A qualitative exploratory case study was conducted with 35 postgraduate students in the Master of Science in Information Technology in Education program at a Sri Lankan state university. The course *"Information Technology Trends in Sri Lanka within a Global Context*" implemented 12 flipped lectures over one semester. Learning materials were uploaded to the Learning Management System (LMS) a week prior, and class activities were designed to promote HOTS based on Bloom's Taxonomy. Data were collected through participatory observation, classroom documents, questionnaires, and semi-structured interviews, and analyzed using descriptive and thematic methods. Results showed that 82% of students found AI-integrated flipped learning engaging and effective. Students used tools such as ChatGPT, Microsoft Copilot, XMind AI, Tutor AI, Gemini, Jenny AI, Canva, Grammarly, and QuillBot. Four key themes emerged: active pre-class engagement, enhanced HOTS development, academic integrity concerns, and overreliance on AI. The study concludes that AI tools foster active, personalized learning in flipped classrooms while underscoring the need for institutional guidelines and awareness on ethical AI use among students and educators.

Keywords: Artificial intelligence, flipped learning, higher order thinking skills, pedagogy, student engagement

Introduction

In the context of the “new normal,” instructional methods in higher education have increasingly shifted toward online and blended learning environments worldwide. Although Sri Lankan higher education has been slower to adopt these methods, there is a growing trend toward implementing flipped learning. Flipped learning is a widely recognized pedagogical approach in blended education that enhances students' learning experiences by reversing the traditional classroom structure. In this model, students watch teacher-prepared or recorded video lectures and study course materials in advance, allowing class time to be used for interactive activities that reinforce understanding, clarify concepts, and solve problems. This approach enables teachers to monitor students' progress more effectively and engage more closely in the learning process. Research indicates that flipped learning positively impacts student achievement (Gross et al., 2015). By providing foundational knowledge prior to class, instructors can focus on developing higher-order thinking skills (HOTS) during in-class sessions. With technological advancements, Artificial Intelligence (AI) tools now play a vital role in education. The significance of this study lies in exploring the integration of AI tools within flipped classrooms, offering an innovative learning approach that enhances engagement and promotes the ethical and effective use of AI-assisted tools among both lecturers and students.

Research problem

In Sri Lanka, current higher education practices largely promote examination-oriented teaching and learning, even though the intended goal is to develop students' higher-order thinking skills. The higher education sector aims to emphasize innovative thinking and the need to shift from traditional learning methods to modern pedagogical approaches such as flipped learning. Based on researchers' experience, much of lecture time is often spent delivering basic knowledge, with limited attention to fostering the higher-order thinking skills essential for 21st-century education. Flipped learning, however, encourages both collaborative and active learning. With the emergence of AI-assisted tools, teachers and students increasingly incorporate Artificial Intelligence (AI) into the teaching–learning process. Therefore, integrating AI tools into flipped learning presents new opportunities for enhancing educational practices. This study thus explores the pedagogical and ethical implications of incorporating AI tools within flipped learning environments.

Research Objectives

This study aimed to explore the pedagogical and ethical implications of integrating Artificial Intelligence (AI) tools within a flipped classroom approach.

The specific objectives of the study were

- To find out what AI tools are used by the students in flipped learning.
- To investigate student engagement in flipped learning.
- To identify effective student practices.
- To find out the pedagogical and ethical concerns of using AI in flipped learning.

Literature Review

The flipped classroom is a good solution for cases such as misunderstanding, misconception, and content ambiguity in class (Halili & Zainuddin, 2015). Flipped learning is an updated approach implemented particularly in higher education in Sri Lanka. In the post-pandemic period, most of the courses have been shifted to blended or online learning. In online learning, too, lecturers apply flipped learning in many programmes.

According to Arnold-Garza (2014), flipped classrooms enhance students' problem-solving skills and reinforce the learning styles of the students. In addition, the flipped classroom not only minimizes lectures but also maximizes teacher-student interaction with more collaborative activities and tasks (Sung, 2015). Research (Collado-Valero et al., 2021) indicates an increase in the implementation of the FC during the pandemic because it can help maintain interactivity. This was further confirmed by Agyeman & Aphane (2024), who revealed that the flipped classroom approach can create a positive learning atmosphere that fosters deeper student engagement. Interaction with class materials before class facilitated active participation and a thorough understanding of concepts during classroom interactions.

There was ample research that studied the perception of the flipped classroom method. But in Sri Lanka, the research was limited to the flipped classroom method, especially integrating AI tools in flipped learning. Therefore, in order to fill the research gap, this study focuses on the pedagogies and ethical implications of AI in flipped learning.

Methodology

This study employed the qualitative research design, and a case study approach was adopted, involving 35 postgraduate students enrolled in the Master of Science in Information Technology in Education program at a state university in Sri Lanka. In the course "Information Technology Trends in Sri Lanka within a Global Context," 12 lectures were designed and implemented using

the flipped classroom model. Students were encouraged to use AI tools during both pre-class preparation and in-class learning. Learning materials, including videos, presentations, and related reading materials, were uploaded to the Learning Management System one week in advance. In-class activities were designed to target HOTS based on Bloom's Taxonomy. Data was collected through participatory observation, questionnaires, document analysis of 20 class activities, the lecturer's journal, and semi-structured interviews with 15 students. Quantitative data were analyzed using descriptive statistics, and qualitative data were examined through thematic analysis.

The Nature of Pre-Class and In-Class Sessions in Flipped Learning

In this study, 12 lectures were conducted using the flipped classroom method, and lecture videos, research papers, and presentations were uploaded to the LMS a week in advance. The students were encouraged to study the materials as well as AI-assisted tools to find more information related to the lecture topic.

The lecture duration was 2 hours, and in the first 15 minutes, it was checked whether the students had obtained the required knowledge to continue the lecture. In the next 45 minutes, group activities were planned, such as preparing videos, mind maps, presentations, debates, and panel discussions. In order to make videos, mind maps, and presentations, AI-assisted tools were used. Those activities promote collaborative learning. In the last hour, presentations of their group activities, panel discussions, and debates were conducted. Therefore, the flipped learning promoted the practice of higher-order thinking skills.

Results and Discussion

The quantitative and qualitative data were analyzed according to research questions. Students used numerous resources in pre-class sessions. When investigating the resources used by the postgraduate students, it was revealed that they used books, research journals, magazines, reports, AI-assisted tools, the internet, dissertations, and theses.

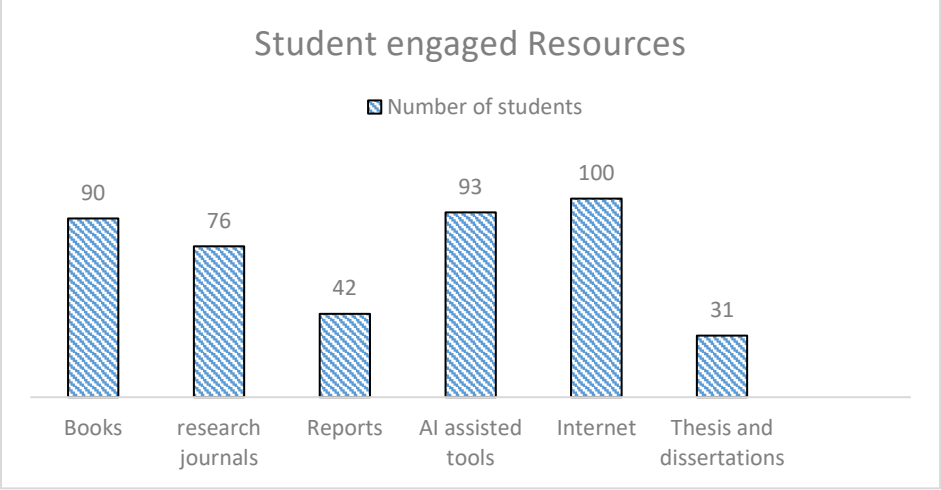

Figure 1. Resources used by the students in pre-class sessions

Figure 1 shows that 93% used AI and 100% used the internet in pre-class sessions. It clearly shows the student trend to utilize the new trend for higher education. In this study, it was identified how students use AI for various purposes: Idea Development and brainstorming, Content development and structuring, editing, grammar checking, generating videos, presentations, and mind maps.

How Far Do Students Use AI-Assisted Tools in Class Activities and Assignments?

In order to understand how far students use AI-assisted tools in class activities, 10 mind maps and 10 presentations were analyzed using an AI detector.

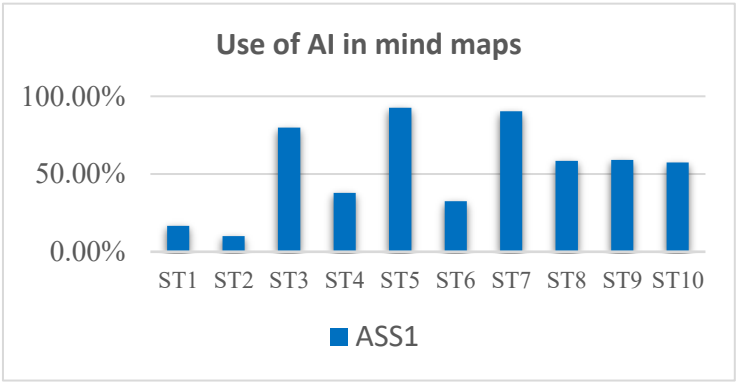

Figure 2. AI usage in creating mind maps

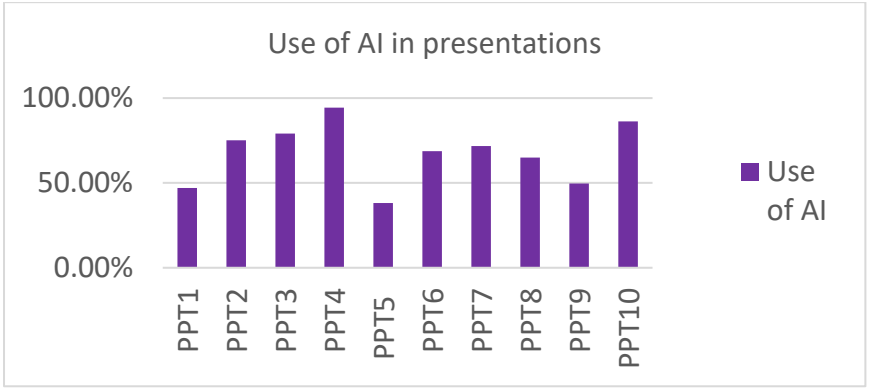

Figure 3. AI usage in preparing a presentation

It was revealed that among 10 students, 6 students have used AI more than 50% in creating mind maps. In the presentation, 7 out of 10 students have used AI, exceeding 50%. This is evidenced by the fact that the majority of students used AI tools in classroom activities.

Students' Perceptions of Engagement in Plipped Learning

In this study, in order to find students' perception of integrating AI tools in flipped learning, 15 statements were given. It was prepared according to the Likert scale to find the student engagement. The Likert Scale data showed that 82% of the students perceived AI-integrated flipped learning as highly engaging and effective.

According to questionnaire data, the majority of students (76%) read study materials more than once prior to attending the lecture. Among them, 62% of students have exchanged information among the group and gathered more information using AI-assisted tools. The students who enrolled for this course were part-time students, and they were employees. This was the reason that 12% of students stated that they do not have time to engage in studies during the week. Some of the reasons for not reading the uploaded teaching materials were a lack of time, forgetting to go through materials, problems with internet access, and a lack of personal motivation.

This was confirmed by the interview data. One student stated

> *"They were very useful, but I don't have sufficient time to spend reading materials as I am working."*
>
> *Interview Data, Student 02*

Whereas a majority of students (84%) were of the view that flipped class reading materials, videos, and presentations were very helpful for the lecture. Further, they said it was helpful to

understand key concepts before coming to the class. Moreover, they said that after watching and reading materials uploaded to the LMS, they use AI tools. This was helpful for them to obtain additional knowledge for the lecture, clear and concise explanations of key concepts, in-depth explanations of facts, consolidated and revised learning, and fostered new topics.

One of the students reported that.

> *"Every week, I go through all the materials uploaded to LMS. After reading the material, I searched that topic using ChatGPT. So that I could clarify doubts. I am very comfortable in the class."*
>
> *Interview Data Student 12*

The majority of students (67%) said that flipped learning enhanced their motivation to learn, and it was more engaging than the traditional method.

In the lecture, almost all the activities were planned to be based on higher-order thinking skills. The students engaged in developing mind maps, videos, and presentations, and collecting facts for debates and panel discussions. When engaged in the above activities, they used AI tools to complete the task on time. The XMind AI tool was used to draw mind maps. ChatGPT was used for obtaining information and content development.

Students use mainly ChatGPT and other AI-assisted tools such as Microsoft Copilot, Tutor AI, Gemini, XMind AI, and Jenny AI. Canva, Grammarly, and QuillBot.

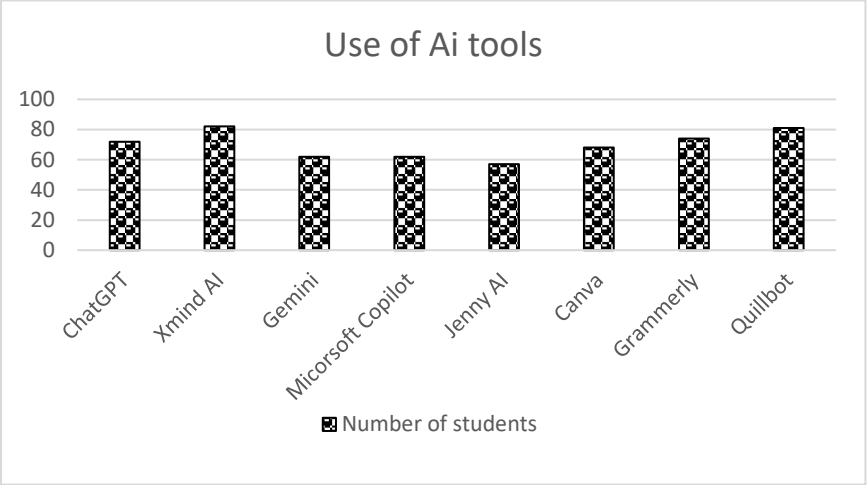

Figure 4. Use of AI-assisted tools in the

When analyzing qualitative data, four themes emerged: active engagement during pre-class sessions, effective facilitation of higher-order thinking during class, maintaining academic integrity, and over-reliance on AI tools.

Active Engagement during Pre-Class and In-Class Sessions

The interview data suggested that students were highly engaged during the pre-class sessions. As the materials were uploaded a week in advance, they had sufficient time for preparation. They have read the reading materials uploaded to the LMS. And also, they have watched videos uploaded to the LMS. Moreover, they stated that they exchanged ideas among peers during the week for further clarification. Further, they used AI tools such as ChatGPT and Microsoft Copilot to obtain more information and clarify the facts. They were of the view that Generative AI tools cater to personalized learning.

Effectively Facilitates Higher-Order Thinking Skills during Class

During the in-class session, they actively participated in the group activities. Further, they are involved in activities that cater to Higher Order Thinking Skills such as synthesis, critical thinking, and creativity.

Maintaining Academic Integrity

Document analysis and interview data suggested that when using AI tools, students had not maintained academic integrity. It is important to acknowledge the Generative AI tools that they have used for class activities.

One of the students said that.

"Sometimes we use Gen AI for content development. So it is very easy to create a video or a presentation. Even when we develop mind maps, we use Xmind AI. It has changed the learning style. But I think that we should include references…. Especially ChatGPT"

(Interview data, Student 7)

Over-Reliance on AI Tools In Flipped Learning

The students were of the view that over-reliance on AI tools is a negative effect. One of the students said that

> *"I always depend on AI-assisted tools. To make a simple PowerPoint presentation, I use Canva. And also, when having class discussions, in order to obtain information, we depend on AI tools. We highly depend on AI tools."*
>
> *Interview data Student 14*

Good Practices Adopted By the Students in Flipped Learning

Based on students' responses, several effective practices were identified that contribute to the enhancement of flipped learning. Engaging with pre-class materials, such as instructional videos and reading resources, was consistently practiced and essential for meaningful in-class participation. The use of AI tools for exploring concepts, summarizing content, and generating ideas further supported knowledge acquisition. Additionally, students reported that collaborative learning through group discussions, joint problem-solving, and project work significantly enriched their learning experience. These practices promoted active engagement, critical thinking, and better preparation, thereby maximizing the effectiveness of the flipped classroom model. Such habits should be systematically encouraged in future implementations.

Conclusion

Integrating Artificial Intelligence (AI) tools into the flipped learning model offered a progressive instructional approach that effectively meets the evolving needs of postgraduate students in the university. This method not only supports independent learning but also fosters essential 21st-century skills, which include Higher-Order Thinking Skills (HOTS), critical thinking, problem-solving, and creative thinking. The study revealed that postgraduate students had a highly positive perception of the flipped classroom approach, particularly when supported by AI technologies. Students appreciated the flexibility of accessing materials in advance, the ability to explore concepts deeply using AI tools, and the opportunity to actively engage in collaborative learning during the in-class activities.

However, while the integration of AI tools adds significant educational value, it leads to new challenges. As students increasingly embrace AI-driven pedagogies, it is essential to provide structured guidance to both students and lecturers on the responsible use of AI in the university.. Establishing clear policies and promoting awareness of ethical practices in the university will be crucial to maintaining academic standards and maximizing the pedagogical potential of AI in

flipped learning. It is recommended that universities develop institutional guidelines and provide training for both students and lecturers to ensure the ethical and effective use of AI tools within flipped classroom environments.

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The Role of Social Media in Enhancing Academic Engagement: A Case Study of a State University in Sri Lanka

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Abstract

This study explores the role of social media in enhancing academic engagement among students at a state university in Sri Lanka. Social media platforms such as YouTube, WhatsApp, Facebook, and Instagram have become essential tools for students, offering opportunities for resource sharing, peer collaboration, and academic discussions. The primary objective of this study is to explore the role of social media in fostering academic engagement among university students. Recognizing both positive and negative implications, the study aims to assess the overall influence of social media on academic engagement in higher education. A mixed-methods approach was adopted, combining both quantitative and qualitative data. A survey was conducted among 370 students from three faculties, covering all four academic years at a state university, collecting information on the frequency and types of social media use for academic purposes, students' perceptions of its impact on learning, and challenges in balancing social media with academic responsibilities. Findings indicate that social media plays a significant role in promoting academic engagement. Students frequently use platforms like WhatsApp and YouTube to access educational content, collaborate on assignments, and participate in academic discussions. The strongest correlation with academic engagement was found in academic-related social interactions ($r = 0.888$), followed by information sharing ($r = 0.841$) and self-directed learning ($r = 0.662$), suggesting a strong positive relationship between these activities and engagement. Although these benefits, students also reported several challenges, including distractions from non-academic content, difficulty in managing time effectively, and limited guidance on productive academic use of social media. Based on the findings, the study recommends implementing digital literacy programs, offering workshops on time management, and developing university-managed academic platforms to ensure focused and purposeful engagement. In conclusion, social media can serve as a powerful tool for enhancing academic engagement when integrated strategically within the academic environment. This study provides useful insights for universities in Sri Lanka and similar contexts to better incorporate social media into academic frameworks and support more collaborative and productive student learning experiences.

***Keywords**:* Academic engagement, higher education, social media, student collaboration

Introduction

In recent years, social media has become an important part of the daily lives of university students worldwide. Platforms like YouTube, WhatsApp, Facebook, and Instagram are no longer limited to entertainment or social networking; they are now commonly used for educational purposes as well (Chugh & Ruhi, 2018; Mbennouna, Ennajy, Bouzit, & Alami, 2022). In higher education, where independent learning and collaboration are essential, social media tools can support students by offering quick access to educational materials, encouraging peer discussions, and enabling group collaboration (Al-Rahmi, Alzahrani, Yahaya, Alalwan, & Kamin, 2020). Worldwide, researchers have studied how social media affects learning and engagement in different ways. Some findings suggest that social media helps students actively participate in academic activities and improves their access to learning resources (Giunchiglia, Zeni, Gobbi, Bignotti, & Bison, 2018; Malik, Dhir, Kaur, & Johri, 2021). However, others raise concerns about its distractions and negative effects on

academic performance (Abbas, Khatoon, & Jalil, 2019; Shannon, Bush, Villeneuve, Hellemans, & Guimond, 2022).

In the Sri Lankan context, the use of social media among university students has increased significantly in recent years. According to the Telecommunications Regulatory Commission of Sri Lanka (2024), internet penetration has reached over 60% of the population, with mobile internet being the primary mode of access. Most Sri Lankan undergraduates now own smartphones and use social media platforms daily for both personal and academic purposes. The COVID-19 pandemic further accelerated this trend, as universities shifted to online learning, making social media an important tool for communication and information sharing among students. Despite this widespread use, there is a lack of in-depth research focusing on how social media specifically influences academic engagement among Sri Lankan university students. While international studies provide valuable insights, the Sri Lankan higher education context has unique characteristics that need attention. These include limited digital literacy programs, varying levels of internet connectivity across different regions, cultural attitudes toward technology use in education, and the diverse socio-economic backgrounds of students. Some Sri Lankan students come from rural areas with limited technological resources, while others from urban areas have better access to digital tools. Additionally, the language barrier may affect how students use social media for academic purposes, as most educational content is in English while many students are more comfortable in Sinhala or Tamil.

Furthermore, Sri Lankan universities have different approaches to integrating technology into teaching and learning. Some institutions actively encourage the use of social media and online platforms for academic activities, while others maintain traditional teaching methods with limited digital integration. Understanding how students navigate these challenges and use social media for their academic work is important for developing effective educational strategies. Given the increasing internet access and mobile usage among Sri Lankan undergraduates, along with the lack of local research evidence, it is essential to understand both the potential benefits and challenges of using social media in academic settings within the Sri Lankan context. This study aims to fill this gap by examining how social media use affects academic engagement among university students in Sri Lanka.

Literature Review

Social media has become an important communication and learning tool in higher education. Recent studies show that platforms, such as WhatsApp, YouTube, Facebook, Instagram, and TikTok, are widely used by university students for their studies. Research by Chugh and Ruhi (2018) showed that social media helps students work together, share learning materials, and support each other academically. During the COVID-19 pandemic, Malik, Dhir, Kaur, and Johri (2021) found that social media platforms became very important for keeping students engaged and connected with their studies. Several recent studies show the positive effects of social media on student learning. Ahad and Lim (2019) discovered that when students use social media with clear academic purposes, their performance improves through better information sharing and collaborative learning. Similarly, Al-Rahmi, Alzahrani, Yahaya, Alalwan, and Kamin (2020) showed that social media helps students build knowledge and develop critical thinking skills when used properly for learning activities. Mbennouna, Ennajy, Bouzit, and Alami (2022) reported that students who used social media for educational purposes showed higher engagement and motivation compared to those who only used traditional learning methods.

However, recent studies also point out serious concerns about social media's negative effects on academic performance. Keles, McCrae, and Grealish (2020) found strong links between too much social media use and lower academic focus, more procrastination, and poor mental health among university students. Abbas, Khatoon, and Jalil (2019) discovered that problematic social media use is connected to lower grades and less time spent studying. Shannon, Bush, Villeneuve,

Hellemans, and Guimond (2022) explained that social media platforms are designed to keep users engaged for long periods, which can seriously harm students' ability to focus on their academic work. Recent research shows that social media has two sides; it can be both helpful and harmful for learning. Giunchiglia, Zeni, Gobbi, Bignotti, and Bison (2018) found that the way students use social media matters a lot. When students use it intentionally for academic purposes, their learning improves. However, when they use it passively for entertainment and scrolling, their academic performance suffers. Al-Rahmi et al. (2022) emphasized that digital literacy and self-control skills are important in deciding whether social media helps or harms student learning. Given the growing amount of international research, there is limited evidence from Sri Lanka about how social media affects academic engagement among university students. While some preliminary research has looked at how Sri Lankan university students use social media, there are no comprehensive studies that examine its relationship with academic outcomes. Given the rapid increase in smartphone use and internet access in Sri Lankan universities, and considering the unique cultural context of the country, more research is needed to understand how social media is affecting academic behaviors and engagement among local students.

Research Problem

Although students in Sri Lankan universities use social media widely, there is limited research on how this affects their academic engagement. Some students say that these platforms help them share information and stay connected with their peers and lecturers (Al-Rahmi, Alzahrani, Yahaya, Alalwan, & Kamin, 2020; Chugh & Ruhi, 2018). However, other students find it difficult to balance their academic work with the time they spend on social media (Giunchiglia, Zeni, Gobbi, Bignotti, & Bison, 2018; Shannon, Bush, Villeneuve, Hellemans, & Guimond, 2022). Therefore, there is a clear need to study how social media helps or harms academic engagement among university students in Sri Lanka.

Research Objectives

The primary objective of this study is to investigate the role of social media in fostering academic engagement among students at a state university in Sri Lanka. The study aims to:

1. To identify how students use different social media platforms for academic purposes.
2. To examine the relationship between social media usage and students' academic engagement.
3. To explore students' views on the benefits and challenges of using social media for learning.
4. To provide recommendations to improve the effective academic use of social media.

Research Questions

1. How do university students use social media platforms to support their academic work?
2. What is the relationship between different types of social media usage and academic engagement?
3. What are the students' perceptions of the benefits and drawbacks of using social media for academic purposes?
4. How can universities support more productive and focused academic use of social media?

Methodology

This study used a mixed-methods approach to collect both quantitative and qualitative data. This approach was chosen to gain a deeper and more comprehensive understanding of students' social media usage and its effects on academic engagement (Creswell & Plano Clark, 2011).

The study was conducted at a state university in Sri Lanka. A total of 370 undergraduate students were selected from three faculties, Commerce and Management, Social Sciences, and Humanities, which represent the largest student populations within the university. The total undergraduate population across these three faculties was 9,808. Based on Krejcie and Morgan's (1970) sample size determination table, a sample size of 370 was identified as appropriate for this population. A stratified random sampling technique was used to ensure representation from each faculty, allowing for a balanced sample of students from different academic backgrounds. This ensured that students from different academic backgrounds were included in the sample (Braun & Clarke, 2006). The first stratification was done by the faculty. The sample of 370 students was distributed proportionally across the three faculties based on their respective student population sizes. The second stratification was done by year of study within each faculty. Each faculty's allocated sample was further divided proportionally among the four academic years (first year, second year, third year, and fourth year) based on the actual number of students in each year level.

Quantitative data were collected using a structured questionnaire, which included both closed-ended and Likert-scale questions. The questionnaire focused on students' frequency and purposes of using social media, their level of engagement in academic activities, and the challenges they faced. Qualitative data were collected through open-ended questions within the same questionnaire to capture students' personal views and experiences in their own words.

Quantitative data were analyzed using descriptive statistics and correlation analysis to identify patterns and relationships between variables. The strength of the relationship between different types of social media use and academic engagement was measured using Pearson correlation coefficients. Qualitative responses were analyzed through thematic analysis, identifying key themes related to students' perceptions, benefits, and challenges.

Results and Discussion

The findings showed that students frequently use WhatsApp (56%), Facebook (23%), and YouTube (16%) for academic purposes. According to Figure 1, WhatsApp was mainly used for group communication, sharing course materials, and discussing assignments. YouTube was commonly used to watch educational videos, tutorials, and lecture recordings. Facebook and Instagram were used less often for academic purposes, but were sometimes used for following educational pages or joining academic groups.

Popular Platforms and Usage Patterns

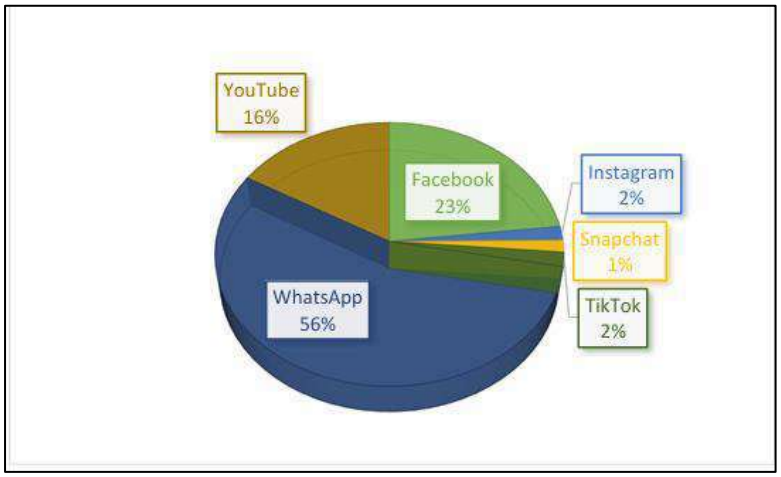

Figure 1. Social Media Usage for academic purposes

Note. This figure shows the frequency and types of social media platforms used by students.

Academic Engagement Activities

Students reported using social media for the following academic activities:

1. Sharing information and resources
2. Group collaboration and discussions
3. Self-directed learning
4. Getting updates about university events and lectures

The most common activities were participating in group discussions via WhatsApp, followed by watching academic videos on YouTube and Facebook, and searching for study materials.

Correlation between Social Media Use and Academic Engagement

Table 1

Correlation between Social Media Use and Academic Engagement

Variables	Academic Engagement (r)	Sig. (2-tailed)	N
Academic-related social interactions	0.888**	0.000	346
Information sharing	0.841**	0.000	346
Self-directed learning	0.662**	0.000	346

The correlation analysis revealed a **strong positive relationship** between certain types of social media use and academic engagement:

1. Academic-related social interactions: $r = 0.888$
2. Information sharing: $r = 0.841$
3. Self-directed learning: $r = 0.662$

These results suggest that when students use social media for academic collaboration and resource sharing, their overall engagement in academic tasks improves.

Student Perceptions

Most students shared positive opinions about using social media for academic purposes. They appreciated the ease of communication with peers, quick access to learning materials, and availability of subject-related videos. Many also said that social media helped them clarify doubts and stay updated on academic matters.

However, students also reported several challenges:

1. Distractions from non-academic content, such as entertainment or social notifications.
2. Difficulty in managing time, especially when academic and non-academic content are mixed on the same platform.
3. There is a lack of guidance on how to use social media effectively for academic learning.

Conclusion and Recommendations

This study showed that social media plays a valuable role in promoting academic engagement among undergraduate students in Sri Lanka. Platforms like WhatsApp and YouTube help students collaborate, share learning resources, and engage in academic discussions. The strong correlation between academic engagement and social media use highlights its potential as a supportive educational tool.

However, the study also revealed some important concerns, including time management issues and exposure to distractions. To address these, the following recommendations are made:

1. Introduce digital literacy programs to teach students how to use social media responsibly for academic purposes.
2. Conduct workshops on time management to help students balance social media use with academic responsibilities.
3. Develop university-managed academic platforms or official social media groups that focus only on academic content and reduce distractions.

By taking these steps, universities in Sri Lanka can make better use of social media to support learning, promote student engagement, and create more collaborative academic environments.

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Integrating Western and Buddhist Psychotherapeutic Methods to Alleviate Psychological Problems Associated with Aging

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Abstract

This study investigates gender-based differences in student enrollment across various school types and their implications for access to educational resources, particularly in science and ICT learning. Using a mixed-method approach, data were collected from a sample of 100 students and 20 teachers selected through stratified random sampling. The results reveal that female students slightly outnumber males, comprising 52% of the total sample. A higher proportion of female students (34%) are enrolled in 1AB schools—better-resourced institutions offering science streams—while only 2% of males attend such schools. In contrast, more male students (22%) are found in 1C schools, which provide limited science facilities. Enrollment in Type 2 schools is minimal for both genders, indicating that most students benefit from relatively well-equipped learning environments. These findings suggest that female students have greater access to advanced educational institutions, potentially enhancing their engagement with ICT and science subjects. Data were analyzed using descriptive statistics and ANOVA, which confirmed significant relationships between gender and school type ($p < 0.05$). The study recommends equitable ICT resource distribution and targeted interventions to ensure balanced learning opportunities for all students, regardless of gender or school type.

***Keywords*:** Gender differences, school type, ICT access, science education

Introduction

Ageing has become a major issue that poses profound challenges to individuals, family members, caregivers, and the public health system across physical, mental, social, and spiritual domains. Caring for the elderly and providing them with a quality of life remains a major challenge for every country. Sri Lanka has one of the fastest-growing elderly populations. With this, the country is facing a growing prevalence of mental health problems associated with aging. Therefore, reducing mental health problems in the elderly population and addressing the problems arising from them remains a timely need. Mental disorders of aging are mental conditions that commonly affect older adults due to biological, psychological, and social changes associated with aging. These disorders may emerge later in life or may have been present since childhood. Prominent among these are problematic mental conditions, including memory loss, dementia, depression, anxiety, social isolation, and Alzheimer's disease. Western psychotherapy has not yet produced fully effective results for mental health problems associated with aging and is still in the research phase. As Buddhist psychotherapy methods offer a holistic approach to addressing mental health issues that arise during aging, this research aims to experiment with Buddhist psychotherapy methods, especially spiritual psychotherapy methods, in an integrated therapeutic framework with Western psychotherapy methods.

Research question

1. How effective is the integration of Western psychotherapeutic methods and Buddhist psychotherapeutic approaches in alleviating psychological problems associated with aging?

Hypothesis

- The integrated psychotherapy model will have a positive impact on spiritual well-being, acceptance of aging, and emotional resilience.

Objectives

1. The main objective of this research is to explore and evaluate the efficacy of combining Western psychotherapy methods with Buddhist psychotherapy techniques in alleviating aging-related psychological problems such as depression, anxiety, loneliness, cognitive decline, dementia, and loss of meaning in life among the elderly population
2. Identifying psychological challenges associated with aging.
3. Evaluating measurable outcomes and subjective experiences of older adults after intervention.

Methodology

Data were analyzed using a mixed-methods approach. Quantitative data from standardized scales (Adult Depression Scale and GAD-7) were analyzed using descriptive statistics. Qualitative data from in-depth interviews, client diaries, and observations were analyzed thematically to identify patterns of emotional, cognitive, and spiritual transformation. Both data sets were then integrated to examine how Buddhist and Western psychotherapy methods collectively contributed to improved mental well-being among elderly participants.

The research was conducted on 25 men and women over the age of 60 who were referred to a counseling center for various mental health issues in 2024, and a qualitative research methodology was used, which included in-depth interviews with elderly clients, monks, caregivers, and close family members, observations, examination of clients' diaries, and primary and secondary sources. During the counseling process, common psychological problems identified included cognitive decline, memory loss, behavioral disturbances, confusion, decreased social connection, irrational thoughts, low self-esteem, insecurity, and impaired emotional regulation.

The Adult Depression Scale was used to measure depression levels, and the Generalized Anxiety Disorder - 7-Item Scale (GAD-7) was used to measure anxiety levels. In this study, Buddhist psychotherapy techniques such as mindfulness (sati) techniques, meditation (bhāvana), the Four Noble Truths, the Three Precepts, and the Noble Eightfold Path were used in conjunction with Western psychotherapy to alleviate the psychological problems of elderly clients. Cognitive behavioral therapy, mindfulness-based cognitive therapy, problem-solving therapy, and group therapy were used.

Findings suggest that the blended model gradually improves emotional resilience, reduces suffering, loneliness, and stress, and creates a state of mind that realistically accepts the aging process.

Discussion

Aging presents a range of psychological challenges, including depression, anxiety, stress, grief, loneliness, loss of meaning, and cognitive decline. These challenges are often compounded by a lack of mental health resources and limited psychosocial support systems. This research highlights the potential of integrating Western and Buddhist psychotherapy approaches to address the mental health needs of adults more comprehensively.

The Western psychotherapies used in the research, such as cognitive behavioral therapy (CBT), mindfulness therapy, Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Stress Reduction (MBSR), and group therapy, showed significant efficacy in reducing depression, anxiety, and cognitive decline in adults, but their persistence was not observed. However, since

Buddhist psychotherapy methods include realistic philosophies such as true understanding of life, controlling negative emotions, developing positive emotions, merging with the environment, letting go, experiencing the relief that comes from it, understanding the impermanence of all changes, and realizing that everything is beyond one's control, realistic positive changes in adults were consistently observed during the period tested through the integration of these methods.

Conclusion

This study provides empirical evidence supporting the efficacy of combining Western and Buddhist psychotherapy approaches in alleviating psychological problems associated with aging. Initial results showed that negative moods and emotional distress were significantly reduced among older participants after approximately three weeks of Western psychotherapy intervention. However, subsequent follow-up assessments revealed that some individuals continued to experience periodic recurrences of negative moods due to situational and psychosocial stressors.

To address this limitation, Buddhist psychotherapy methods, consisting of behavioral, psychological, and cognitive components rooted in principles such as mindfulness (sati), meditation (bhāvana), and the Four Noble Truths and the Noble Eightfold Path, were integrated with Western therapies and implemented continuously over a two-month period. Continuous feedback obtained during the intervention period showed that participants experienced rapid and consistent improvements in emotional regulation and overall well-being compared to those receiving Western psychotherapy alone.

Furthermore, a final assessment conducted one year later revealed a sustained reduction in negative moods and lasting improvements in spiritual and emotional stability. Buddhist psychotherapy methods, implemented in a structured yet flexible and compassionate manner, significantly contributed to long-term emotional balance and acceptance of aging.

These findings suggest that integrating Western and Buddhist psychotherapy approaches provides a comprehensive, culturally sensitive, and sustainable model for addressing mental health challenges in older adults. The integrated framework not only provides symptomatic relief but also facilitates deeper spiritual and existential healing.

Therefore, it is recommended that this integrated approach be institutionalized in hospitals, elderly care centers, and family settings. Training programs and awareness initiatives for mental health professionals and caregivers should be developed to ensure the model is properly implemented and maintained. Future research should continue to refine this integrated framework, explore its applicability across diverse populations, and evaluate additional complementary approaches that may improve long-term mental resilience and quality of life in the aging population.

Recommendations

Buddhist psychotherapy methods possess universal applicability and can be used by individuals of any faith or cultural background. Mental health professionals working with the elderly should receive structured training that integrates both Buddhist and modern psychotherapeutic approaches, supported by a systematic development program. Further research and experimentation are essential to evaluate the effectiveness of these integrated methods through community-based interventions. Policymakers are encouraged to include such integrative models in national mental health strategies for adults. The creation of comprehensive manuals and toolkits will enhance practical implementation and ensure methodological consistency. Moreover, it is advisable to promote the daily use of realistic Buddhist psychotherapy practices even before mental symptoms appear. Introducing these methods in community centers, elderly care homes, and hospitals can help broaden access to holistic mental health support. Since this approach does not involve medication, it has generated greater interest and acceptance among adults.

Limitations

One major limitation was the shortage of trained psychotherapists and counselors skilled in both Buddhist and conventional therapeutic systems. Communication challenges occasionally arose with patients' family members, affecting the accuracy of background information. Additionally, as clients began noticing improvements in their mental health, some became reluctant to continue treatment sessions. Temporary health issues, such as fever or colds, also limited participation in therapeutic exercises during certain periods.

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Factors Influencing the Learning of the Senior Secondary Students Separated from Their Parents

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Abstract

The role of parents is crucial in determining students' learning achievements. Parental separation significantly affects student performance. In the 1AB and 1C schools within the Trincomalee Education Division, the learning achievements of senior secondary students whose parents have recently separated are notably low. Therefore, this study aims to identify factors, aside from parental separation, that have influenced their learning achievements. This research, designed as a descriptive quantitative survey, 152 senior secondary students separated from their parents, studying in 10 schools in the area, selected through a stratified random sampling method. Quantitative data obtained from questionnaires and documents were analyzed using descriptive statistical analysis techniques. This study has revealed the following findings. The analysis was interpreted using a Likert scale (very high 4 - very low 1). Individual (M = 2.5), family (M = 2.8), socioeconomic (M = 3.9), and school (M = 2.5) factors significantly influenced the learning of separated senior secondary students. However, socioeconomic factors exert a much greater influence on students' learning achievement than the other factors. Additionally, there was a positive correlation between students' learning achievement scores and these factors. In fact, socioeconomic factors (r = 0.674) show a very strong positive correlation with students' learning achievement compared to the other factors.

Keywords: Students separated from their parents, learning achievement, influencing factors

Introduction

The influence of parents on children's learning achievement is widely recognized as a fundamental factor in educational development, with research emphasizing that a child's formal and informal education begins within the home setting, where parents serve as their first and most influential teachers (Karunanithy, 2004). Children who are raised in nurturing environments with active parental involvement tend to develop superior social skills and receive vital support that fosters their overall growth (Sivananthan, 2021).

However, family dynamics and circumstances, such as parental separation, migration, or economic hardship, can significantly disrupt this developmental process. Parental separation, whether due to divorce, migration, or financial constraints, poses substantial challenges not only to children's emotional and psychological well-being but also to their academic progress. Children from single parent families are at a heightened risk of experiencing psychological problems such as depression, anxiety, and low self-esteem (Testow & Minaye, 2022), which can diminish their confidence and willingness to participate actively in school activities (Nwosu & Okonkwo, 2021).

According to Maslow's hierarchy of needs, children undergoing family separation often find their basic needs such as physiological safety, protection, esteem, and self-efficacy unmet, which results in heightened distress and impairs their capacity to learn effectively. Family separation, regardless of its cause, tends to generate feelings of loneliness, insecurity, and stress that impede cognitive, emotional, and social development (Liu et al., 2024). Empirical findings highlight that parental presence provides essential emotional support and guidance, fostering a conducive environment for learning, while separation diminishes focus, motivation, and perseverance (Smith et al., 2021).

Additionally, economic hardship and societal attitudes toward family disruption further compound these effects, potentially restricting access to educational resources, lowering motivation, and negatively impacting social integration and self-esteem (Kim & Park, 2019; Chen & Wang, 2022). Given these complexities, understanding the multifaceted impacts of parental separation on children's educational outcomes is crucial for developing targeted interventions that aim to support vulnerable students and promote resilience in the face of familial instability.

In the Trincomalee Education Division, a significant proportion (38%) of senior secondary students in 1AB and 1C schools experience parental separation. This circumstance correlates with diminished academic performance, evidenced by a G.C.E. (O/L) pass rate of 27% for current Grades 12 and 13 students and a 35% average term exam pass rate for Grades 10 and 11 students (Examination schedule, 2024). Consequently, this study seeks to determine the family-related, individual-related, socioeconomic, and school-related factors that contribute to the learning challenges faced by these students.

Objectives of the Study

1. To identify factors affecting the learning of senior secondary students separated from their parents.
2. To investigate the relationship between learning achievement and influencing factors of senior secondary students separated from their parents.

Literature review

Various studies have been conducted domestically and internationally on the direct and indirect impact of parental involvement on children's learning achievement. The results of the most important studies are presented here. Education begins at home, making parents the child's first teachers. Education aims to prepare children for society (Cole & Sylvia, 2017). Parental separation can negatively impact children's school attendance and lead to social isolation (Hanson & Strobe, 2022). Children are compelled to separate from one or both of their parents, either physically or permanently, due to various factors such as death, foreign travel, parental divorce, work migration, war, and natural disasters (Nouferkhanth, 2022). Children undergoing parental separation benefit from support from the surviving parent or guardian, strong family networks, and positive school relationships, including teacher empathy and peer inclusion. However, dysfunctional family practices can exacerbate the negative effects of separation (Hill et al., 2023).

Safe housing enhances their resilience and enables them to remain engaged in school activities (Chandigarh et al., 2021). A study by Perera (2021) found that senior secondary school students with single parents encounter various challenges in their academic pursuits, indicating that initiatives to support their educational development should be implemented at the school level. Children who undergo parental divorce, separation, or abandonment tend to perform poorly in school and experience developmental issues (Fotoh, 2021). Parental involvement in their children's lives fosters confidence in their education, diminishes academic disengagement, and boosts engagement with learning (Abic Ntekane, 2018).

In countries such as Sri Lanka, children who are separated from their parents encounter social changes and issues stemming from loneliness and depression, grief, psychological challenges, and abnormal behavior. Particularly due to the professional relocation of the mother, children may experience feelings of loneliness, anger, lack of affection, fear, and anxiety. This can lead to significant psychological stress among them (Laxman Singh Kunwar, 2022).

Methodology

This study utilized a descriptive quantitative survey design. It was carried out in 10 schools with the highest number of separated students in the 1AB and 1C categories within the Trincomalee

divisional education. A total of 152 senior secondary students from these schools were selected as samples based on school type, gender, and class through a stratified sampling technique. Quantitative data were analyzed using descriptive statistics, employing methods such as mean, median, standard deviation, and correlation.

Data analysis and Disscussion

The data obtained for this study were analyzed and interpreted separately according to the study objectives. During the analysis, the data were interpreted based on the Likert scale level (very high - 4, high - 3, low-2, very low - 1).

Limitations

The generalizability of findings is constrained by several sampling limitations. First, the study utilized a convenience sample of 10 schools (7 Type 1AB and 3 Type 1C) from the Trincomalee zone, excluding 5 schools from the sampling frame. Second, the student sample represented 61% of the total student population (n=152 out of 250), creating potential coverage error. Third, gender representation was imbalanced, with 53% of male students (62 out of 117) and 67% of female students (90 out of 133) participating, potentially introducing selection bias. Finally, the teacher perspective was captured through a limited sample of only 20 educators, which may not adequately represent the broader teaching population.

Factors affecting the learning of senior secondary students separated from their parents

Factors influencing the learning of students separated from their parents have been assessed through various variables, with their means and standard deviations calculated. These factors are categorized into individual, family, socioeconomic, and school aspects, as shown in the table below.

Table 1

Fctors affecting the learning of senior secondary students separated from their parents.

Factors	N	Mean	Std.Deviation
Individual	152	2.5	0.30724
Family	152	2.8	0.29467
Socioeconomic	152	3.9	0.45934
School	152	2.5	0.31307
Valid N (listwise)	152		

Individual factors

The individual factors influencing the learning of students separated from their parents have been assessed using the following variables, with their mean and standard deviation calculated: cognitive abilities, motivation, learning style, arousal and psychological well-being, physical health, attention and concentration, prior subject knowledge and experience, language ability, personality traits, and self-control skills. According to Table 1, the mean (M) of the scores from (N) 152 students regarding the individual factors that influenced their learning is 2.5, with a standard deviation (SD) of 0.30724. Thus, the data indicates that individual factors significantly impact the learning of senior secondary school students who have been separated from their parents.

Family Factors

The family factors influencing the learning of students separated from their parents have been evaluated using the following variables, with their mean and standard deviation calculated: learning style, parental educational level, parental attitude towards education, family structure and stability, parenting style, language and communication at home, and extracurricular activities. According to Table 1, the mean (M) of the scores from (N) 152 students regarding the family factors that influenced their learning is 2.8, with a standard deviation (SD) of 0.29467. Thus, the data indicates that family factors significantly affect the learning of senior secondary school students who have been separated from their parents.

Socioeconomic Factors

The socioeconomic factors influencing the learning of students separated from their parents have been evaluated using the following variables, with their mean and standard deviation calculated: socio-economic status, cultural expectations, societal perceptions, extracurricular activities, social support, parental occupation and income, access to technology, need for learning equipment, household stability, health, and nutrition. In accordance with Table 1, the mean (M) of the scores from (N) 152 students regarding the Scioeconomic factors that influenced their learning is 3.9, with a standard deviation (SD) of 0.45934. Thus, the data indicates that socioeconomic factors have the highest impact on the learning of senior secondary school students who have been separated from their parents.

School factors

The school factors influencing the learning of students separated from their parents have been evaluated using the following variables, with their mean and standard deviation calculated: peer influence, school resources, quality of curriculum, teacher-student relationship, classroom environment, school culture, teacher quality, teacher experience, training, and school leadership. According to Table 1, the mean (M) of the scores from (N) 152 students regarding the school factors that influenced their learning is 2.5, with a standard deviation (SD) of 0.31307. Thus, the data indicates that school factors significantly impact the learning of senior secondary school students who have been separated from their parents.

The relationship between student learning achievement and the factors influencing it

The relationship between students' learning achievement scores and factors affecting it was calculated using Spearman's correlation coefficient and is shown in the table below.

Table 2

The relationship between students' learning achievement and the factors influencing it.

Dependent Variable	**Spearman's Rho**	**Independent Variable**			
		Individual Factors	**Family Factors**	**Socio Economic Factors**	**School Factors**
Student Learning Achievement	Correlation (r)	0.574*	0.583*	0.674*	0.553*
	Sig.(2-tailed)	0.006	0.005	0.000	0.007
	N	152	152	152	152

According to Table 2, the p-value between the dependent variable and the independent variables is less than 0.05, indicating a statistical correlation. Consequently, there is a moderately strong positive correlation between individual factors ($r = 0.574$, $p = 0.006$), a moderately strong

positive correlation between students' learning achievement and family factors (r = 0.583, p = 0.005), a very strong positive correlation between socioeconomic factors (r = 0.674, p = 0.000), and a moderately strong positive correlation between school factors (r = 0.553, p = 0.007). Thus, the data indicate that socioeconomic factors have a more significant impact on students' learning achievement than other factors.

Conclusions

Individual (M = 2.5), family (M = 2.8), socioeconomic (M = 3.9), and school (M = 2.5) factors significantly influenced the learning of separated senior secondary students. However, socioeconomic factors exert a much greater influence on students' learning achievement than the other factors. Additionally, there was a positive correlation between students' learning achievement scores and these factors. In fact, socioeconomic factors (67.4%) have a very strong positive correlation with students' learning achievement compared to the other factors. The results of this study are also consistent with the findings of Delfino (2019) and Hornby & Blackwell (2018), which indicate that social barriers and low economic conditions adversely affect the academic achievement of children from separated parents.

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The Current Practice of Incorporating Eedutainment Methods in English Language Classrooms in Sri Lanka

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Abstract

Second language learning should be fun, enjoyable, and an encouraging process that makes the learner become more engaged and motivated to study. Edutainment, a coined term that combines education with entertainment, has gained attention worldwide. Limited study on edutainment is found in the Sri Lankan context, which leads to further research. Hence, this study investigates the extent to which edutainment is integrated into English as a Second Language (ESL) learning by ESL teachers in Sri Lanka. This paper presents the findings of the types of edutainment strategies used, the challenges in using these strategies, and teacher perceptions of edutainment strategies. A mixed method approach, which included an online questionnaire circulated among ESL teachers from different areas of the country to gather data, followed by a semi-structured interview with a selected group of ESL teachers. A formal data analysis was carried out, which revealed that many ESL teachers are not familiar with the edutainment concept but use diverse edutainment strategies. However, the majority of the teachers use edutainment strategies mostly as warm-up activities rather than as a part of meaningful use of the lesson content. Although the ESL teachers agree upon the idea of making learning an interesting experience, it was also revealed that frequent practice of edutainment does not take place due to numerous reasons. It was highlighted that more teacher training avenues should be open for the teachers to gain training on interesting activities (edutainment strategies) such as games, songs, etc., to effectively implement engaging and creative activities in the classroom. Textbook-based teaching, institutional parent expectations, classroom management, etc., are also highlighted as challenges in employing edutainment strategies in ESL classrooms. The study reveals the need for professional development opportunities, institutional-level and parent-level flexibility, and encouragement to foster meaningful edutainment integration to encourage, motivate, and engage ESL learners in learning.

Keywords: ESL classroom, edutainment, innovative teaching

Introduction

Edutainment, a fairly new approach to the second language learning context in Sri Lanka, with limited studies on the same, implies combining education with entertainment. The effective use of employing edutainment strategies such as games, songs, stories etc. into English as a Second Language (ESL) learning setting makes learning through fun, making the learners to be motivated and engaged fully. With the underlying theories such as constructivist theory, multiple intelligence theory, and Krashen's affective filter hypothesis as main theories, edutainment provides a base to reach the majority of learners to deliver and practise second language skills effectively. Edutainment, for the Sri Lankan ESL teachers, is identified as a fairly new term, although it was revealed that they employ interesting and fun activities such as games, chants, songs, etc. Also, limited studies are found in the Sri Lankan context, which encourage more research gaps to address. Sri Lankan ESL teachers use different edutainment strategies such as games, songs, stories, digital tools, etc. Although with the proven benefits, Sri Lankan ESL teachers hesitate in employing edutainment strategies due to numerous reasons, such as insufficient or limited teacher training avenues, large class sizes, rigid curricula, and classroom management etc. Understanding current practice of edutainment and the obstacles faced by educators in applying edutainment approaches are essential to designing practical, culturally responsive, and resource-sensitive solutions to improve English language instruction in the country.

Research Problem

Incorporating edutainment methods into Sri Lankan ESL learning is found to be minimal and under-explored, although edutainment has been widely acknowledged for its potential to enhance language learning through interactive and learner-centred techniques, and its integration into ESL classrooms. However, policy-level encouragement opens for the ESL teachers the avenue to implement innovative teaching practices; many teachers rely on traditional textbook-driven methods, which make learning a boring experience. With the limited research available, understanding the current implementation of edutainment strategies remained unaddressed. Thus, the extent to which the edutainment method is used in the Sri Lankan ESL setting needs to be addressed in the study.

Research Objectives

1. To identify the types of edutainment strategies currently known or used by ESL teachers in Sri Lanka.
2. To explore the barriers faced by ESL teachers in implementing the types of edutainment strategies in their classrooms.
3. To assess teachers' perceptions toward the use of edutainment in English language instruction.

Research Questions

1. What edutainment strategies are ESL teachers in Sri Lanka familiar with or currently using?
2. What are the main barriers to implementing the identified edutainment strategies in ESL classrooms in Sri Lanka?
3. What are ESL teachers' perceptions of using edutainment in language teaching?

Literature Review

Edutainment is described as "the process of entertaining people at the same time as you are teaching them something" (Cambridge University Press, n.d.). It promotes learner engagement, motivation, and communicative competence with the integration of education with entertainment. This concept is related to constructivist theories (Vygotsky, 1978; Piaget, 1952) and Krashen's (1982) affective filter hypothesis. With the theoretical backing, the method that employs games, songs, storytelling, digital tools, drama, etc., makes learning fun and engaging. A number of studies conducted on the very concept reveal that edutainment strategies help reduce learner anxiety, support multimodal learning, and foster student-centered interaction (Huang & Soman, 2013; Maley & Duff, 2005). Gamified Apps and other online simulations, which fall under digital edutainment, have also indicated positive outcomes in improving vocabulary, listening skills, and classroom participation (Reinders, 2012; Deterding et al., 2011). In contrast, a more traditional and exam-oriented ESL teaching setting is found in the Sri Lankan context, which offers limited room for interactive or playful learning. Further, the studies reveal that inadequate teacher preparation, poor infrastructure, large class sizes, and insufficient exposure to authentic English use are found particularly in rural and under-resourced schools (Gunesekera, 2010; Siriwardhana et al., 2022). It was also revealed that innovation in ESL teaching in Sri Lanka is often hindered by top-down curriculum demands, exam pressure, and limited classroom autonomy (Gunesekera, 2010; Siriwardhana et al., 2022).

Although the National Educational Policy promotes communicative approaches, teachers employ traditional grammar-focused methods that dominate classroom practices (Kandambi, 2021). Limited research on edutainment thus leaves a noticeable gap in empirical research to investigate the extent to which edutainment is practised in Sri Lankan ESL classrooms, what

strategies are used, and teacher perspectives, with special attention on challenges the ESL teachers face when using different types of edutainment strategies.

Methodology

A mixed-methods research approach was employed in this study to obtain a comprehensive understanding of the extent to which edutainment is practised in ESL classrooms in Sri Lanka and the nature of the practice. A questionnaire to gather data online covering numerous facets of the research problem was circulated to the sample of ESL teachers, which resulted in gathering both qualitative and quantitative data. Semi-structured interviews were also conducted to allow triangulation of data and to further explore and contextualize the statistical results.

The target population for this study comprised ESL teachers currently employed in various regions across Sri Lanka, including urban, semi-urban (suburban), and rural settings. A purposive sampling strategy was used to ensure representation from diverse geographical and educational contexts. The sample included 88 ESL teachers, reflecting a wide cross-section of the national teaching population. The selection criteria ensured that participants had experience teaching English at either the primary or secondary level and had familiarity with the Sri Lankan public education system.

Data were collected using two primary tools:

1. An online questionnaire was designed to gather quantitative data on teachers' awareness, usage, and perceived challenges of implementing edutainment strategies. The questionnaire included closed-ended questions. Likert-scale and open-ended items.
2. Semi-structured interviews, conducted with a subset of participants, provided qualitative insights into the contextual factors, personal experiences, and institutional constraints that influence edutainment practices in the classroom.

Quantitative data collected from the questionnaire responses were analyzed using Microsoft Excel to generate descriptive statistics, including frequencies and percentages, which helped to identify common trends and patterns among participants. Qualitative data from the semi-structured interviews and the questionnaire were analyzed using thematic analysis, allowing for the identification of recurring themes related to barriers, attitudes, and contextual factors. Coding was conducted manually to ensure close engagement with the data and the emergence of nuanced findings.

Results and Discussion

A major finding of the study reveals that 64% of teachers reported being unfamiliar with the term "edutainment," However, it also reveals that the ESL teachers do employ edutainment strategies in ESL classrooms. Many popular activities practised in ESL classes, such as *Simon Says*, *Hangman*, and songs, are commonly found to be used mostly as warmers and ice-breakers, but not to target using them meaningfully in the class due to a lack of understanding or awareness as to how to incorporate edutainment methods meaningfully in the classroom. This finding demands running proper teacher training programmes to make the teachers aware of such strategies and how and when to use them.

Although 99% of the teachers agree that learning should be made interesting, it was found that the edutainment strategies are not used very often or frequently. The frequency indicated less than 10% of the sample. Further, 73% expressed reluctance to use games and interactive tasks due to concerns about classroom noise and loss of control. Apart from that, teachers reported having little to no guidance or exposure to a wider range of edutainment strategies beyond what they have independently adopted.

All in all, these findings highlight a contradiction; although teachers express the value of making ESL learning fun and engaging, numerous reasons, such as lack of awareness of innovative and entertaining edutainment methods, which in other words mean insufficient training, classroom management issues, administrative and parental pressure lack of school level encouragement tempt teachers not to employ edutainment strategies in ESL classrooms. Also, ESL teachers need to be exposed to new edutainment strategies and how to use them. This study reveals that, although the potential for edutainment exists, it is partly being practiced; its meaningful and sustained integration requires targeted interventions in teacher education, school policy, and curriculum design.

Conclusion

This study investigated the extent to which edutainment strategies are used in ESL classrooms in Sri Lanka through a mixed-method approach. The findings reveal a significant gap between teachers' willingness to make learning engaging and their ability to practically implement edutainment strategies. While most teachers are unfamiliar with the term "edutainment," they do employ certain commonly known strategies, such as games, songs, storytelling, etc. These are typically used by teachers only as warm-up activities rather than as tools for deeper learning. Key findings identified include a lack of awareness of innovative and entertaining edutainment strategies, classroom management concerns, and institutional and parental expectations, which result in the hindrance of using edutainment strategies in ESL classrooms in Sri Lanka. These findings point to a broader issue within the ESL curriculum, where innovation is encouraged in theory but not adequately supported in practice. The study underscores the need for professional development, curricular flexibility, and systemic support to enable teachers to adopt and sustain more meaningful edutainment approaches in ESL instruction.

Recommendations

Several key areas must be addressed to foster meaningful integration of edutainment in ESL classrooms. First, teacher training and awareness programmes should be prioritized through regular workshops and in-service sessions that introduce educators to a broader range of edutainment strategies while emphasizing their pedagogical value and practical application beyond warm-up activities. Also, curriculum and policy flexibility are essential. Revising guidelines to allow more time for interactive, learner-centred strategies can reduce the pressure of textbook completion and encourage creative, communicative language use. Further, the institutional support plays a vital role. The school authorities should actively promote innovative teaching by allocating resources, recognizing creative practices, and facilitating collaboration among teachers to share edutainment tools and ideas. Finally, resource development is crucial. Establishing a repository of contextually appropriate, low-resource materials such as games, songs, and storytelling kits will enable teachers to adapt engaging content to diverse proficiency levels and classroom environments.

Further Research

Conduct longitudinal and classroom-based studies to evaluate the long-term impact of edutainment methods on students' language proficiency, motivation, and classroom dynamics in different regions of the country.

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The Factors Influencing Teachers' Motivation: Insights from the Anuradhapura Education Zone

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Abstract

Teacher motivation constitutes a critical determinant in the efficacy of educational systems. It facilitates student engagement and achievement, cultivates a constructive learning atmosphere, and nurtures enduring intellectual curiosity. This study sought to elucidate the prevailing status of teacher motivation while identifying individual, institutional, and contextual determinants to inform the design of targeted and evidence-based interventions. Employing a mixed-methods approach within a descriptive survey framework, data were collected via structured questionnaires administered to a stratified random sample of 368 teachers within the Anuradhapura educational zone, complemented by in-depth interviews with 18 educators. Data analysis comprised descriptive statistics, Pearson correlation coefficients, independent samples t-tests, multiple regression analysis, and thematic analysis. The findings revealed elevated levels of intrinsic motivation, job satisfaction, favourable working conditions, and opportunities for professional development. Conversely, moderate to low levels were observed in relation to student behaviour, parental and community involvement, and external recognition, while remuneration structure was associated with markedly low motivational outcomes. Of the demographic variables examined, only gender demonstrated a statistically significant association with motivation levels; age, academic qualifications, tenure, school type, and student enrolment size did not yield significant correlations. Professional development opportunities and favourable work environments emerged as salient predictors of intrinsic motivation. In contrast, student behaviour, remuneration structure, parental and community involvement, and external recognition were not found to exert predictive influence on. Based on these insights, the study delineates priority domains for strategic intervention: intrinsic motivation, job satisfaction, favourable working conditions, opportunities in professional development, student behaviour, remuneration structure, parental and community involvement, and external recognition. Future research is warranted to further interrogate the interrelationships and predictive validity of these variables to optimize motivational frameworks within the teaching profession.

Keywords: Teacher motivation, intrinsic motivation, job satisfaction, professional development, remuneration structure

Introduction

Teacher motivation significantly impacts educational quality, influencing teaching performance, student engagement, retention, and growth. However, past research has often neglected factors like service commitment, job satisfaction, and professional development. This study fills that gap by examining individual, institutional, and contextual factors affecting teacher motivation in the Anuradhapura education zone. Despite over 90% of zonal teacher development initiatives targeting motivation, no formal studies have been conducted between 2000 and 2024. Addressing this void, the research integrates literature, data, and analysis to uncover the forces shaping teacher motivation. The findings aim to support evidence-based strategies that enhance teacher morale, performance, and educational policy.

Research problem

Teacher motivation is essential for maintaining educational quality, yet it remains poorly understood due to the complex interplay of institutional, social, and contextual factors. In the Anuradhapura education zone, despite various initiatives, motivation levels remain low, with over 3,700 teachers across 136 schools facing heavy workloads and subject shortages. Existing strategies lack evidence-based focus and sustainability, leading to widespread dissatisfaction and attrition. This study aims to uncover the key determinants of teacher motivation to guide effective, targeted interventions that can improve teacher well-being and strengthen the overall education system.

Research questions

1. What is the current status of teacher motivation?
2. What are the key influencing factors affecting teacher motivation?
3. What are the effective interventions to enhance teacher motivation?

Literature review

This study adopts three foundational theoretical frameworks to examine the complex construct of teacher motivation: Self-Determination Theory (SDT), Expectancy Theory, and Herzberg's Two-Factor Theory. SDT emphasizes the fulfillment of autonomy, competence, and relatedness as essential psychological needs that enhance intrinsic motivation. Empirical studies across countries like Greece, Australia, and Israel affirm SDT's relevance in explaining teacher engagement and well-being (Ryan & Deci, 2000). Expectancy Theory, formulated by Vroom, posits that motivation arises when individuals believe their efforts will lead to desired outcomes. Research shows its applicability in aligning teacher expectations with institutional rewards and performance (Soupir-Fremstad, 2013). Herzberg's Two-Factor Theory differentiates between hygiene factors (e.g., salary, policies) and motivators (e.g., recognition, growth), both essential for sustaining teacher satisfaction and reducing attrition (Herzberg, 2017/1959). Collectively, these theoretical frameworks offer an integrated and multidimensional lens through which the motivational determinants of teachers, specifically within the Anuradhapura education zone, can be systematically examined and categorized. This conceptual synthesis lays a rigorous foundation for the formulation of empirically grounded, contextually responsive interventions aimed at optimizing teacher motivation and elevating educational outcomes. Furthermore, an extensive review of approximately 30 scholarly sources was undertaken to distill critical factors influencing teacher motivation, including but not limited to psychosocial dynamics, institutional support mechanisms, leadership practices, and workload management.

Table 1

Sample of Review material with details

No	Author	Year	Factors
1	Dr. Peshal Khanal & Dr. Prem Phyak	2021	Remuneration and allowances, working environment, student behavior, class size, teacher development, recognition and rewards, promotion, and parent–community relationships
2	Gümüştaş & Gülbahar	2022	Effective and supportive leadership, administration, positive interpersonal relationships, and personal commitment to teaching, Work environment, intrinsic motivation and job satisfaction, salary and incentives, student behavior, parental and societal cooperation, professional development, job security, recognition and rewards
3	Leithwood et al.	2004	Clear instructional guidance from school principals, opportunities for professional advancement, a Work environment, recognition, constructive feedback

(Khanal & Phyak, 2021), (Gümüştaş, 2022), (Leithwood et al., 2004)

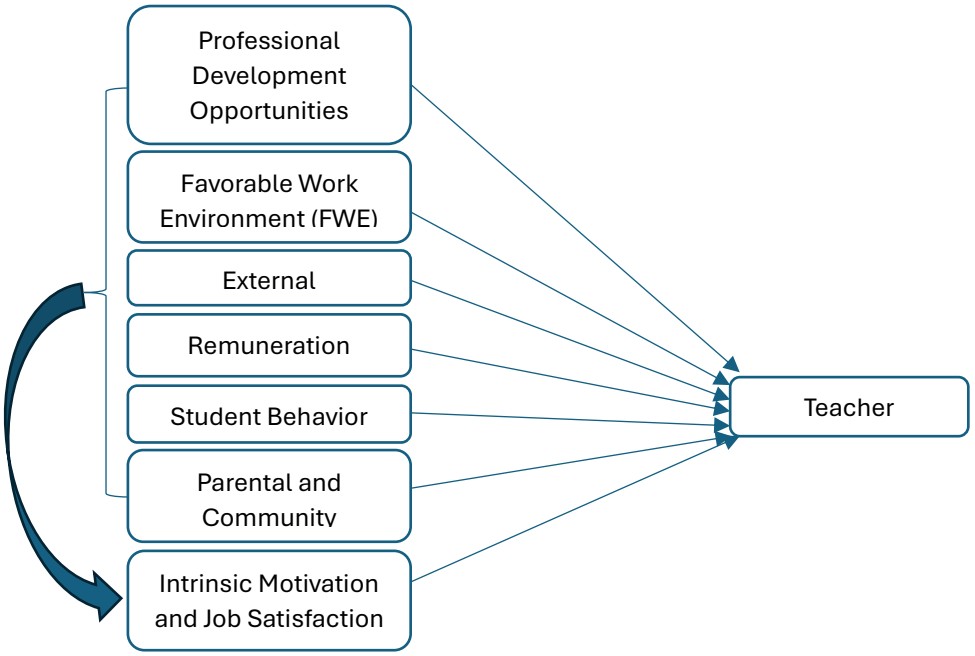

Figure 1. Conceptual Framework

Methodology

This study was conducted using a mixed-methods approach within a descriptive survey research design. The target population consisted of teachers from schools within the Anuradhapura Zonal Education Division, totaling 3,742 individuals. A stratified random sampling technique based on proportional allocation was employed, wherein homogeneous sub-groups were formed, and the sample size was determined according to the proportion of the population. Schools were selected through stratified sampling, followed by the selection of individual teachers.

Table 2

Sample Selection

School Type	No. of Schools	No. of Teachers	Selected Sample Nos.
1AB SM	10	1198	113
1AB TM	2	140	13
1C SM	26	960	92
1C TM	4	119	15
TYPE 2 SM	39	697	61
TYPE 2 TM	5	71	6
TYPE 3 SM	46	538	57
TYPE 3 TM	4	19	11
Total	**136**	**3742**	**368**

SM – Sinhala Medium, TM – Tamil Medium

Quantitative and qualitative data for this study were collected through document analysis, focus group discussions, structured questionnaires, interviews, and direct observation. Furthermore, based on the critical values derived from the *p*-value distribution table, items for which the obtained values exceeded the critical threshold were deemed to be valid and reliable (Prawitz & Thomas, 2006). Thus, the reliability and validity of the instrument were confirmed. In

terms of data analysis techniques, both descriptive and inferential statistical methods were employed. Descriptive methods included the use of graphs, tables, means, and percentages. Inferential statistical procedures included the Chi-square test, t-tests (independent and paired), and ANOVA, which were utilized to determine statistical significance and examine relationships among variables.

Discussion and results/findings

Table 3

Research question-based analysis

Research Question	Tool	Analysis
RQ1 – What is the current status of teacher motivation?	Document Check	Thematic analysis
	Focus Group Discussion	Thematic analysis
	Questionnaire – Section 1-9	Descriptive analysis (Mean, Standard deviations, variance, Frequency, percentage distribution) Inferential Statistics (Chi–Square, Correlation analysis, Regression Analysis, T-tests, ANOVA
	Interview	Thematic analysis
	Observation	Thematic analysis
RQ2 – What are the key influencing factors affecting teacher motivation?	Focus Group Discussion	Thematic analysis
	Questionnaire – Section 3-10	Inferential Statistics (Chi–Square, Correlation analysis, Regression Analysis, T-tests, ANOVA, Thematic analysis for open-ended questions
	Interview	Thematic analysis
RQ3 – What are the effective interventions to enhance teacher motivation?	Focus Group Discussion	Thematic analysis
	Questionnaire – Section 10	Thematic analysis for open-ended questions
	Interview	Thematic analysis

Based on data analysis, teacher motivation is shaped by four categories of factors. Strong motivator factors: FWE and PDO recorded the highest influence, showing they strongly enhance motivation. Weakest factor: RS gained the lowest ratings, reflecting dissatisfaction and limited support. Moderate correlated factors: ER and PCI also scored low, marking areas requiring urgent improvement. Sustaining internal factor: Despite these external challenges, IMJS remained high, proving that teachers stay motivated through inner commitment and dedication. Overall, the results show that while external barriers exist, internal drivers enable teachers to continue performing effectively with resilience and perseverance.

Table 4

Dimensions' correlation

Dime -nsion	IMJS	PDO	FEW	ER	RS	SB	PCI
IMJS	1.000	0.398 (Medium)	0.444 (Medium)	0.294 (Medium)	0.220 (Weak)	0.319 (Medium)	0.216 (Weak)
PDO	0.398 (Medium)	1.000	0.570 (Strong)	0.423 (Medium)	0.299 (Medium)	0.402 (Medium)	0.207 (Weak)
FEW	0.444 (Medium)	0.570 (Strong)	1.000	0.539 (Strong)	0.274 (Weak)	0.479 (Strong)	0.318 (Medium)
ER	0.294 (Medium)	0.423 (Medium)	0.539 (Strong)	1.000	0.351 (Medium)	0.356 (Medium)	0.277 (Medium)
RS	0.220 (Weak)	0.299 (Medium)	0.274 (Weak)	0.351 (Medium)	1.000	0.296 (Medium)	0.293 (Medium)
SB	0.319 (Medium)	0.402 (Medium)	0.479 (Strong)	0.356 (Medium)	0.296 (Medium)	1.000	0.559 (Strong)
PCI	0.216 (Weak)	0.207 (Weak)	0.318 (Medium)	0.277 (Medium)	0.293 (Medium)	0.559 (Strong)	1.000

Key Insights Gathered from Teachers by Using Thematic Analysis

Teacher motivation is shaped by intrinsic drive, professional development, supportive leadership, and positive school environments. Key enhancers include individualized attention from administrators, constructive feedback, and participatory teaching methods. However, novice teachers often face reduced motivation, while senior teachers may find technology integration challenging. Poor parental engagement, low remuneration, and public mistreatment of teachers further diminish morale. Wellbeing support plays a critical role, and when prioritized, significantly boosts teacher motivation. Interestingly, female teachers tend to show higher motivation in both teaching and responsibilities. Motivation levels directly influence student outcomes, and frequent absenteeism among some teachers indicates potential deficits. Overall, a balanced focus on personal, institutional, and contextual factors is essential to sustain teacher motivation and enhance educational effectiveness.

Conclusion

This study explored evidence-based interventions to enhance teacher motivation through a comprehensive analysis of influencing factors. Teachers identified both psychological and professional training opportunities as crucial for sustained motivation. Key environmental expectations included administrative support, collegial collaboration, manageable workload, alignment between subject expertise and teaching assignments, adequate infrastructure, and supportive supervision. Teachers also emphasized the need for formal recognition, salary restructuring, improved student discipline, and greater parental involvement.

A ranked analysis of motivational factors placed IMJS satisfaction as the most influential, followed by FWE, PDO, SB, RS, PCI, and ER. Empirical studies, such as one using the Fuzzy Analytic Hierarchy Process in Urmia, identified salary, job security, recognition, and development opportunities as primary motivators (Yeşilaydın, Özkan, Uğurluoğlu Aldoğan, & Kurt, 2023). Other research highlighted intrinsic motivators like shaping the future generation and contributing to social equity.

Interviews supported these findings, with over 83% of participants endorsing the established hierarchy, while a few elevated recognitions in priority. The analysis aligns strongly with Self-Determination Theory, affirming that autonomy, competence, and relatedness underpin teacher motivation. Conversely, Expectancy Theory was only partially supported due to inconsistencies in the progression of motivation levels across factors.

Herzberg's Two-Factor Theory received robust support, as both hygiene (extrinsic) and motivator (intrinsic) factors were found to impact motivation meaningfully. Overall, the study confirms that teacher motivation is a multifaceted construct influenced by a blend of internal aspirations, systemic structures, and socio-environmental dynamics.

To boost teacher motivation, the study proposes a comprehensive strategy focusing on leadership, professional development, workload, recognition, and support systems. Principals should receive training in conflict resolution and workload management, while teachers need better access to psychosocial and professional development. Creating a support unit for teacher concerns can improve trust and conditions. Motivation can be sustained by reducing non-teaching duties, aligning teachers with their subject areas, and keeping class sizes manageable. Fair workload distribution and performance-based supervision also enhance morale. Recognition at various levels, along with timely and fair salaries and allowances, is essential. Promoting student motivation, ensuring attendance, and engaging parents through awareness programs create a more supportive environment. Addressing personal and family needs further supports job satisfaction. Together, these strategies aim to develop a motivated, effective, and resilient teaching workforce.

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Student-Related Factors Affecting the Effective Use of ICT in Science Learning (A Study Based on Grade 10 Tamil Medium Students in the Mawanella Educational Zone)

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Abstract

The use of Information and Communication Technology (ICT) in science subjects has significantly transformed traditional learning methods, enhancing student engagement and conceptual understanding. This study, conducted among Tamil medium Grade 10 students in the Mawanella Education Zone, aimed to identify the student-related factors that influence the effective use of ICT in learning science. The research focused on a key objective of examining the accessibility of ICT tools and internet connectivity among students, students' attitudes toward using ICT in science learning, and institutional support mechanisms available to students for ICT-based science learning. A survey design was employed to collect quantitative data through structured questionnaires administered to students and teachers. Following this, a mixed-method research approach was utilized, integrating both quantitative and qualitative data collection techniques. The study population consisted of 950 students and 32 teachers, from which a sample of 100 students and 20 teachers was selected using stratified random sampling techniques. Data analysis was performed using SPSS-21 software and descriptive statistical methods. The findings revealed that while most students had access to digital devices, disparities based on socioeconomic background affected internet connectivity and ICT utilization. Students exhibited positive attitudes toward ICT, citing increased motivation, engagement, and ease in understanding complex concepts, but expressed concerns regarding excessive reliance on technology, faced challenges such as limited technical training and inadequate institutional support, and provided internet facilities and ensured access to learning platforms that support science subjects. The study concludes that ICT has significant potential to enhance science learning if barriers related to student accessibility and skills are addressed. Recommendations include improving ICT infrastructure, offering continuous training, and implementing structured policies to ensure equitable access to digital learning resources for students.

Keywords: Science, information communication technology, learning

Introduction

The integration of Information and Communication Technology (ICT) into science education has brought about a profound shift in traditional pedagogical practices, fostering more interactive, engaging, and student-centered learning environments. ICT tools such as digital simulations, educational videos, virtual laboratories, and interactive platforms have enhanced students' motivation, improved conceptual understanding, and promoted greater learner autonomy. These tools provide multiple representations of scientific content, catering to diverse learning styles and enabling students to visualize abstract concepts more effectively. In Sri Lanka, the Ministry of Education has taken notable steps to promote ICT in the classroom through various national policies, infrastructure development projects, and teacher training initiatives. While these efforts have created a foundation for digital transformation in education, their implementation and effectiveness vary widely across regions and schools. One of the most pressing issues is the inequality in access and usage of ICT resources, particularly among students from marginalized or low-income backgrounds. These disparities are more evident in rural and semi-urban educational

zones, where infrastructural challenges, limited internet access, and a lack of technical support persist.

This study aims to explore and identify the key student-related factors that influence the effective use of ICT in science learning among Grade 10 Tamil medium students in the Mawanella Education Zone. These factors include access to digital devices and internet connectivity, students' attitudes toward technology, their level of digital literacy, and the availability of supportive learning environments. Understanding these variables is essential for developing targeted strategies to enhance ICT integration in science education, ensuring that all students, regardless of their socioeconomic background, can benefit equitably from digital learning opportunities. Although several studies have explored ICT access and attitudes, few have examined how student-related factors specifically influence ICT use in science learning within the Tamil medium context of Sri Lanka. This study, therefore, addresses this gap by combining both quantitative and qualitative insights to contribute contextually relevant findings.

Objectives of the Study

The main aim of this research was to investigate student-related factors affecting the effective use of ICT in science education. The specific objectives were:

1. To assess the accessibility of ICT tools and internet connectivity among students.
2. To analyze students' attitudes toward using ICT in science learning.
3. To explore institutional support mechanisms available to students for ICT-based science learning.
4. To provide recommendations for enhancing ICT integration in science education.

Literature Review

Access to ICT tools and the internet remains a major challenge in Sri Lanka, especially in rural and semi-urban areas. Vidanapathirana (2016) highlighted disparities in access to devices and the internet based on students' socioeconomic status. Fernando (2020) reported that although many students owned smartphones, most lacked stable internet connections. LIRNEasia (2020) revealed that only about one-third of Sri Lankan households had access to reliable internet services. During the COVID-19 pandemic, access gaps became more visible, with many students relying on shared devices (Supporting Inclusive Online Education, 2022). Palagolla and Wickramarachchi (2019) found that the lack of ICT infrastructure in schools significantly limits meaningful access. Nawastheen et al. (2023) noted that connectivity issues disproportionately affect Tamil medium students in less developed areas. Jayatissa and Perera (2021) reported that gender and parental education level also influence ICT accessibility. Siriwardhana and Senarath (2022) emphasized that mobile data costs often prevent consistent access to learning platforms. UNDP Sri Lanka (2021) found that rural students had limited exposure to digital tools before school-level ICT implementation. Abeysekera and Dawson (2015) concluded that structural access must precede pedagogical reform. Students generally exhibit positive attitudes toward ICT use in science learning. Abeysekera and Dawson (2015) found that ICT tools increase student engagement and intrinsic motivation. UNESCO (2019) highlighted that visual ICT tools like simulations improve science understanding. Shanmugam and Balakrishnan (2022) showed that students in Tamil medium schools in Malaysia found science more enjoyable through ICT integration. Palagolla and Wickramarachchi (2019) indicated that a school's ICT culture strongly influences students' attitudes. Nawastheen et al. (2023) demonstrated that early exposure to ICT results in stronger digital confidence. Fernando (2020) found that students appreciate interactive and animated content over traditional textbooks. Gunawardena et al. (2020) observed that learners perceive science as more accessible when ICT is blended with group work. Gamage and Wijesinghe (2018)

highlighted the role of gamification. This study is grounded in Vygotsky's Sociocultural Theory, emphasizing that digital tools can serve as mediating instruments for knowledge construction when appropriately scaffolded.

In improving science interest. Perera and Amarasinghe (2020) found a strong link between multimedia use and conceptual retention. Vithanapathirana (2016) noted that attitude is closely tied to prior ICT exposure at home and school. Despite enthusiasm for ICT, students face many challenges. Fernando (2020) reported digital literacy gaps even among students with devices. Vidanapathirana (2016) emphasized language barriers, especially for Tamil medium learners. Supporting Inclusive Online Education (2022) identified distractions, information overload, and screen fatigue as new-age issues. LIRNEasia (2020) noted that mobile network instability severely affects rural students. Nawastheen et al. (2023) found that students lack the ability to differentiate between credible and non-credible online content. Palagolla and Wickramarachchi (2019) highlighted that students are often untrained in using educational software. BMC Medical Education (2022) pointed out that even higher education students struggle with online resource evaluation. Jayatissa and Perera (2021) found that device sharing among siblings hindered focus. Siriwardhana and Senarath (2022) noted that without Tamil-language digital resources, comprehension is difficult. UNESCO (2019) acknowledged that infrastructure alone cannot address pedagogical gaps. Institutional support is critical for ICT success. The Ministry of Education, Sri Lanka (2017) laid out ambitious goals for smart classrooms, but implementation varies. Fernando (2020) identified gaps in continuous teacher training. Palagolla and Wickramarachchi (2019) revealed that leadership support and ICT vision were missing in many schools. Nawastheen et al. (2023) reported a mismatch between student needs and institutional policies. LIRNEasia (2020) found that some schools used WhatsApp as an improvised LMS during COVID, showing institutional creativity under pressure. Jayatissa and Perera (2021) found that administrative resistance also affects ICT use. Siriwardhana and Senarath (2022) noted that budget limitations hinder lab upgrades. Perera and Amarasinghe (2020) emphasized school-level ICT champions as change-makers. Gamage and Wijesinghe (2018) reported that only 30% of surveyed schools had technical support staff. UNESCO (2019) emphasized the importance of local-language ICT content for inclusivity. Based on global and local research, several recommendations emerge. UNESCO (2019) proposed integrating ICT across the curriculum with contextual resources. Abeysekera and Dawson (2015) recommended blended learning models like flipped classrooms. Palagolla and Wickramarachchi (2019) advocated for policy alignment with ground realities. LIRNEasia (2020) stressed community involvement and low-bandwidth platforms. Supporting Inclusive Education (2022) emphasized teacher-student communication and technical support. Nawastheen et al. (2023) recommended developing culturally and linguistically relevant e-content. Siriwardhana and Senarath (2022) urged partnerships with telecom providers for free learning portals. Fernando (2020) called for district-level ICT monitoring units. Perera and Amarasinghe (2020) recommended incentives for ICT-active schools. Gamage and Wijesinghe (2018) suggested regular ICT skill assessments for both students and teachers.

Methodology

This study adopted a mixed-method research design to collect both quantitative and qualitative data, enabling a comprehensive understanding of the research problem. The research was conducted in the Mawanella Education Zone, which includes a total population of 950 students and 32 science teachers across twelve schools. From this population, a sample of 100 students and 20 teachers was selected using stratified random sampling to ensure proportional representation of gender and schools. Quantitative data were collected through structured questionnaires administered to both students and teachers, while qualitative data were obtained via semi-structured interviews with school principals to capture in-depth insights regarding classroom practices, challenges, and perceptions. The quantitative data were analyzed using SPSS version 21,

employing descriptive statistical methods such as frequencies, means, and percentages, whereas qualitative data were subjected to thematic analysis to identify key patterns and themes. This mixed-method approach was selected to triangulate findings, ensuring both numerical accuracy and contextual richness. To maintain the reliability of instruments, expert validation and a pilot test were conducted, and validity was ensured through consistent cross-verification of data across multiple sources. The student sample comprised a balanced representation of male and female students across all twelve schools, and the teacher sample included both male and female teachers responsible for science instruction. Data collection focused on classroom practices, the implementation of the curriculum, student engagement, and teaching-learning challenges. Through careful analysis of both quantitative and qualitative data, the study aimed to provide an accurate, holistic understanding of the teaching-learning environment in junior secondary schools within the Mawanella Education Zone.

Data Analysis and Findings

The data and information obtained through this study are analyzed and interpreted based on the objectives. The main purpose of data analysis is to obtain information from the data, draw conclusions based on it, and obtain a concept for the data. The purpose of this chapter is to provide an adequate explanation and interpretation of the information obtained from the data and draw conclusions accordingly. The data obtained through the research tools of the questionnaire and structured interview were first classified based on the objectives of the study. Under each objective, several sub-headings have been analyzed, and their respective interpretations have been given. Accordingly, in this chapter, the following subheadings have been analyzed, and their respective interpretations have been given in such a way that solutions to the research questions are provided.

Table 3

The gender

Type Of School	**Gender**			
	Male	**Percentge**	**Female**	**Percentage**
1AB	02	25%	34	34%
1C	22	22%	15	15%
Type 2	01	01%	03	03%
Total	48	48%	52	52%

The data reveal clear gender-based differences in student enrollment across various school types. Female students make up a slightly higher proportion of the total sample (52%) compared to males (48%). Notably, 34% of female students are enrolled in 1AB schools—institutions that are well-resourced and offer science streams—while only 2% of males attend these schools. This indicates that females in the sample have better access to higher-tier educational opportunities. Conversely, 22% of male students are enrolled in 1C schools, compared to 15% of females, suggesting that more males study in schools with limited science or advanced-level streams. Enrollment in Type 2 schools remains low for both genders (1% males, 3% females), implying that most students attend relatively well-equipped institutions. Overall, the findings suggest that female students are more likely to study in academically advanced schools (1AB), potentially benefiting from greater exposure to ICT and science learning resources. Descriptive statistics, such as mean and standard deviation, identified central tendencies, and ANOVA results confirmed significant relationships between variables ($p < 0.05$).

Accessibility of ICT Tools and Internet Connectivity among Students.

Table 4

Information and communication devices used for science learning at home.

Instrument	Number of students	percentage
Smart Board	03	6.00%
Laptop	16	16.00%
Tablet computer	04	4.00%
Mobile phone	31	31.00%
Computers	44	44.00%

The analysis of student access to ICT instruments reveals varied usage patterns, with computers being the most commonly used device, reported by 44% of the students. This indicates that desktop computers, possibly available in school labs or community centers, play a central role in supporting science learning. Mobile phones are the second most accessed tool, with 31% of students relying on them, highlighting their growing importance as a learning device, especially in areas with limited ICT infrastructure. Laptops are used by 16% of students, suggesting moderate accessibility to portable computing devices. However, access to more advanced or interactive technologies remains low, with only 6% of students using smart boards and just 4% using tablet computers. These findings suggest that while basic ICT tools are relatively available, there is a significant gap in access to modern educational technologies, underscoring the need for targeted interventions to enhance the availability and integration of diverse digital tools in science education.

Table 5

Father's income and the type of internet connections used in the house

Father's Income	Internet Connection		
	Permanent	Temporary	Total
30,000 or less	0 (0.00%)	3 (3.00%)	3 (3.00%)
30>001 – 60>000	2 (2.00%)	5 (5.00%)	7 (7.00%)
60>001 – 80>000	4 (4.00%)	5 (5.00%)	9 (9.00%)
80>001 – 100>000	12 (12.00%)	12 (12.0%)	24 (24.0%)
100>001 – 150>000	41 (41.0%)	6 (6.00%)	57 (57.0%)
More Than 150,000	59 (59.0)%	41(41.0%)	100 (100.0%)

The data reveals a strong correlation between fathers' income levels and the type of internet connection available to students, highlighting a clear digital divide based on socioeconomic status. Students from higher-income families—particularly those with a monthly income of over Rs. 150,000—have full internet access, with 59% benefiting from permanent connections, ensuring stable and uninterrupted digital learning opportunities. In contrast, students from the lowest income group (Rs. 30,000 or less) rely entirely on temporary internet connections, with no access to permanent services. As income decreases, the proportion of students with permanent connections also drops significantly. For instance, only 2% of students in the Rs. 30,001–60,000 range and 4% in the Rs. 60,001–80,000 range have permanent internet access. This trend clearly indicates that

students from lower-income families face significant barriers to consistent ICT usage due to limited internet connectivity. The findings underscore the urgent need for targeted support—such as subsidized internet services or school-based access points—to bridge the digital gap and promote equitable access to online science learning resources.

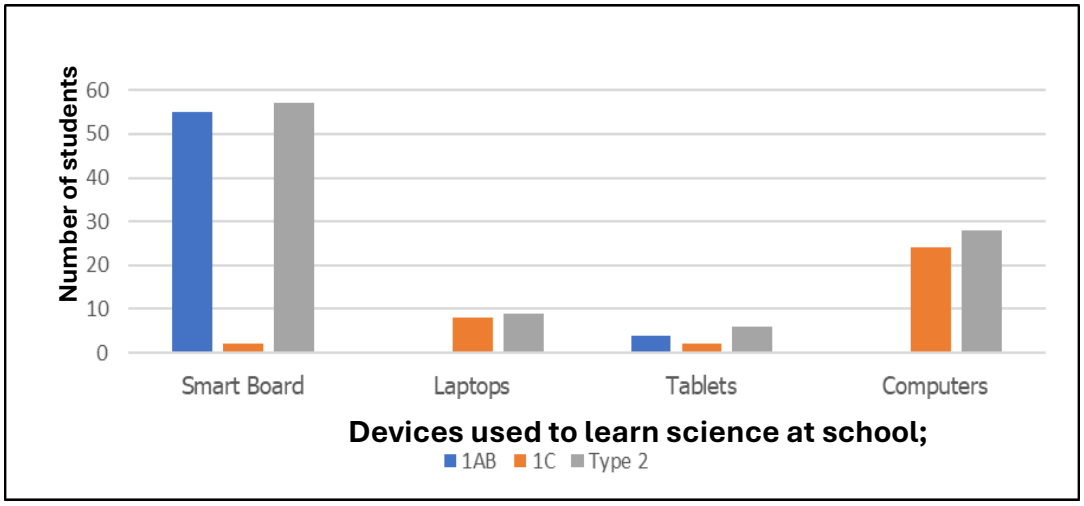

Figure 1. Relationship between the number of students using devices and the type of school

The data reveals clear disparities in the availability and distribution of ICT tools across different types of schools. 1AB schools, which are typically better-resourced, show the highest number of students with access to laptops (12) but have no access to smartboards, tablets, or desktop computers, indicating a possible preference for portable devices. 1C schools show more diversity in ICT resources, with students accessing smartboards (2), laptops (8), tablets (2), and a significant number using desktop computers (24), suggesting a more balanced, lab-based ICT setup. In contrast, Type 2 schools, which usually have fewer facilities, report minimal ICT access, with only 1 student using a laptop and 4 using desktop computers, and no access to tablets or smartboards. Overall, the total figures indicate that desktop computers (28) are the most accessed ICT tool across all schools, followed by laptops (14) and a minimal presence of smartboards (2) and tablets (2). The data highlights a noticeable digital resource gap between school types, with 1C schools offering broader ICT exposure and Type 2 schools being the most under-equipped, which could directly impact students' ability to effectively engage in ICT-integrated science learning.

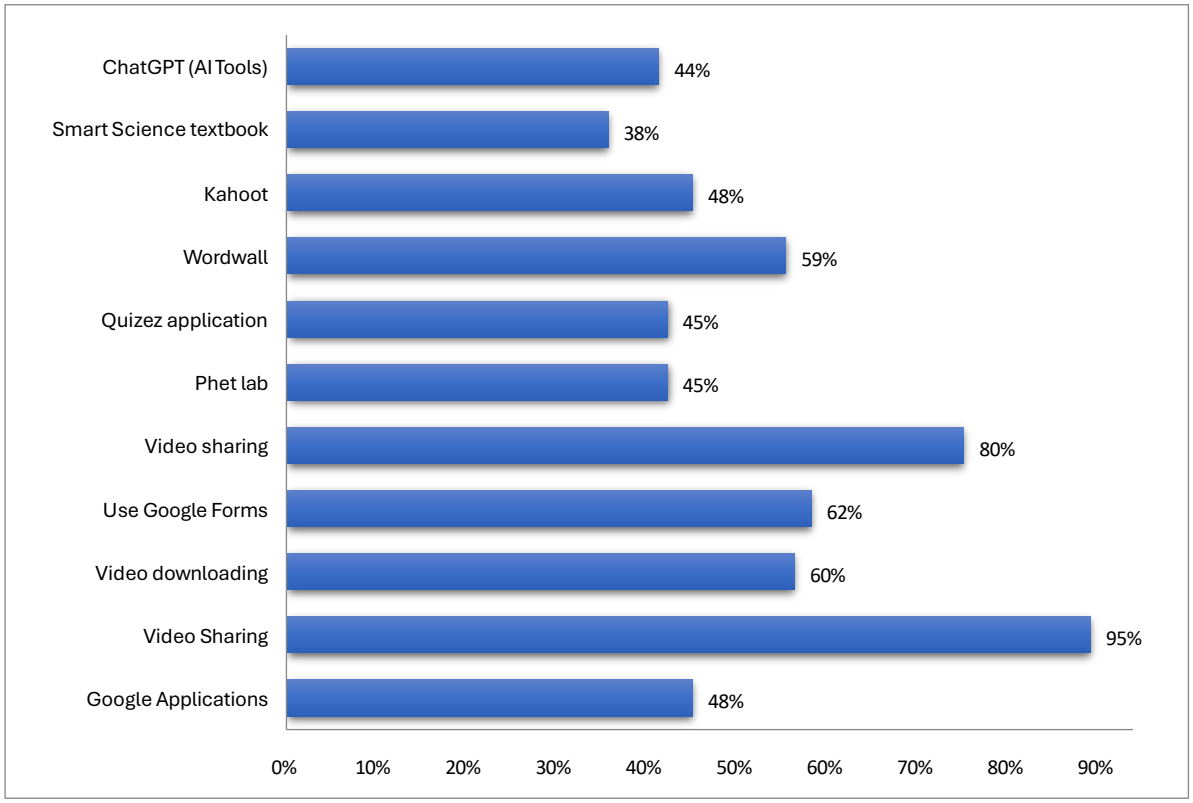

Figure 2. Details regarding ICT features that students can use independently

The data indicate a wide range of ICT application usage among students, reflecting diverse digital engagement in science education. Video searching is the most commonly used application, with 95% of students utilizing platforms such as YouTube or Google for exploring science-related content, indicating a strong preference for visual learning. Video sharing (80%) and Google Forms (62%) are also widely used, suggesting active student participation in collaborative and interactive online tasks. Applications like video downloading (60%) and Wordwall (59%) show that students are accessing and using educational content both online and offline. Google applications (e.g., Docs, Slides, Classroom) are used by 48%, reflecting moderate integration into learning processes. Meanwhile, AI tools like ChatGPT have a usage rate of 44%, indicating that a growing number of students are beginning to engage with advanced digital tools for understanding science concepts. Educational game platforms such as Kahoot (48%) and Quizziz (45%) are moderately used, showcasing their value in assessment and interactive learning. However, only 45% of students use PhET labs, and just 38% refer to the Smart Science Textbook, which points to underutilization of simulation tools and official curriculum-based resources. Overall, the data suggests a high level of engagement with general online content but a need to encourage more structured use of educational tools specifically designed for science learning.

Students' Attitudes toward Using ICT in Science Learning.

Table 6

Attitudes toward using ICT in science learning

No	Attitudes	Mean	Standard deviation
1	Feeling happy	4.13	0.861
2.	Increasing students' interest	3.92	0.918
3.	Increasing the understanding ability of complex concepts	3.56	1.067
4.	Avoiding lesson note-taking	3.78	0.836
5.	Reducing textbook use	3.71	0.973
6.	Preferring essay writing over laboratory experiments	3.28	0.870
7.	Learning all concepts using information and communication technology	3.20	1.005
8.	Motivating students	3.49	1.219
9.	Increasing students' engagement;	2.93	1.241
10.	Encouragement from peers	3.13	0.939

The analysis of students' attitudes toward ICT integration in science learning reveals generally positive perceptions, with varying levels of agreement across different aspects. The highest mean score is recorded for "feeling happy" (M = 4.13, SD = 0.861), indicating that students associate ICT use with enjoyment and a positive emotional response. Similarly, "increasing students' interest" (M = 3.92) and "avoiding lesson note taking" (M = 3.78) reflect favorable attitudes, suggesting that ICT enhances students' enthusiasm and offers more engaging alternatives to traditional note-based learning. The item "reducing textbook use" (M = 3.71) also scores above average, implying that students appreciate the shift toward digital learning resources.

Moderate agreement is observed for "increasing understanding of complex concepts" (M = 3.56) and "motivation through ICT" (M = 3.49), showing that while students recognize ICT's cognitive and emotional benefits, these impacts may vary depending on the individual. Lower mean values for "preferring essay writing over lab experiments" (M = 3.28) and "learning all concepts using ICT" (M = 3.20) indicate that students still value hands-on learning and acknowledge the limitations of ICT as a sole teaching method. The lowest ratings were for "increasing engagement" (M = 2.93, SD = 1.241) and "encouragement from peers" (M = 3.13), which may suggest that while ICT is accepted individually, it is less effective in promoting collaborative learning or maintaining focus during digital activities. Overall, the findings show a predominantly positive attitude toward ICT in science education, especially in terms of emotional satisfaction and content interest, but also highlight the need for balanced, interactive, and peer-supported use of technology.

Table 7

The ANOAVA table overall attitudes of students

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.667	10	2.167	.	.000[a]
	Residual	.000	89	.000		
	Total	21.668	99			

Variables: Peer skills, facilitation, virtual classroom learning, student engagement, motivation, writing skills, reducing textbook usage, early intervention, use of information

technology in all learning tools, and easy access to complex learning concepts. The ANOVA table indicates that the regression model used to examine the influence of various factors on students' overall attitudes toward the use of ICT in science learning is statistically significant. The predictors included in the model—such as peer influence, ease of using virtual labs, increased student interest, motivation, avoidance of note-taking, enjoyment, engagement, simplification of complex content, and reduced textbook use—collectively account for nearly all the variance in learners' attitudes, as shown by the regression sum of squares (21.667 out of a total 21.668). The significance value (Sig. = .000) confirms that the model is highly significant at the 0.001 level, suggesting a strong and meaningful relationship between these variables and students' attitudes. Interestingly, the residual sum of squares is reported as 0.000, which implies a perfect model fit—an uncommon occurrence that may suggest very strong predictor alignment or minimal unexplained variance. Overall, the analysis confirms that a combination of motivational, cognitive, and contextual factors significantly influences students' positive attitudes toward using ICT in science education.

Table 8

Regression table that illustrates the importance of factors that determine the overall attitude of students

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.320E-16	.000		.000	1.000
	Students feel hapy when using ICT	.100	.000	.184	4.290E7	.000
	increase students interest when using ICT	.100	.000	.196	5.552E7	.000
	simplify	.100	.000	.228	5.478E7	.000
	prevent_notes	.100	.000	.179	4.835E7	.000
	avoid_text_books	.100	.000	.208	4.562E7	.000
	easy_virtual_lab	.100	.000	.186	4.978E7	.000
	all_lesson	.100	.000	.215	5.578E7	.000
	motivate	.100	.000	.260	6.202E7	.000
	engagement	.100	.000	.265	6.557E7	.000
	peers	.100	.000	.201	5.218E7	.000

a. Dependent Variable: overall attitudes of learners

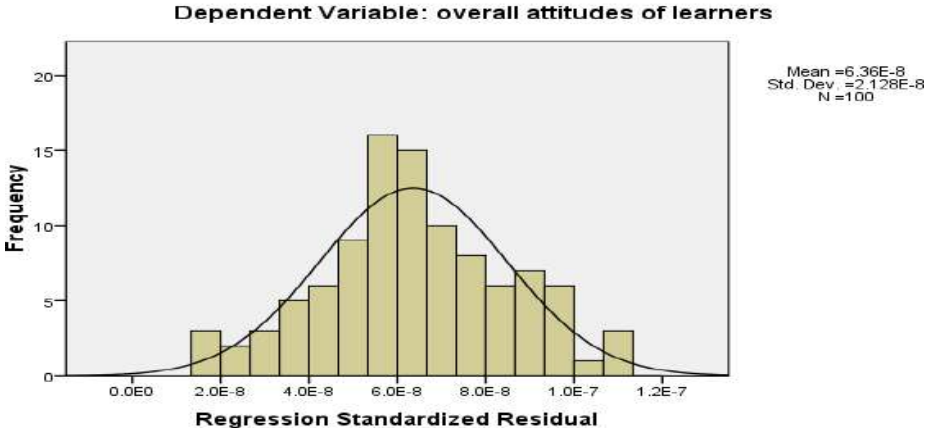

Figure 3. The Importance of Factors That Determine the Overall Attitude of Students

Histogram depicting the importance of factors that determine overall attitude. The coefficients table presents the contribution of each independent variable to the prediction of students' overall attitudes toward the use of ICT. All the listed predictors show a statistically significant effect, with p-values (Sig.) of 0.000, indicating a high level of significance at the 0.001 level. Each factor has an unstandardized coefficient (B) of 0.100, suggesting that they contribute equally in raw terms. However, differences in their standardized coefficients (Beta values) reveal

the relative strength of each predictor. The variable "engagement" has the highest Beta value of 0.265, making it the strongest predictor of overall attitudes. This is followed by "motivate" (0.260) and "simplify" (0.228), indicating that students are particularly influenced by how ICT increases their engagement, motivation, and ability to understand complex concepts. Other significant predictors include "avoid_text_books" (0.208), "all_lesson" (0.215), and "peers" (0.201), showing that shifting from traditional methods and receiving peer encouragement also shape positive attitudes. Variables like "easy_virtual_lab" (0.186) and "students feel happy" (0.184) also contribute meaningfully. The constant term is statistically insignificant (Sig. = 1.000), indicating that without the predictors, the model would not explain student attitudes. Overall, the regression coefficients confirm that all factors included significantly and positively influence students' attitudes, with student engagement and motivation emerging as the most powerful predictors of favorable attitudes toward ICT use in science learning.

Institutional support mechanisms are available to students for ICT-based science learning

The correlation analysis reveals strong and statistically significant relationships among all the examined variables related to support in an educational or organizational setting. Notably, administrative support to obtain resources shows the strongest positive correlations with other key factors, including having a proper plan (r = 0.811), training for support learning (r = 0.771), motivation (r = 0.761), and total perceived support (r = 0.798). This indicates that when administration actively provides support, it positively influences planning, training, and overall motivation, which in turn enhances the total support experienced by individuals.

Table 9

Institutional support mechanisms available to students for ICT-based science learning

Correlations

		Administration give support to get resources	Proper plan	training for support learning	motivation	Give total support
Administration give support to get resources	Pearson Correlation	1	.811**	.771**	.761**	.798**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	20	20	20	20	20
Proper plan	Pearson Correlation	.811**	1	.583**	.669**	.592**
	Sig. (2-tailed)	.000		.007	.001	.006
	N	20	20	20	20	20
training for support learning	Pearson Correlation	.771**	.583**	1	.766**	.771**
	Sig. (2-tailed)	.000	.007		.000	.000
	N	20	20	20	20	20
motivation	Pearson Correlation	.761**	.669**	.766**	1	.703**
	Sig. (2-tailed)	.000	.001	.000		.001
	N	20	20	20	20	20
Give total support	Pearson Correlation	.798**	.592**	.771**	.703**	1
	Sig. (2-tailed)	.000	.006	.000	.001	
	N	20	20	20	20	20

**. Correlation is significant at the 0.01 level (2-tailed).

Similarly, the presence of a proper plan is positively correlated with training (r = 0.583), motivation (r = 0.669), and total support (r = 0.592), suggesting that structured planning contributes to better training environments and higher motivation. Training for support learning is also strongly associated with motivation (r = 0.766) and total support (r = 0.771), emphasizing the importance of capacity-building initiatives. Furthermore, motivation itself is a strong predictor of total support (r = 0.703), reinforcing the idea that motivated individuals perceive greater overall support. All the correlations are statistically significant at the 0.01 level, meaning there is strong evidence that these relationships are not due to chance. Overall, the findings highlight that administrative support plays a central role in enhancing the effectiveness of planning, training, and motivation, which together contribute to a robust support system. The findings clearly indicate that students have positive attitudes toward ICT, but access, training, and institutional support vary significantly based on school type, income level, and infrastructure. To ensure effective ICT integration in science learning, equitable access, interactive tools, motivation, and institutional planning are essential.

Conclusion and Recommendations

Conclusions

This study examined student-related factors influencing the effective use of Information and Communication Technology (ICT) in science learning among Grade 10 Tamil medium students in the Mawanella Education Zone. The findings indicate that students generally exhibit positive attitudes toward ICT, especially when it contributes to motivation, engagement, enjoyment, and understanding complex concepts. However, the effectiveness of ICT use is significantly impacted by socioeconomic disparities, limited infrastructure, and variations in institutional support. Access to devices such as desktop computers and mobile phones is relatively high, yet interactive technologies like smartboards and tablets remain underutilized. Socioeconomic status directly influences students' internet connectivity, with high-income students benefiting from permanent access while low-income peers face digital exclusion. Moreover, differences in ICT facilities across school types (1AB, 1C, and Type 2) suggest systemic inequality that affects the quality of science education delivery.

The study also established that factors such as student motivation, peer encouragement, structured planning, and administrative support significantly enhance the effective use of ICT. Regression and correlation analyses confirmed that engagement, motivation, and institutional planning and training are the strongest predictors of positive student attitudes and success in ICT-enabled learning. However, this study was limited to a single educational zone, and future research should expand to multiple districts for greater generalizability. Further studies may also explore teacher-related or infrastructural factors affecting ICT integration.

Recommendations

To strengthen digital education, all schools should be equipped with essential ICT infrastructure, ensuring equitable access to laptops, smartboards, and internet facilities, particularly in rural and Type 2 schools. Internet subsidies or free Wi-Fi access must be provided to low-income families to reduce the digital divide. Interactive and culturally relevant Tamil-language content should be promoted through platforms like PhET, Wordwall, and Smart Science Textbooks. Regular ICT training workshops for teachers and students are essential to enhance digital literacy. Schools should implement structured ICT integration plans and continuously monitor and evaluate the effectiveness of ICT usage in improving learning outcomes.

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Pedagogical Practices and Power Dynamics in Sri Lankan Bilingual Education Classrooms

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Abstract

This study investigates the dynamics of power (classification) and control (framing) in Bilingual Education (BE) science classrooms in Sri Lanka, employing Bernstein's theory of pedagogic practice (TPP). Regardless of grade level, teachers in BE face the dual challenge of delivering subject content while managing students' diverse linguistic proficiencies. This challenge emphasizes the need to explore how teachers organize knowledge and facilitate learning in BE classrooms. This study aimed to investigate how power and control were reflected in teaching practices, curriculum adaptation, and classroom interactions in Sri Lankan BE science classrooms. The qualitative study employed a multiple case study method. Research participants were three grade seven BE science teachers from three 1 AB schools in the Western province. Schools were selected using the purposive sampling method, considering the implementation of BE. Data were collected using classroom observations (five for each), semi-structured interviews, and document analysis (syllabus, teacher guide, and the textbook). Data were analyzed using Braun and Clarke's (2019) Reflexive Thematic Analysis (RTA) and qualitative content analysis, and eight key themes. The analysis revealed that strong classification was prevalent in explicit lesson objectives, structured content delivery, and clear subject boundaries, supporting teacher authority and focused learning. Simultaneously, strong framing was observed, with teachers exercising significant control over lesson pacing, content selection, and classroom discourse, often limiting student autonomy. However, instances of weak classification and framing emerged, particularly when teachers adapted content to accommodate students' language needs, reflecting elements of invisible pedagogy and increased learner agency. The findings highlight how the interplay between visible and invisible pedagogic practices shapes knowledge transmission, teacher-student relationships, and the recontextualization of curriculum content in BE classrooms in reproducing knowledge. The study suggests adapting the subject curriculum for BE, incorporating approaches that align with principles of Bernstein's theory of pedagogic practice, while informing the need for further research for equitable and more inclusive BE classrooms.

Keywords: Power (classification), control (framing), bilingual education, pedagogical practices, visible pedagogy, invisible pedagogy

Introduction

Teaching selected subjects in the English medium in the science stream at G. C. E. (A/L) was introduced to the general education system of Sri Lanka in 2001 and was extended to grade six in 2002. In 2003, the program was coined as Bilingual Education (BE) and considered grade six as the entry point to the BE program. BE classrooms present unique challenges for BE teachers due to the varying proficiency in the target language among BE students (Coyle, 2015). As BE teachers have dual responsibilities of delivering subject content and managing the linguistic diversity of students, the teaching process demands precise content delivery, conceptual clarity, and sensitivity to students' different levels in the target language. These complexities emphasize the need to explore how teachers organize knowledge and facilitate learning in BE classrooms. Hence, it is important to understand the pedagogical practices of BE teachers.

According to Bernstein (2000), pedagogical practices shape the dynamics of interactions between teachers and students in classrooms. In this study, pedagogical practices referred to the

methods, strategies, techniques, and approaches that BE science teachers use to plan, deliver, and assess instruction. This study aimed to investigate how power and control were reflected in teaching practices, curriculum adaptation, and classroom interactions in science lessons in Sri Lankan BE classrooms.

Many researchers (Morais, 2002; Singh, 2002; Hoadley, 2006) studied pedagogical practices of BE teachers from sociological and educational perspectives. However, gaps remain due to diverse classroom contexts. This study attempts to address this gap by utilizing Bernstein's theory of pedagogic practice (TPP) to understand teaching in Sri Lankan BE science classrooms. The research objectives were to examine how power and control are exercised in science teaching in Sri Lankan BE classrooms, analyze science curriculum adaptations in BE classrooms to manage power relations and control over knowledge, and to explore implications for improving BE science teaching.

Literature review

Bernstein's theory of pedagogic practice (2000, 2003) highlights power (classification) and control (framing) as central to how educational institutions, including bilingual education (BE) classrooms, organize and manage knowledge transmission. In this paper, power and control refer respectively to classification and framing.

Classification describes how separate or connected subjects are in a curriculum (Asimaki et al., 2023). Strong classification means subjects are taught separately, with clear boundaries such as distinct timetable periods and dedicated resource units like science and mathematics labs. Weak classification blurs these boundaries, as seen in integrated subjects like primary-grade 'Environmental Related Activities (ERA),' which combines science, aesthetic education, and civics, allowing simultaneous learning of multiple perspectives.

Framing refers to who controls classroom decisions about what is taught, how, and how learning is assessed (Singh, 2002). Strong framing gives teachers full control, limiting student input, while weak framing grants students more autonomy over topics and pacing. Framing shapes teacher authority, student roles, and dominant knowledge forms (Bernstein, 1990).

Strong classification and framing create structured, teacher-led classrooms, whereas weak forms support flexible, student-centered learning (Bernstein, 2003; Clark, 2005). These factors influence power relations, knowledge transmission, and learner identities. Bernstein's pedagogic codes distinguish visible and invisible pedagogy based on classification and framing strength. Visible pedagogy involves structured teaching with clear rules and teacher authority, such as lectures and standardized tests (Bjarnadóttir & Geirsdóttir, 2018). Invisible pedagogy is less explicit, providing students greater freedom through inquiry-based or self-directed learning, where rules and teacher control are less obvious (Bernstein, 2003).

Visible pedagogy reflects strong framing and classification, whereas invisible pedagogy reflects weak forms, making students appear as authors of their learning (Bernstein, 2000). These interconnected concepts illuminate power dynamics in BE classrooms (Morais & Singh, 2002).

In this study, the BE science classroom was conceptualized as an entity of knowledge reproduction and knowledge recontextualization. Knowledge reproduction means that teachers deliver pre-selected content, and knowledge recontextualization means adapting content for teaching (Bernstein, 2000, in Chaffer, 2022). Unlike monolingual education classrooms, BE teachers have to recontextualize content to meet diverse language proficiencies among students.

Methodology

This qualitative study employed a multiple case study method, focusing on three BE science teachers (SC1, SC2, SC3) in grade seven from three 1AB schools in a particular zone of education

in the Western province of Sri Lanka. Schools were purposively selected based on the implementation of BEP. The study was conducted over a month's period and 15 lessons, with five lessons for each teacher being observed.

Data were gathered through classroom observations, semi-structured interviews, and document analysis. Documents included Educational Curriculum Materials (ECMs): syllabus, teacher guide (TG), and textbook of grade seven. Pre and post interviews were done for each lesson observation, and altogether 15 lessons were observed. Braun and Clarke's (2019) Reflexive Thematic Analysis (RTA) and qualitative content analysis were applied for coding and identified eight key themes in teachers' practices.

Results and Discussion

The analysis of BE classroom observations and teacher interviews revealed patterns aligned with Bernstein's (1990, 2000, 2003) concepts of classification and framing, distinguishing visible and invisible pedagogic practices.

Strong classification was evident in lesson structuring. Teachers clearly stated objectives, such as *"Our topic is properties of water,"* setting clear expectations for students. Direct instructions guided discussions with specific questions like, *"What are the basic needs of humans?"* Confirming the idea of Bjarnadóttir et al. (2019), strong classification involves clear boundaries in organizing students and information. For example, explicit group formation commands like *"Turn to this side; come to this group,"* reflected strong classification. Conversely, weak classification appeared where boundaries were less explicit, giving students more freedom, as when teachers said, *"One person from each group, come forward and write the answers"*.

Strong framing characterized lessons with structured plans, where teachers controlled the lesson flow, broke discussions into tasks, and used repetition to reinforce concepts *("Salt was dissolved. Copper sulphate was also dissolved"*). Visual demonstrations further enhanced understanding. Such visible pedagogy reflected teacher authority and ensured clarity, helping students follow objectives. Weak framing was seen in vague instructions and limited feedback. Questions like, *"Didn't anybody understand why water is important as a solvent?"* caused confusion, highlighting how unclear instructions weaken learning. Also, weak framing occurred when tasks were assigned with minimal guidance, e.g., *"Write down the main topic..."* instead of detailed directions.

Visible pedagogy combined strong classification and framing, with explicit, teacher-led instruction promoting focused engagement and clear learning outcomes. Teachers reinforced content through targeted questions and demonstrations, maintaining hierarchical classroom relationships. Conversely, invisible pedagogy involved weak classification and framing, encouraging student autonomy and exploratory learning. However, weak classification sometimes led to passive participation when limited discussion followed brief, close-ended student responses, or when teachers responded dismissively. Interviews revealed that invisible pedagogy also encompassed underlying teaching philosophies and individualized support not obviously visible in lessons.

The study further distinguished internal and external classification. Internal classification was observed when teachers structured discussions hierarchically, guiding students through broad to specific concepts, e.g., *"Now we are going to discuss sources of electricity"*. External classification involved relating content to real-life examples, such as *"When we feel tired, we like to take a bath in water"* and encouraging students to connect lessons to everyday use (*"Where do you use water as a solvent?"*). Teachers also linked new topics to previous knowledge, e.g., referencing grade six learning, to broaden context.

Findings revealed that visible and invisible pedagogic practices distinctly shape the BE classroom environment and student learning. Visible pedagogy, marked by strong classification and framing, fosters highly structured, teacher-led settings emphasizing clarity, authority, and explicit expectations. For example, a science teacher clearly stated, *"Today's topic is the properties of water; we will cover three main properties,"* ensuring students understood the lesson's scope and assessment criteria. However, this structure can limit student creativity and independent thinking, potentially making learners passive recipients of knowledge.

In contrast, invisible pedagogy features weak classification and framing, where teachers act as facilitators, offering students more freedom to explore and construct knowledge independently. For instance, instead of direct instruction, a teacher might ask students to investigate mixing substances with water and share their findings. This approach encourages critical thinking, collaboration, and meaningful connections to students' experiences. Yet, without sufficient guidance, some students may become confused or disengaged, especially if they are unaccustomed to self-directed learning or the objectives are unclear.

A dynamic balance between visible and invisible pedagogy is essential. Rigidly following one approach does not meet diverse student needs or learning goals. Effective teaching flexibly alternates between structured instruction and student-centered exploration, balancing teacher authority with student autonomy. Strong classification and framing reinforce teacher control, while weaker forms promote student agency. Structure provides security and clarity; autonomy fosters engagement and ownership.

Classification of scientific knowledge impacts BE students' engagement depending on language proficiency and concept comprehension. Framing contextualizes lessons with real-world relevance and linguistic diversity, enhancing engagement and bilingual scientific literacy. Weak classification and framing appeared when lessons diverged from core topics or lacked clear instructional relevance.

Internal classification organizes curriculum knowledge coherently, helping students understand concept interrelations, while external classification links learning to everyday life. One example was that the teacher discussed water's role as a solvent in daily contexts. Language use reflected this duality: explicit questions (*"What were the electric sources we talked about yesterday?"*) promoted understanding, but moments of diversion or overlooked responses showed weak classification and framing, affecting effectiveness.

In the language use, teachers demonstrated both strong and weak classification and framing in linguistic dynamics. Strong classification was seen in clear code boundaries, switching distinctly between Sinhala (L1) and English (L2) during explanations and instructions. Weak classification occurred through code-mixing and fluid blending of the two languages. This flexible language use accommodated students' varied proficiencies and preferences.

External classification in language reflected socio-cultural context: English associated with formal scientific discourse, Sinhala with everyday communication and cultural identity. Teachers' choice of language use managed this balance, supporting both academic learning and cultural relevance within the BE classroom. Thus, the interplay of visible and invisible pedagogies, internal and external classification, and linguistic framing shapes knowledge transmission, power relations, and learning experiences in BE science education.

Conclusion

The study emphasizes the significance of classification and framing mechanisms in shaping pedagogical practices and student experiences in BE classrooms. The study highlights the crucial role of strong and weak classification and framing mechanisms in determining the structure and

delivery of lessons. These insights are particularly relevant for BE contexts, where the interaction between language, culture, and pedagogy creates unique challenges and opportunities.

The findings demonstrate that teachers who skillfully balance visible and invisible pedagogical practices can create a more inclusive and engaging learning environment. Visible pedagogy ensures clarity and consistency in instruction while invisible pedagogy enhances greater student autonomy, creativity, critical thinking, and deeper engagement. The study emphasizes the importance of integrating these approaches to cater to diverse student needs and learning preferences in BE science classrooms. The study provides valuable insights into the pedagogical strategies that can enhance BE. Thus, considering the principles of classification and framing, BE teachers can design lessons that are both structured and flexible, ensuring that all students, regardless of their linguistic or cultural backgrounds, have the opportunity to succeed. The findings also have broader implications for curriculum development and teacher training, emphasizing the need for approaches that prioritize equity, inclusivity, and culture in pedagogy.

Based on those implications, the study suggests adapting the subject curriculum for BE, incorporating approaches that align with principles of Bernstein's theory of pedagogic practice, especially focusing on knowledge reproduction and recontextualization at the classroom level, offering continuous, context-specific training for BE teachers, empowering them to harmonize theory and practice. Educators and policymakers can advance the goals of equitable and effective education for all learners by continuing to examine and refine the interplay of classification and framing. Future research could minimize the limitations of this study, such as a small sample size, and also explore the long-term impact of these pedagogical practices on student outcomes. It could also investigate how similar strategies might be adapted for other multilingual and multicultural educational contexts.

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An Evaluation of the Alignment between the Senior Secondary Geography Curriculum of Sri Lanka and Sustainable Development Goal 15: A Textbook-Based Content Analysis

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Abstract

Geography education is crucial for equipping students with the knowledge and skills needed to understand and address sustainability challenges. Geography textbooks serve as essential tools for integrating the Sustainable Development Goals (SDGs), particularly SDG 15, into education. They help students grasp key environmental issues such as biodiversity, land use, and conservation. By providing consistent exposure to sustainability themes, textbooks connect global goals with local challenges. Research indicates that aligning geography education with SDG 15 can positively influence students' attitudes and behaviors towards environmental responsibility. Therefore, enhancing textbook content is vital for promoting environmental sustainability through education. This study evaluates the extent to which Sri Lanka's senior secondary geography curriculum aligns with the principles and targets of Sustainable Development Goal 15 (SDG 15: Life on Land), with a strong focus on promoting environmental sustainability. The main objective is to critically assess how well SDG 15 concepts are integrated within the geography textbooks used in government schools for Grades 10, 11, and in teachers' guides for Grades 12 and 13. A qualitative content analysis method was employed to systematically examine the textbook content, guided by a coding framework based on SDG 15's specific targets, which include themes such as biodiversity conservation, forest protection, sustainable land use, and ecosystem restoration. The analysis evaluated the frequency, depth, and context of these sustainability themes throughout the textbooks. The findings revealed that while some elements related to SDG 15 are present, the overall integration across the curriculum is limited and often superficial. Key areas like biodiversity conservation and sustainable land management were either underrepresented or addressed in a fragmented manner. Additionally, there was a lack of practical, place-based, or experiential learning activities that could help students connect more meaningfully with real-world environmental issues. These findings underscore the necessity for curriculum and textbook revisions to ensure a more comprehensive and coherent integration of SDG 15 principles. The study also highlights the importance of enhancing teacher training to effectively deliver sustainability content. Strengthening geography education in this manner supports both national and global efforts to achieve the goals outlined in Sustainable Development Goal 15.

***Keywords**: Geography curriculum, sustainable development goal 15, environmental sustainability, textbook content analysis*

Introduction

The World Social Science Report (UNESCO, 2013) highlights a range of environmental issues and challenges, many of which are driven by human activities. These include changing consumption patterns, climate change, deforestation, desertification, water scarcity, population growth, poverty, food insecurity, waste management, and the impacts of cultural diversity and globalization. Education for Sustainable Development (ESD) is recognized as a key tool for addressing these challenges and achieving the Sustainable Development Goals. It calls for a rethinking and reorientation of traditional education systems to more effectively integrate sustainability into teaching and learning processes (UNESCO, 2016). The Sustainable Development Goals, or global goals, are a collection of 17 interlinked global goals designed to be a blueprint to achieve a better and more sustainable future for all. SDGS were set up in 2015 by the United Nations General

Assembly and are intended to be achieved by 2030. SDGS 15 focuses on life on land; it aims to protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation, and halt biodiversity loss (UNESCO, 2016).

The International Geographical Union Commission on Geographical Education (2007, 2016) acknowledges the importance of reorienting school geography to ESD. Geography education plays a crucial role in helping students understand the complex interactions between humans and the environment. It equips them with the knowledge, skills, and values needed to address global environmental issues such as climate change, deforestation, and biodiversity loss. Integrating sustainability concepts into the geography curriculum is essential for preparing future generations to contribute to sustainable development. Sustainable Development Goal 15 (Life on Land) focuses on the protection and sustainable use of terrestrial ecosystems. Given Sri Lanka's environmental challenges, geography education in schools is especially important in fostering environmental responsibility among students.

Textbooks remain essential tools for promoting knowledge about sustainable development within school curricula. According to the Global Education Monitoring Report (UNESCO, 2016), textbooks are highly valuable for delivering structured and consistent information on sustainability, especially in contexts where other learning resources may be limited. As a central component of Learning Support Materials (LSMs), textbooks play a crucial role in integrating Education for Sustainable Development (ESD) into subjects such as geography, where understanding human-environment interactions is key. Research by Lee and Catling (2016) confirms that textbooks continue to be the most frequently used learning support material in geography classrooms, highlighting their enduring significance in instructional practices. Furthermore, Graves and Murphy (2000), as cited in Martinha (2011, p. 28), emphasize that despite the increasing accessibility of multimedia and internet-based educational resources, textbooks still serve as the primary teaching tool in geography education. This continued reliance on textbooks underscores the importance of ensuring their content is aligned with global sustainability goals, particularly in the context of the Sustainable Development Goals (SDGs). This study aims to evaluate the alignment of Sri Lanka's senior secondary geography curriculum (Grades 10–13) with the principles and targets of SDG 15. Through a qualitative content analysis of government-issued textbooks and teachers' guides, the research investigates how effectively environmental sustainability themes are incorporated. It also seeks to identify gaps in content and offer recommendations for strengthening geography education to better support national and global sustainability goals.

Research Problem

With the increasing environmental challenges such as deforestation, loss of biodiversity, and land degradation, it is crucial for education systems to play a transformative role in promoting sustainability. Geography, a subject that directly examines the interactions between humans and the environment, has significant potential to enhance environmental awareness and responsibility among students. The United Nations' Sustainable Development Goal 15 (Life on Land) highlights the importance of sustainable management of ecosystems and the protection of terrestrial biodiversity. The progress on this global goal is currently off track. The overall progress on SDG 15 in at least 12 countries in sub Saharan Africa has reversed and is trending in the wrong direction according to the sustainable development report 2022 of the United Nations Sustainable Development solution network the report found that 23 countries in sub Saharan Africa have also shown stagnant progress under the goal in fact all regions of the world face major and significant challenges in achieving the goal. The world's forest area continues to decline, and the proportion of forest cover fell from 31.9% of total land area in 2000 to 31.2% in 2020, representing a net loss of almost 100 million hectares. This has been primarily due to the conversion of forest into

agricultural land (UN Report 2022). A closer look at the last two decades further revealed that forest cover shrank faster during 2010-2020 than during 2000-2010 in Sub-Saharan Africa. This shrinking is called reverse progress in sustainable forest management. Yuxi Zhang, UNDESA statistics division, stated that agricultural expansion drove almost 90% of global deforestation. This includes crop-land expansion of 49.6% and livestock grazing (38.5%). This goes against the target 15.1, under which the world was supposed to ensure forest conservation, restoration, and sustainable use by 2020. Under SDG target 15.5, the world was supposed to halt, protect, and prevent the extinction of threatened species by 2020. However, the risk of species extinction continued to rise. "The risk is highest in Asia and small-island developing states. Around 40,000 species are documented to be at risk of extinction over the coming decades", said Zhang. The trends in the red list index, a key indicator under SDG-15, clearly indicate that the world has failed to address the "extinction of species" (Down to Earth, 2022).

Geography education, particularly through well-designed textbooks, plays a vital role in supporting the achievement of Sustainable Development Goal 15, which aims to protect, restore, and sustainably manage terrestrial ecosystems. Geography textbooks provide students with structured knowledge about physical landscapes, biodiversity, land degradation, deforestation, and conservation strategies. By integrating real-world examples, maps, and case studies, these textbooks help learners understand the complex relationships between human activities and the natural environment. They also promote critical thinking about sustainable land use and resource management, which are essential for addressing challenges like desertification and biodiversity loss. In this way, geography textbooks not only build environmental awareness but also equip students with the knowledge and skills needed to actively contribute to sustainable development and ecological conservation. However, there is limited understanding of how effectively these global sustainability principles are incorporated into school curricula, particularly in the geography education of government schools in Sri Lanka.

Objectives

The study is guided by key objectives that analyze the extent, depth, and context of SDG 15-related content in textbooks and teachers' guides, providing a framework for enhancing curriculum design and educational practices in the future.

1. To identify and examine the extent to which the themes and concepts of Sustainable Development Goal 15 (Life on Land) are represented in senior secondary geography textbooks and teachers' guides (Grades 10–13) used in Sri Lankan government schools.
2. To analyze the depth and context of environmental sustainability content related to biodiversity, forest conservation, land degradation, and ecosystem restoration within the geography curriculum.
3. To evaluate the alignment between textbook content and the specific targets of SDG 15 using a structured content analysis framework.
4. To provide recommendations for enhancing the integration of SDG 15 principles in the senior secondary geography curriculum to support environmental education and sustainable development goals in Sri Lanka.

Literature review

According to UNESCO, "Education 2030 will ensure that all individuals acquire a solid foundation of knowledge, develop creative and critical thinking and collaborative skills, and build curiosity, courage and resilience" (2015, p. 5). It argues for "deep understanding" that helps learners to look at an issue critically and helps them to imagine creative alternatives for the future.

SDG 15, titled Life on Land, seeks to protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, reverse land degradation, and halt biodiversity loss. Its specific targets include: ensuring the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems such as forests, wetlands, mountains, and dry lands (Target 15.1); promoting sustainable management of all types of forests, halting deforestation, restoring degraded forests, and increasing reforestation globally (Target 15.2); combating desertification and restoring degraded land and soil, including land affected by droughts and floods, to achieve land degradation neutrality by 2030 (Target 15.3); conserving mountain ecosystems and their biodiversity (Target 15.4); reducing the degradation of natural habitats and halting the extinction of threatened species (Target 15.5); promoting fair and equitable sharing of benefits arising from genetic resources (Target 15.6); ending poaching and trafficking of protected species of flora and fauna (Target 15.7); preventing the introduction and reducing the impacts of invasive alien species (Target 15.8); integrating ecosystem and biodiversity values into national and local planning and development processes (Target 15.9); and mobilizing financial resources and support for sustainable use of biodiversity and ecosystems (Targets 15.a-15.c). These targets reflect a global commitment to safeguard our planet's land-based natural heritage and the services ecosystems provide to humans and all forms of life United Nations, 2015).

The National Curriculum Goals focus on nation-building and the establishment of a Sri Lankan identity. They aim to promote national cohesion, integrity, unity, harmony, and peace, while also recognizing the cultural diversity within Sri Lanka's plural society and fostering respect for human dignity. Additionally, these goals emphasize the importance of recognizing and preserving the best elements of the nation's heritage, all while addressing the challenges of a changing world. The curriculum seeks to create and support an environment that embodies the principles of social justice and democratic values (Grade 12 Geography Teachers' Guide, 2017).

Textbooks play a crucial role in promoting consistent and equitable access to sustainability education. They ensure that all students, regardless of their region or background, receive standardized and accurate information about sustainability and global challenges. This helps reduce educational disparities and supports the Sustainable Development Goal (SDG) 4: Quality Education (UNESCO, 2016). Textbooks are essential tools for integrating Education for Sustainable Development (ESD) into school systems. They help embed ESD principles such as environmental protection, social equity, and economic sustainability into daily learning (UNESCO, 2012). Despite the rise of digital resources, textbooks remain the most commonly used teaching materials in geography classrooms, making them a powerful medium for incorporating content related to SDG 15 (Life on Land) and other environment-related goals (Lee & Catling, 2016). Well-designed textbooks that include up-to-date case studies and activities related to the SDGs can enhance students' understanding of sustainability and promote civic responsibility. They also encourage critical thinking and raise awareness of global issues among students (UNESCO, 2017).

Methodology

This study utilized a qualitative research approach to investigate how well Sri Lanka's senior secondary geography curriculum aligns with the principles of Sustainable Development Goal 15 (Life on Land). A content analysis design was employed to examine the environmental themes presented in the official geography textbooks and teachers' guides used in government schools for Grades 10, 11, 12, and 13. The study aimed to identify how concepts such as biodiversity conservation, sustainable land use, forest protection, and ecosystem restoration were integrated into the curriculum. The population for the study comprised all senior secondary geography learning materials officially approved by the Ministry of Education. A purposive sampling method was employed to select the textbooks and teachers' guides, as these documents directly reflect the core content taught in classrooms and are most relevant to the research objectives.

Data collection involved a systematic review of textbook content using a thematic coding framework developed based on the specific targets of SDG 15. This framework acted as a guide for identifying and organizing relevant content related to environmental sustainability. The textbooks were thoroughly examined for the presence, frequency, depth, and contextual placement of sustainability-related themes. The collected data were analyzed through qualitative content analysis. Each theme was coded and categorized according to its alignment with SDG 15. This analysis facilitated a critical evaluation of how well principles of environmental sustainability were incorporated across different grade levels. Additionally, it identified gaps and inconsistencies in the curriculum, laying the foundation for evidence-based recommendations to enhance the integration of sustainability within geography education in Sri Lanka.

In this study, internal validity ensures that the content analysis framework reliably captures the presence and depth of SDG 15 themes, such as biodiversity, forest conservation, and land degradation, without bias or errors. External validity relates to the extent to which the findings from this study can be generalized beyond the specific textbooks and teacher guides analyzed. For example, how well the results reflect the integration of SDG 15 principles across other educational materials, schools, or regions in Sri Lanka, or even in similar education systems elsewhere. Maintaining both internal and external validity is crucial for drawing meaningful conclusions about how well SDG 15 is represented in Sri Lanka's geography curriculum and for informing broader educational improvements.

Findings

The study revealed that the representation of Sustainable Development Goal 15 (Life on Land) in Sri Lankan senior secondary geography textbooks and teachers' guides (Grades 10–13) is present but remains limited in depth and integration. While some themes related to forest conservation, biodiversity, and land use are included particularly in Grade 10 and 11 textbooks, these are often addressed as isolated topics rather than being explicitly linked to the broader framework of the SDGs. Key concepts such as sustainable land management, combating desertification, and ecosystem restoration were mentioned, but not always in the context of SDG 15 or global sustainability goals. Teachers' guides provided some guidance on environmental topics, but did not consistently encourage the connection between textbook content and global sustainable development targets. Moreover, awareness of the SDG framework among teachers was found to be variable, suggesting a gap in professional development related to integrating SDGs into classroom instruction. These findings highlight the need to revise existing curricula and support materials to better align with global educational goals and ensure that students are equipped with the knowledge and critical thinking skills necessary to understand and contribute to the objectives of SDG 15.

The analysis of the geography curriculum revealed that environmental sustainability topics, specifically biodiversity, forest conservation, land degradation, and ecosystem restoration, are included but often lack comprehensive depth and contextualization. While biodiversity and forest conservation are introduced in various lessons, the curriculum tends to focus more on descriptive knowledge rather than encouraging critical understanding of sustainability challenges and solutions. Issues like land degradation and ecosystem restoration receive limited coverage, frequently treated as separate topics without strong links to real-world applications or current environmental policies. The curriculum does not consistently integrate these themes within a broader environmental sustainability framework, which may limit students' ability to grasp the interconnectedness of ecological processes and human impact. Furthermore, case studies and local examples are sparse, reducing opportunities for learners to relate content to their own environment. These gaps suggest that the curriculum requires enhancement to provide more meaningful, context-rich content that fosters a deeper understanding of environmental sustainability and prepares students to engage actively in conservation efforts.

The evaluation of textbook content using a structured content analysis framework indicated that while several aspects of SDG 15 are addressed, the alignment between the textbooks and the specific targets of SDG 15 is partial and inconsistent. Key targets such as forest management, biodiversity conservation, and combating land degradation are mentioned, but many textbooks do not explicitly reference the SDG framework or present these targets in a cohesive manner. Some targets, including sustainable use of ecosystems and halting the extinction of threatened species, are either underrepresented or absent. Additionally, the content often lacks depth in explaining the practical implications and global significance of these targets. This suggests that although the textbooks cover relevant environmental topics, there is a need for more deliberate integration of SDG 15 targets to enhance students' understanding of sustainable development goals and their relevance to local and global contexts.

The study's findings highlight several key recommendations for enhancing the integration of SDG 15 principles within the senior secondary geography curriculum in Sri Lanka. Firstly, curriculum developers should explicitly incorporate the language and targets of SDG 15 to provide clearer connections between local environmental issues and global sustainability goals. This could be achieved by embedding case studies on biodiversity conservation, forest management, and land restoration that are relevant to Sri Lanka's unique ecological context. Secondly, teacher training programs should be strengthened to improve educators' understanding of SDG 15 and equip them with effective pedagogical strategies for delivering environmental education. Additionally, textbooks and teachers' guides need revision to include more in-depth, interdisciplinary content that links ecological concepts with human impacts and sustainable practices. Finally, promoting active learning approaches such as field trips, community projects, and the use of digital tools can foster critical thinking and empower students to participate in conservation efforts. Implementing these recommendations will enhance environmental literacy and support the country's commitment to sustainable development.

Conclusions

This study aimed to evaluate the alignment between Sri Lanka's senior secondary geography curriculum and Sustainable Development Goal 15 (Life on Land) through a qualitative content analysis of geography textbooks and teachers' guides for Grades 10 to 13. The findings revealed that while some themes related to environmental sustainability, such as biodiversity, forest conservation, and land use, are included in the curriculum, the overall representation of SDG 15 is limited, fragmented, and lacks depth. Several key targets of SDG 15 are underrepresented or missing, indicating a gap between global sustainability goals and the national geography curriculum. Additionally, the study found that environmental content often lacks sufficient context or connection to real-life applications. Textbooks do not provide practical, student-centered activities that promote critical thinking or active engagement with sustainability issues. Furthermore, the progression of environmental themes across grade levels is inconsistent, and the teacher's guides offer minimal pedagogical support for integrating SDG-related topics into classroom teaching. These findings underscore the need for curriculum developers, textbook writers, and policymakers to revise and enhance geography education in Sri Lanka. Strengthening the integration of SDG 15 principles within the curriculum can improve students' environmental awareness and equip them with the knowledge and skills necessary for contributing to sustainable development. Moreover, empowering teachers through targeted training and providing updated teaching resources will be essential for effective implementation. By aligning geography education more closely with global sustainability priorities, Sri Lanka can better prepare its students to become responsible citizens and active contributors to the achievement of national and global environmental goals.

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Adapting Techno-Pedagogy: A Comparative Study of Localized Teacher Support Systems in Rural Sri Lanka and Tamil Nadu, India

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Abstract

The recent global drive for digital education has unveiled stark discrepancies between urban and rural education, especially in developing countries. This paper compares the challenges and responses to the process of adapting techno-pedagogy through local teacher support networks in rural Sri Lanka and Tamil Nadu, India. The paper, which draws on existing literature and reports, applies the Technological Pedagogical Content Knowledge (TPACK) framework to show that the problem is not one of hardware distribution, but of contextually relevant professional development. The study finds that both regions face important common obstacles, such as a lack of infrastructure, unreliable internet connectivity, and teacher training that is not contextualized. But the nature of their localization efforts varies: while Sri Lanka's localization often takes the form of piecemeal, multi-stakeholder initiatives with an emphasis on basic digital literacy, Tamil Nadu's localization is more likely to be achieved through large-scale, state-led initiatives like the DIKSHA platform. Among the successful strategies in both contexts are the importance of differentiated and individualized teacher support, the influence of Professional Learning Communities (PLCs) as a collaborative support system, and the success of blended learning. The article concludes by suggesting a multi-tiered model of localized support that highlights the importance of diagnostic needs assessment, school-based mentorship, and the development of teacher agency. Among the lessons learned from this comparison is the need for support systems for sustainable techno-pedagogical integration in rural areas to not be only transplanted but grounded in local realities.

Keywords: TPACK, rural education, digital divide, localization

Introduction

The digital shift in education has been a global trend that has been sped up by the pandemic, requiring teachers to develop techno-pedagogical capabilities, that is, the knowledge of technology, pedagogy, and content (Koehler & Mishra, 2006). Such integration is fundamental to broader educational aims, such as the Sustainable Development Goal (SDG) 4: Quality Education (UN, 2015). The actualization of techno-pedagogy is, however, highly uneven, and rural areas in developing countries encounter specific infrastructural, socio-economic, and pedagogical obstacles (Tondeur et al., 2017; Zou et al., 2021).

In Sri Lanka, even though the government has been promoting computer education since 1983 and Computer Resource Centres since 1994, the use of Information and Communication Technology (ICT) has not been effectively integrated (UNESCO, 2009). The lack of infrastructure, the presence of only one computer for every 100 students in 2009, and teacher training are significant challenges for advancement (Hudah, 2009; Karunathilake & Vidanagama, 2021). Rural Tamil Nadu faces similar challenges of internet connectivity and disconnect between the provision of resources and the integration of pedagogy, despite the presence of extensive state-led initiatives (Kumar & Kumari, 2023; Sindakis & Showkat, 2024).

One important lesson to be learned from both is that traditional, standardized Professional Development (PD) programs often do not work because they do not take into consideration local constraints and resources (Schulze-Vorberg et al., 2021). There is no "one-size-fits-all" solution to building teacher capacity. This paper aims to fill this gap by posing the following question: What

are the features of successful, locally situated teacher support systems for techno-pedagogy in rural Sri Lanka and Tamil Nadu, and what comparative lessons can be learned?

The goal of this review is to draw on the existing literature to build a framework for the provision of contextually relevant techno-pedagogical support. This paper seeks to contribute to the discussion around more equitable and sustainable educational technology integration by examining two South Asian contexts that are culturally similar but have different policy environments.

Theoretical Framework: Contextualizing TPACK

This review is guided by the Technological Pedagogical Content Knowledge (TPACK) framework, which suggests that successful technology integration is dependent on the interplay between knowledge of technology (TK), pedagogy (PK), and content (CK) (Koehler & Mishra, 2006). The value of the framework lies in highlighting the combined knowledge generated when the three areas interact, forming the integrated TPACK necessary to create authentic learning experiences.

However, in the rural context, the TPACK framework needs to be explicitly expanded to incorporate contextual knowledge (XK). TPACK is not a set of knowledge but a form of expertise that is situated and contextualized (Pareto & Willermark, 2019). Li and Li (2024) also found that "XK is significant in determining the overall TPACK along with PK, PCK, and TCK" (p. 23687). This means that any teacher support system must be designed to understand and incorporate the unique contextual realities of rural classrooms, including but not limited to multi-grade teaching, linguistic diversity, intermittent electricity, and socio-economic challenges.

Thus, the present review takes a Contextualized TPACK perspective, which suggests that teacher support systems should assist teachers in contextualizing the core techno-pedagogical knowledge to their local context (Tondeur et al., 2017). In addition, teachers' attitudes, beliefs, and self-efficacy also affect the development of TPACK. Scherer, Tondeur, Siddiq, and Baran (2018) also concluded that "attitudes toward technology and TPACK self-beliefs were positively related" (p. 67), indicating that teachers need support not only in building their confidence but also in enhancing their competence.

Methodology

The methodology used in this paper is a literature review. It draws from a review of secondary sources, including snippets of peer-reviewed articles, government reports, and institutional studies on Technology integration and teacher professional development in Sri Lanka and Tamil Nadu. Thematic synthesis was used to extract key themes and data points. Data collected was then analyzed, coded, and sorted into categories and themes that emerged from the data that could inform the development of localized support systems for rural teachers. Historical context and policy initiatives, infrastructure challenges, teacher preparedness and attitudes, support systems currently in place, and strategies are key themes that have proven effective. The data were coded and placed in a comparative matrix to compare and contrast rural Sri Lanka and rural Tamil Nadu, ensuring equal weight is given to both contexts in the analysis.

Comparative Analysis of Localized Support Systems

The Context of Rural Sri Lanka

Sri Lanka has a long history of introducing ICT in education. National policies, such as the "Digital Bridge through Education", sought to create a knowledge-based society (Ministry of Education, 2005). In 2009, there were nearly 9,700 schools with computer laboratories in 3,415 of them, but the computer-to-student ratio was 1:100 (Hudah, 2009). E-learning programs such as E-Thaksalawa (a Learning Management System) and the Nenasa Telecentre Network have been

introduced to address the digital divide. However, they are hampered by the absence of internet connectivity in rural schools (Kailasapathy et al., 2017).

One of the significant challenges is the inequality of resources. National Schools are also better equipped, with 78.3% having IT labs in 2012, compared to only 31.3% of Provincial Schools (Ranasinghe et al., 2016). This 'internal digital divide' is further exacerbated by a lack of qualified ICT teachers, especially in rural and estate schools where students often do not have the basic English and Mathematics skills that are essential for ICT (Marsook, 2019; Sethunga et al., 2016).

A lack of preparedness among teachers is also an obstacle. Kailasapathy et al. (2017) reported a mean score of 2.8 among teachers' readiness for e-learning, where a score >2.6 indicates lack of readiness, and attribute this to lack of technical competency, high workload, and resistance to pedagogical change (p. 105-106). This emphasis on teaching over technology is demonstrated in the way teachers themselves articulate the issue. In the same line, Technological Factors were rated the fourth most relevant to student's readiness to learn when it comes to Sri Lanka, after Student factors, Teacher factors, and Contextual factors (Piratheeban & Bandara, 2024) which is an important validation for effective support systems that emphasize on coaching to teachers, to see technology as a valuable instrument to restructure their pedagogical approach in order to achieve certain learning goals, instead of just building skills of technology for its own sake. But it is also something that might get better. For instance, the Commonwealth Digital Education Leadership Training in Action (C-DELTA) program showed that teachers, when provided with encouragement and specific support, could develop digital skills and move toward more student-centered practices (Karunanayaka et al., 2021).

The Context of Rural Tamil Nadu, India

The techno-pedagogy that Tamil Nadu has pursued is a more state-centric techno-pedagogy. The DIKSHA platform is an example of a national platform within an ecosystem of availability of digital technologies for curriculum resources and teacher training to make these resources accessible to all (Kumar & Kumari, 2023). The government has also promised to provide tablets in large numbers and establish SMART classrooms with interactive technologies (Kailasapathy et al., 2017).

Despite these enormous investments, rural Tamil Nadu has many challenges. The use of online platforms such as DIKSHA is also affected by infrastructural problems, including poor internet connectivity (Kumar & Kumari, 2023). In addition, there is evidence to suggest that, without localized pedagogical support, the learning benefits of hardware distribution are minimal. Often, the concern has more to do with the technology itself rather than how to teach with it (Koh et al., 2017). Thus, a clear disconnect appears between the integration of technology and its practical application in classroom teaching, as evidenced by a study on teachers' knowledge and perceptions in rural Tamil Nadu. Only 65% of teachers knew the term techno-pedagogy, and only 28% could say what that means. In addition, teachers' attitudes were heavily biased in favor of technology, depending on their self-efficacy. Teachers with low technical confidence identified it as another burden in addition to their teaching load, rather than a teaching tool (Jayanthi & Tholappan, 2016). This highlights the need for a system of support to not only offer infrastructure but also actively engage in restructuring long-held beliefs and stereotypes about teaching.

This kind of effective support has been articulated as Techno-pedagogy, married to a content area and community-based support. For example, teachers' buy-in and content curation in Tamil have been reported as crucial for integrating digital tools in science education or language learning (Tondeur et al., 2018). The Digital India Program (DIP), although assisting in the development of digital literacy, access, adoption, and students' socio-economic status, is also a barrier to learning outcomes (Sindakis & Showkat, 2024; Rani, 2016).

Cross-Cutting Themes and Divergences

Similarities

In both Sri Lanka and Tamil Nadu, the most important commonality is that while the provision of technological infrastructure is necessary, it is not sufficient for educational reform; sustainable integration requires continuous in-person pedagogical and technical support on the ground (Zou et al., 2021). Plus, the success of these support systems depends on promoting teacher agency, where teachers are seen as co-creators and "reflective practitioners" of techno-pedagogical solutions rather than mere receivers. This approach has been proven to be more successful and sustainable (Pareto & Willermark, 2019). In addition, teachers' internal psychological variables, such as self-efficacy and fundamental attitudes towards technology, are also very relevant factors in the successful adoption and effective use of technology in both regions (Scherer et al., 2018).

Differences

A key distinction between the two contexts lies in their policy drivers and implementation frameworks, where Tamil Nadu's approach is characterized by large-scale, state-driven programs such as DIKSHA. In contrast, initiatives in Sri Lanka are often more fragmented, involving a complex mix of government, NGO, and donor projects, which present different challenges for scalability and sustainability. The focus of what is being localized is also quite distinct in that in Tamil Nadu it largely involves translating language and State curriculum specific content into Tamil whereas in Sri Lanka, the localization must deal with the more complicated linguistic situation of being supportive to both Sinhala and Tamil medium schools, which adds a much more complicated level to the resource development and teacher support (Phiri et al., 2024).

Synthesis of Effective Localized Support Strategies

Personalized Support

ICT and TPACK skills levels also differ among teachers as they arrive at professional development. The necessity of tailored support rather than a one-size-fits-all training is a recurrent element in the literature (Schulze-Vorberg et al., 2021; Tondeur et al., 2017). This can include diagnostic testing to determine personalized learning paths for teachers, intensive foundational support for those new to teaching, and more advanced design-based practice for the more experienced (Koh, 2020).

Collaborative and Practice-Based Models

Top-down professional development has little impact. Instead, design-based, collaborative models in which teachers are engaged in the creation and critique of technology-integrated lessons hold promise. Professional Learning Communities (PLCs) or "Techno-Pedagogy Circles" formed within and between rural schools can provide peer support, resource sharing, and collective problem solving (Koh & Chai, 2014; Liu et al., 2015). The "TPACK in situ" model, which views teaching as a design activity situated in particular classroom contexts, is especially relevant to rural contexts (Pareto & Willermark, 2019).

Blended and Mobile

The online versus face-to-face training debate is solved by blended learning models, which are best for rural areas where travel is difficult. Blended learning as a concept combines traditional classroom learning with the latest e-learning technologies in a more effective way (Piratheeban & Bandara, 2025). They further emphasized that it is a more straightforward, flexible, and time-efficient approach that does not exclude any potential benefits from either method of teaching, thereby significantly enhancing the learning outcome. In this model, technology is not a complete takeover. However, it is used strategically "for projects, assessments, and for providing enriching learning experience," while the teacher's role shifts to that of a facilitator who guides "students

with essential, reliable resources and activities" (Tholappan & Begam, 2024). Zagouras et al. (2022) concluded that a hybrid model exceeded traditional training because it provided flexibility while still offering some human contact. Face-to-face initial workshops for basic skills development can be followed by ongoing online collaboration and mentorship on mobile phone accessible platforms, which have higher penetration in rural areas (Chen & Tsai, 2021).

Focus on Pedagogical Realignment over Technical Skill

The common pitfall of focusing on Pedagogical Realignment over Technical Skill is emphasizing technical skills (TK) too much and not enough on pedagogical integration (TPK and TPACK). Valtonen et al. (2023) concluded that even after training, teachers were still focusing more on content and pedagogy than on technology. Support should then not only be about "how to use a tool" but also "why and when to use this tool to teach this specific content to these specific students" and should use design scaffolds and lesson study approaches (Koh, 2019; Joubert, 2020).

A Proposed Model for Localized Teacher Support

From the above discussion, this paper presents a multi-tiered model of rural teacher support systems in Sri Lanka and Tamil Nadu. At the core of this model is a Diagnostic Layer, which begins with a thorough needs assessment to identify the current infrastructure, teacher TPACK levels, attitudes, and contextual challenges such as multi-grade classrooms, using diagnostic tools that have been adapted (Yang & Wei, 2025). Based on this diagnosis, the Programmatic Layer would consist of the creation of contextually relevant, subject-specific professional development using methods such as "learning by design" and lesson study cycles (Agyei & Voogt, 2015; Joubert et al., 2020), as well as training "Techno-Pedagogy Champions" or master teachers to support teachers continuously and locally in a non-threatening and flexible way (Baser et al., 2021). At the same time, the Technological Layer should work on developing low-cost, low-bandwidth, mobile-first technologies and build an Open Educational Resource (OER) digital repository that can function well in low connectivity and in the local languages where it is needed. Lastly, a Community and Policy Layer is needed to involve school leaders in developing a school culture that supports experimentation and time for collaboration (Chiu et al., 2024) and to create formal and informal Professional Learning Communities (PLCs) at the cluster or district level to reduce professional isolation.

Conclusion and Recommendations

This comparative analysis confirms that the challenge of adapting techno-pedagogy for rural communities in Sri Lanka and Tamil Nadu is not technological, but rather pedagogical and systemic. The teacher support system that surrounds this initiative is the key to its success, and must be strong, culturally responsive, and localized. Despite the commonalities in infrastructure and resource imbalances in both areas, the policy contexts require different approaches to implementation.

Recommendations

- Policymakers should cease funding centralized training and begin to invest in more continuous, school-based models of professional development that incorporate blended learning and peer mentorship.
- School Management needs to give teachers time and credit to engage in PLCs and lesson design so that a culture of collaboration and innovation can be fostered.
- Include contextualized TPACK and problem-based learning in teacher training programs for both pre-service and in-service teachers in order to prepare teachers for the rural classroom.

- The proposed support framework should be piloted and refined in selected rural districts in both regions using longitudinal and participatory action research methodologies. Future research is also required on the impact of new technologies, such as local language AI tools and offline adaptive learning systems, in these resource-poor environments.

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Techno Pedagogical Strategies for Enhancing Students' Attention in the Classroom

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Abstract

In the digital age, maintaining students' attention in the classroom has become a significant challenge for educators. This study explores techno-pedagogical strategies integrating technology with pedagogical methods to enhance student engagement and focus. The research examines various digital tools, such as interactive whiteboards, gamification, augmented reality (AR), and AI-driven learning platforms, alongside traditional teaching methodologies. A mixed-method approach, including surveys, classroom observations, and experimental studies, was employed to assess the effectiveness of these strategies. Findings indicate that interactive and immersive technologies, when aligned with sound pedagogical principles, significantly improve students' attention spans and academic performance. However, successful implementation requires teacher training, infrastructure support, and balanced screen time. This paper provides actionable insights for educators and policymakers seeking to optimize classroom engagement through technology-enhanced pedagogy.

Keywords: Techno-pedagogy, student attention, classroom engagement, educational technology, interactive learning

Introduction

In contemporary educational settings, maintaining student attention has become a significant challenge due to increasing digital distractions and shorter attention spans (Bradbury, 2016). Traditional lecture-based methods often fail to engage learners effectively, necessitating innovative approaches that combine technology with sound pedagogical principles. One such innovative approach is blended learning, which serves as a foundational techno-pedagogical model. It is defined as an integrated method that "conglomerates the traditional classroom teaching with the trending e-learning format in an unerring sense of direction" (Tholappan & Begam, 2024). This method positions the teacher as a facilitator. It uses technology for "projects, assessments, and for providing enriching learning experience with mind-boggling audio-visual aids," thereby directly addressing the challenge of student engagement.

Techno-pedagogical strategies, the intentional integration of digital tools with teaching methodologies, offer promising solutions to enhance classroom focus and active participation (Hwang et al., 2020). Research indicates that interactive technologies, such as gamified learning platforms and real-time feedback systems, can significantly improve student engagement by fostering motivation and immediate reinforcement (Deterding et al., 2011). Additionally, flipped classrooms and multimedia-based instruction have been shown to enhance attentiveness by allowing students to learn at their own pace while reserving class time for collaborative problem-solving (Bishop & Verleger, 2013). However, the effectiveness of these strategies depends on thoughtful implementation aligned with learning objectives, as poorly designed digital interventions may lead to cognitive overload rather than improved focus (Sweller, 2011). This study explores various techno-pedagogical strategies designed to enhance student attention in the classroom, evaluating their impact based on empirical evidence. By analyzing these approaches, the paper aims to provide educators with practical, research-backed methods to sustain engagement in an increasingly technology-driven learning environment.

Review of the Literature

This research paper investigates the role of techno-pedagogical strategies in enhancing students' attention levels during instruction. The study is grounded in cognitive load theory (Sweller, 1988) and Keller's ARCS model of motivation (Keller, 1987), which emphasize the need for engaging and manageable learning experiences. Enhancing students' attention in the classroom has been a critical challenge in education, particularly in the digital age, where distractions are prevalent. Techno-pedagogical strategies integrating technology with pedagogical methods have emerged as a promising approach to sustaining student engagement. Research indicates that interactive digital tools, such as gamification and multimedia presentations, can significantly improve focus and participation (Mayer, 2014). For instance, Mayer's *Cognitive Theory of Multimedia Learning* suggests that well-designed digital content reduces cognitive load, allowing students to process information more effectively.

Another key strategy is the use of real-time feedback systems, such as clickers or online polling tools. A study by Hunsu et al. (2016) found that immediate feedback through technology fosters active learning and keeps students attentive by encouraging continuous interaction. Similarly, flipped classrooms—where students engage with digital content before class—have been shown to enhance in-class attentiveness, as learners arrive prepared for deeper discussions (Bishop & Verleger, 2013). However, the effectiveness of these strategies depends on their alignment with pedagogical goals. Over-reliance on technology without clear instructional design can lead to superficial engagement (Kay & LeSage, 2009). Therefore, a balanced integration of technology and pedagogy is essential for sustaining student attention.

Need for the Study

In the contemporary educational landscape, maintaining students' attention has become increasingly challenging due to digital distractions, reduced attention spans, and diverse learning styles (Rosen et al., 2013). Traditional lecture-based teaching methods often fail to engage learners effectively, leading to decreased academic performance and retention rates (Bradbury, 2016). With the rapid integration of technology in daily life, students are more accustomed to interactive and multimedia-rich content, making passive learning methods less effective.

The shift toward digital learning environments, accelerated by the COVID-19 pandemic, has further emphasized the need for techno-pedagogical strategies that blend technology with sound pedagogical principles (Dhawan, 2020). While digital tools like gamification, augmented reality (AR), and learning management systems (LMS) are increasingly used, their effectiveness in sustaining student attention remains under-researched in real-world classroom settings.

The success of such techno-pedagogical strategies is also contingent upon students' readiness for more autonomous and engaging learning, often conceptualized as Self-Directed Learning Readiness (SDLR). Research identifying the factors influencing SDLR is crucial. A recent study categorised these into six key areas, with teachers perceiving student-related factors (e.g., motivation, self-efficacy), teacher-related factors (e.g., facilitative teaching style, feedback), and contextual factors (e.g., learning environment, family support) as the most influential (Piratheeban & Bandara, 2024, p. 6). This underscores that effective technology integration must address this complex interplay of student, teacher, and environmental elements to be successful.

Scope of the Study

This research focuses on technology-enhanced pedagogical methods that improve attention in K-12 and higher education classrooms. They are:

1. Interactive Tools (e.g., smartboards, polling apps like Kahoot!).
2. Gamification (e.g., Duolingo, Classcraft).

3. Flipped Classrooms (pre-recorded lectures + active learning).
4. Multimedia & AR/VR (e.g., Nearpod, Google Expeditions).
5. Adaptive Learning Technologies (AI-driven personalized content).

Current Use of Techno-Pedagogical Strategies in Daily Life

Techno-pedagogical approaches are increasingly embedded in modern education:

- Gamification: Platforms like Kahoot! And Quiziz is widely used for real-time quizzes (Wang et al., 2020).
- Flipped Classrooms: Schools and universities use YouTube, Edpuzzle, and LMS platforms (Moodle, Canvas) for blended learning (Bishop &Verleger, 2013).
- AR/VR in Education: Tools like Google Expeditions and Space enhance immersive learning (Radu, 2014).
- AI & Adaptive Learning: Systems like Squirrel AI and Century Tech personalize instruction (Luckin et al., 2016).

Future Directions in Techno-Pedagogical Strategies for Enhancing Student Attention

As educational technology continues to evolve, several promising avenues emerge for further research and implementation of techno-pedagogical strategies to enhance student attention. Future studies are as follows:

AI-Powered Adaptive Learning Systems

Future research could investigate how artificial intelligence can personalize learning experiences in real-time by analyzing student engagement patterns and adjusting content delivery accordingly (Luckin et al., 2016). AI-driven tutors and attention-tracking systems using eye-tracking or facial recognition may provide immediate feedback to both students and instructors about focus levels.

Immersive Technologies in Mainstream Education

While VR and AR have shown promise in specialized training, their potential for sustaining attention in regular K-12 and higher education settings needs further exploration. Studies should examine how extended reality (XR) environments impact attention spans compared to traditional digital tools (Pellas et al., 2020).

Neuroeducation and Biometric Feedback

Emerging research in educational neuroscience suggests that wearable devices measuring physiological markers (e.g., EEG, heart rate variability) could help identify optimal attention states. Future implementations might develop biofeedback systems that alert students when their attention wanes (Thomas et al., 2019).

Social-Emotional Learning (SEL) Integration

As techno-pedagogical tools advance, researchers should explore how to embed SEL components that address motivational and emotional barriers to attention. Digital platforms that teach mindfulness alongside academic content may offer a dual benefit (Durlak et al., 2011).

Ethical Design and Digital Wellbeing

With growing concerns about technology overuse, future studies must establish guidelines for "humane" edtech design that sustains attention without causing cognitive fatigue or addiction (Pangrazio & Selwyn, 2021). This includes research on optimal duration for digital learning segments and mandatory "attention breaks."

Cross-Cultural Validations

Current research predominantly reflects Western educational contexts. Comparative studies across different cultural and socioeconomic settings would reveal how techno-pedagogical strategies function in diverse classroom environments (Zhao et al., 2021).

Longitudinal Impact Studies

While short-term gains in attention are well-documented, more research is needed on whether techno-pedagogical interventions lead to lasting improvements in focus and academic performance over the years of implementation.

Implementation of this study

First, technological integration must remain subordinate to sound pedagogical principles, as over-reliance on digital tools without a clear instructional purpose can exacerbate rather than alleviate attention deficits (Kay & LeSage, 2009). Second, the successful adoption of these strategies requires comprehensive teacher training programs that address both technical competencies and the philosophical underpinnings of blended learning approaches. This is a critical point, as research indicates that teachers' awareness and perception of blended learning are fundamental to its successful integration. A study on B.Ed. Trainees found that effective professional development must move away from traditional, standardized programs that often fail because they do not consider local constraints and resources (Jayanthi & Tholappan, 2016). There is no "one-size-fits-all" solution, and support systems should be differentiated, collaborative, and practice-based to build both teacher competence and confidence. Third, ethical concerns regarding data privacy, screen time exposure, and the potential for technology addiction necessitate the development of robust digital well-being frameworks (Pangrazio & Selwyn, 2021).

Conclusion

The investigation of techno-pedagogical strategies reveals their substantial potential to revolutionize classroom engagement in our technology-saturated educational landscape. As demonstrated, interactive tools like real-time polling applications and gamified learning platforms successfully capture student interest by incorporating elements of competition and immediate feedback. The flipped classroom model, supported by multimedia resources, effectively shifts passive content absorption to homework while reserving class time for active collaboration. Emerging technologies such as AR/VR and AI-driven adaptive systems show particular promise in creating immersive, personalized learning experiences that align with individual attention patterns.

Future research directions should prioritize longitudinal studies to assess the sustained impact of techno-pedagogical interventions, alongside investigations into neuro-educational technologies that monitor and respond to physiological attention indicators. As education continues to evolve in the digital age, a balanced approach that harmonizes technological innovation with human-centered pedagogy will prove most effective in cultivating deep, meaningful student engagement.

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The Concept of Social Reconciliation for Promoting Good Citizenship: The Strategic Utilization of Motivation through Learning Experiences

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Abstract

The concept of *good* citizenship holds a higher strategic significance than that of *social* reconciliation*,* though both are inherently interconnected across civil, political, legal, educational, and social domains. The traits associated with good citizenship, such as civic responsibility, respect for diversity, and active participation, are not only conducive to but also foundational for the achievement of meaningful social reconciliation. The present study investigates the extent to which schools strategically organize learning experiences to foster motivation towards social cohesion, as outlined in national education policies, co-curricular programs, and school-level initiatives. This inquiry aims to assess both the quantitative and qualitative effectiveness of such efforts in cultivating the values of good citizenship. The theoretical framework is grounded in a comparative analysis of both local and international research on citizenship education and reconciliation. This approach enables a broader understanding of how these concepts are operationalized within educational systems. Within the Sri Lankan context, the citizen functioning as both a national and global actor is expected to embody universally recognized attributes of good citizenship. These include ethical conduct, a sense of collective responsibility, and an ability to coexist in multicultural environments. However, the literature reveals a significant gap: despite widespread recognition of the relevance of good citizenship for national development and diplomacy, insufficient research has addressed how educational practices effectively promote reconciliation through strategically motivated learning experiences. In Sri Lanka's diverse socio-cultural landscape, the integration of reconciliation-based pedagogies is crucial, yet evidence suggests that their implementation remains inconsistent and inadequately structured. This study, therefore, seeks to explore whether schools are practically and systematically facilitating quality learning experiences that motivate and sustain reconciliation-oriented actions as part of their citizenship education agendas. Addressing this research gap is timely and necessary. The development and validation of a standardized instrument to measure attitudes related to social reconciliation and good citizenship represents a novel contribution to the field and may guide future educational reforms.

Keywords: Good citizenship, social reconciliation, motivation, learning experiences, strategic utilization

Background

The foremost requirement of a good citizen is the willingness to contribute not merely for personal gain but for the benefit of future generations. Citizenship is fundamentally linked to membership in a free and sovereign state where the governed actively exercises their right to vote. Hermes (2006) contends that the identity of citizens in the international community has been fragmented, while Kawasaki (2003) argues that Japan’s use of traditional media for political propaganda has often yielded counterproductive results. Bellamy (2008) defines good citizenship as encompassing roles such as being a responsible neighbor, employee, service provider, or employer, emphasizing the fulfillment of legal and moral obligations. Roosevelt (2017) highlights that citizenship is a relationship grounded in both humanity and humility. According to Ritzen (2001), equality involves a commitment to creating equal opportunities for all members of society. It requires collective responsibility and active support for inclusive policies. Pushpakumara (2010)

emphasizes that all communities, including religious and linguistic groups, must be granted equal access to their rights without being marginalized or oppressed due to cultural differences.

Ritzen (2001) also notes that educational policies significantly influence social behavior, potentially enhancing educational outcomes. For instance, Pushpakumara (2020) discusses how experiences within education systems can either reinforce or challenge existing societal norms and values. These educational influences not only affect individual behavior but also shape broader community dynamics and cultural patterns. The learning–teaching process, along with the active participation of teachers, students, and the wider community, directly impacts the attainment of educational objectives. It is insufficient to focus solely on academic achievement or examination performance. As Balasuriya (2008) argues, formal education should produce not only academically competent individuals but also well-rounded citizens who are prepared to serve the country, regardless of their professional status.

Former United Nations Secretary-General U Thant (1964) emphasized the role of education in fostering peace during his lecture at Carleton University, titled *Peace and Education*. He famously stated, "Since war begins in the minds of men, peace must be created in the minds of men. Therefore, teachers are the architects of the mind, and children are the builders of peace" (U Thant, 1964, p. 16). This vision reinforces the need for peace education to be integrated into curriculum development. In line with this, the main theme of the 18th UNESCO Conference was "Advocating for the Promotion of Peace through Education" (UNESCO, 1974, p. 175). In Sri Lanka, education for social cohesion is a strategic tool employed by the government to achieve transitional justice and sustainable peace (Ministry of Education [MOE], 2008, p. 8). The reform agenda in the education sector is largely driven by the Education for Social Cohesion and Peace Unit within the Ministry of Education, which develops and implements relevant policies and plans. The National Policy on Reconciliation (2017) highlights the necessity for all Sri Lankans, particularly the Tamil community directly affected by the civil conflict, to embrace social reconciliation, peace, mutual respect, non-violence, and a culture of tolerance. Education is identified as a key factor in fostering national development and reconciliation.

Lister (2007) stresses the role of schools in producing fully responsible and engaged citizens. He argues that it is a social imperative for schools to empower students by offering transformative experiences through a holistic curriculum. Similarly, Kariyawasam (2008) affirms that social harmony, sustainable peace, and coexistence can be cultivated through quality education. He posits that transforming negative societal attitudes and beliefs is best achieved through strategic changes in the education system. Janmaat (2011) explores the concept of social cohesion as a real-life phenomenon, exploring the power of universities and assessing the specialist perspective. Fass & Mickael (2007), in a study conducted on the preferences, cognitive abilities, psychosocial functioning, and academic abilities of students in a school with mixed linguistic and religious students in the United Kingdom, found that students showed strong preferences for their parents and peer groups and that these students also demonstrated high levels of achievement in their psychosocial processes and social abilities.

Objective

1. This study aims to conduct a systematic literature review to examine the relevance of social reconciliation concepts in fostering good citizenship.

Methodology

The research adopts a concurrent mixed methods approach, wherein both quantitative and qualitative data are collected simultaneously from the field using appropriate data collection instruments. In addition, a structured literature review is undertaken through a thematic qualitative analysis of pertinent scholarly research and empirical studies related to social reconciliation and citizenship.

Discussion

Citizenship: The Theoretical Relevance of Reconciliation Concepts in Promoting the Qualities of a Good Citizen

Aristotle (384 - 322 BCE) conceptualized the state as a union of its citizens and political institutions. According to him, a citizen is someone who actively participates in the judicial and legislative functions of the state. Good citizenship, therefore, encompasses various components and characteristics essential to the functioning of a democratic society. Several scholars, including Dalton (2000), Bolzendahl and Coffee (2009), Hung (2012), and Noula (2019), have examined patterns of civic participation in relation to contemporary issues such as the meaning of democracy and human rights, civic culture, equality, and the impact of technology in the digital era.

The question, *what constitutes good citizenship*, has been extensively explored across academic disciplines. A systematic literature review by Villalobos, Moral, and Treviño (2021) identified that the concept of a "good citizen" has been the subject of scholarly debate since at least 1950. Their review, encompassing 120 academic publications from 1950 to 2019, reveals that good citizenship is not simply an inherent quality but a deliberate pattern of behavior and decision-making. The authors propose five core attributes that contribute to the development of good citizenship and the promotion of collective well-being:

1. Integrity
2. Fulfillment of Civic Duties
3. Patriotism and Nationalism
4. Self-Discipline
5. Courtesy and Respect

(Twain, M., 2023, *Citizenship is What Makes a Republic*, p. 6–1)

The reviewed literature indicates that the concept of good citizenship is both complex and multidimensional. The International Civic and Citizenship Education Study (ICCS, 2016) provides a comprehensive framework to analyze citizenship through normative, functional, and personal dimensions. Villalobos, Moral, and Treviño (2021) also conceptualized good citizenship within this framework; however, despite its contributions, their model has certain limitations. Notably, it synthesizes academic discourse without adequately addressing the gap between scholarly conceptualizations of good citizenship and broader societal understandings and debates on the topic.

A citizen, broadly defined, is a member of a political community who enjoys certain rights and assumes specific responsibilities. This general definition is nuanced by various philosophical interpretations. For instance, in the works of political theorists such as Hobbes and Rousseau, as well as contemporary scholars, the contrast between Aristotle's conception of citizenship and the idea of the passive "subject" serves as a foundational point for understanding civic identity within liberal democratic systems.

Following a period of limited philosophical engagement with the topic, there has been renewed academic interest in citizenship since the early 1990s. Millea and Nerman (1994) observed that this resurgence is often characterized by a blend of seriousness and irony, reflecting the evolving and, at times, contested nature of citizenship in modern philosophical inquiry. Referring to the role played by citizenship education in Asian countries, Kennedy & Fairbrother (2004), Lee (2006) stated that the enhancement of cultural value systems and the provision of facilities for the collective sharing of moral and personal values were more considered.

Plans & Nuria (2007) studied the perspectives of non–immigrant students on immigrant students working together in a school with multicultural students in the city of Barcelona, Spain, and found that immigrant students face great difficulties in working together in groups. Obiakwr & Festus (2007) conducted a study of the learning and teaching activities of male and female students in the same classroom in a multi - ethnic, multi-religious school in the United Kingdom, revealing that assessment through processes of multi-recognition can have a strong impact on learning experiences in a way that is not related to students' cultural and linguistic diversity.

Adiele & Nwamara (2019), Educational planning for national security in Nigeria, published in the British International Journal of Education and Social Sciences, explain the concepts of educational planning for national security and establish the rationale for peace education. It has also been further pointed out that many schools implementing citizenship education implement various programs, that the entire school process is committed to it, and that citizenship has values that are factors that influence changing social life, and therefore, no other effort to change citizens is successful.

Research Findings

Civic education fosters interest in democracy. Branson (1998) argues that for civic education to be effective, it must be central to political life and realistic. Asking what is meant by citizenship education, Sherrod, Flanagan & Youniss (2002), citing Gutman (1997), said that it is the overall process that affects people's beliefs, commitments, abilities, and activities. Furthermore, the research entitled 'Citizenship Education in a plural society and two dilemmas' emphasizes that the function of the subject of citizenship education in a social system with people groups speaking different ethnicities, religions, and languages is extremely broad and the responsibility assigned to that subject is very strong (Kymlicka, 2003, p.26

A study of citizenship education in American schools found that the place of citizenship studies in the curriculum was studied, which means that the impact of learners on the subject and the methods used in developing the subject were studied (ERIC Clearinghouse for Social Studies, 2004). According to Olsson (2004) ‘Multiculturalism and Democracy' research, citizenship education can develop the ability to function as a citizen in a Multicultural society, and democracy is strengthened by recognizing cultural differences.

Tan & Chong (2007), who conducted research on citizenship education and moral education in Cambodia, revealed that the country faced various challenges in introducing these subjects and introduced ten effective approaches that can be used in reaching citizenship education in schools. Khan (2016) has submitted an article for the International Journal of Secondary Education on the role of education in building social harmony. Tolerance and compassion are ideals in all religious beliefs, as well as in government laws and human behavior.

These findings were revealed through an initial literature review. The research problem has been given optimal attention, with a focus on promoting the concept of good citizenship and social cohesion. The regulation and supervision of these research findings are also lagging. The common components of social cohesion-promoting programs are based on the themes of stable peace, sustainable development, coexistence, tolerance, compassion, honesty, trustworthiness, respect for others, and law-abidingness. Social cohesion is a hybrid semi-concept that defines the relationship between community and policy. There are threats to maintaining social harmony, and policy measures must be taken to strengthen it. Citizenship emphasizes viewing members as equals. Theories of justice are stated to apply more broadly to social life. They also explained that citizenship is a result of the interconnected processes of state-building, which often leads to struggle and war.

Conclusion

The development of the citizenship education subject, the construction of a national policy framework, and the need to promote universal civic participation by updating damaged political practices are considered as Universal educational means for students to perceive (Davies et al., 2004), Yamashita (2006).

Although the concept of reconciliation has been socialized as a popular social dimension, its structural qualities are at least visible in the behavioral responses of citizens. A good existence with good citizenship characteristics should be evident in both the local and foreign environments through the actions of Sri Lankan citizens. According to research literature findings, there is a tendency to accept the notion that an optimal practice regarding social reconciliation exists in the Sri Lankan social context, which is characterized by a multicultural society. In that case, the concept of good citizenship is essential for living as an ordinary citizen of the country, where being a high-level diplomatic representative is not a birthright. In order to achieve this social dimension, a comprehensive and effective social development program is essential. Institutions related to the relevant scope should pay urgent attention to implementing short-term, medium-term, and long-term programs. Social cohesion conceptually has recently been expected to be related to social integration and social development.

Therefore, there are many political, legal, educational, and social needs for Sri Lankan citizens to promote good citizenship. Although individual in their community groups will have peaceful and good coexistence, they will have disorganized behavior with another ethnic or religious group. In the Sri Lankan education process, a perspective aimed at personal and social development will be necessary through the objectives and skills of the subject of citizenship education. It will be essential to have a deep understanding of social cohesion in the school curriculum of Sri Lanka. It is a social need to empower the student community by providing learning experiences through conducting the entire curriculum.

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A Content Analysis of Grades 6–9 Textbooks to Evaluate the Deficits in Comprehensive Sexuality Education in the Sri Lankan School Curriculum

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Abstract

Comprehensive Sexuality Education (CSE) is the global educational concept that offers the basis of delivering knowledge, skills, attitudes, and values that are evidence-based, age-appropriate, and culturally sensitive. CSE further aligns with the international standard aim of safeguarding the health, dignity, and overall well-being of children and adolescents. This current study aims to identify and analyze the inconsistencies between the international standards outlined in the UNESCO International Technical Guidance on Sexuality Education (2018) and the current school curriculum employed in Sri Lanka, where the issue remains highly sensitive due to cultural conservatism and fragmented implementation. The study followed a descriptive research design aligning with a quantitative dominant mixed method, including semi-structured interviews with 6 officials from the Ministry of Education and the National Institute of Education, to capture national-level efforts and challenges in implementing CSE. Content analysis was performed in textbooks from grades 6 to 9, analyzing as per the eight key concepts identified in UNESCO guidance, further using descriptive statistics to quantify the presence or absence of CSE topics in the curriculum, providing an account of coverage density. The SERAT content analysis reveals that while all 27 key CSE topics have at least one coverage, the overall curriculum coverage density is low, at 23.61% (51/216). Health science textbooks are the primary source for delivering CSE content, accounting for 41.67% of the potential coverage. Science textbook contributes only 8.33% coverage, Science 4.17% (1/7) of topics for the grade 7, and the Civics textbook contributes 10.42% coverage. The majority of the CSE topics (12/27) appear one time across the entire curriculum, highlighting superficial inclusion. Sexual and reproductive anatomy and physiology show the most consistent presence in all the textbooks. Key content areas such as understanding gender, gender equality, stereotypes, bias, gender-based violence, communication, refusal, negotiation skills, decision making, and safe use of ICT, media literacy, and sexuality have limited representation in school textbooks. These findings emphasize the crucial need for Sri Lanka to adopt a structured and integrated CSE framework. Beyond curriculum reform, the study recommends systematic teacher training to address distress and skill gaps, policy-level support to overcome cultural and institutional barriers, and inclusion of neglected key topics such as gender equality, safe use of ICT, and media literacy as emphasized by the ITESE (International Technical Guidance on Sexual Education) to deliver sexual education age appropriately. These measures are critical for bringing into line the Sri Lankan curriculum with international standards and successfully maintaining adolescent health and well-being.

Keywords: CSE, curriculum, SERAT, school textbooks

Background

Comprehensive Sexuality Education (CSE) is acknowledged as an age-appropriate, culturally relevant, and evidence-based approach to teaching on relationships and sexuality (WHO, 2011; ARROW, 2018). It further aims to safeguard the health, dignity, and well-being of children and adolescents by addressing their biological, emotional, social, and ethical aspects informatively. Empirical research on sexual education has shown that CSE is more effective compared to the abstinence-only models in reducing adolescent pregnancies and STIs. Recent global suggestions (Santelli *et al.,* 2017; UNESCO, 2018; WHO, 2022) support that CSE contributes to both health outcomes and life skills, making inclusion of CSE into the curricula a pressing policy requirement.

Even though Sri Lanka maintains a high literacy rate and free education, it has difficulties in implementing the CSE due to Cultural conservatism, policy indecision, and strong sexuality-related social restrictions. Efforts to familiarize CSE into the curriculum have been disorganized, with limited teacher preparedness and weak institutional support (Department of Education, 2020; Wijesekara *et al.,* 2020). This study thus places its rationale in the gap between global standards and the fragmented and cautious delivery of CSE in Sri Lanka.

Literature Review

Previous studies had explored the advantages of CSE, based on structural and cultural barriers, and the developing discourse on adolescent sexual health. It compiles the amount of information about nature, importance, and the international standards and practices on CSE, which guides its usage (UNESCO, 2018). According to the previous literature, special attention is given to the unique cultural, institutional, and social dynamics of Sri Lanka to contextualize the current focus of the study on evaluating CSE discrepancies within the national curriculum (Wijesekara *et al*., 2020).

Understanding Adolescence: Developing Sexuality and Physiological and Mental Changes.

Adolescence lasts from 10 to 19 years of age, is a critical developmental period during which society, psychology, and biology undergo substantial changes. During this duration, the physical and psychological development is frequently separated into early, middle, and late stages from puberty to adulthood (WHO, 2022). This phase is influenced by social and cultural elements that foster autonomy and identity development (Steinberg, 2014).

Adolescent Changes in the Body and Mind

Puberty is a biological period of hormonal changes that leads to growth spurts, secondary sexual traits, and sexual maturation. Adolescence is characterized by significant changes in the mind and body, including aging in the limbic system and prefrontal cortex (Blakemore & Mills, 2014). Mood swings, identity exploration, sensitivity to peer pressure, and moral reasoning abilities all improve in accordance with Erikson and Piaget's theories (Erikson, 1968; Piaget, 1972).

Adolescent Curiosity and Sexual Desire

Increased sex hormones, cultural, familial, and religious contexts, could affect sexual curiosity and desire of adolescents, which could be expressed through media consumption, peer conversations, masturbation, and fantasies (Tolman & McClelland, 2011). While peer pressure and digital media shape attitudes toward sex and intimacy, CSE could promote safer sexual decision-making and healthier relationships (Kirby, 2007).

International Standards of Comprehensive Sexuality Education

Internationally accepted CSE standards emphasized the importance of gender equality, consent, fulfillment, and illness prevention. They could be modified for a variety of contexts and outline eight essential components. Early implementation of the CSE is associated with better adolescent health and lower rates of STIs and unplanned pregnancy, despite cultural and policy differences (Chandra-Mouli *et al*., 2015; UNESCO, 2018).

International Perspectives on CSE: Asia and South Asia

Despite the existence of national frameworks, cultural, religious, and political sensitivities cause significant variations in the implementation of CSE throughout Asia and South Asia (UNESCO, 2018; IPPF, 2019). While South Korea, Japan, and Thailand have formal CSE, they frequently struggle with issues such as teacher preparation or cultural restrictions, particularly in aspects of relationships and sexual identity (UNESCO, 2016). Conservative opposition impedes progress in South Asia, especially in India and Sri Lanka, where content could omit sexual orientation, while

policy gaps, resource shortages, and persistent stigma in Bangladesh, Pakistan, and Nepal could continue to disseminate inequalities (Department of Education, Sri Lanka, 2020; UNFPA, 2020).

Research Gap

Adolescent development greatly benefits from sexual and reproductive health education (SRHE), especially using the CSE. However, implementation of CSE is hindered by cultural norms, policy environments, teacher preparedness, and curriculum content. Sri Lanka has serious knowledge gaps because of inconsistent and conservative delivery, since many people lack confidence in teacher preparation and addressing cultural sensitivity. Gender norms and cultural restrictions impede family communication, which produces understudied findings. This study attempts to fill in the gaps in the Sri Lankan context of the fragmented policy environment. This study could also emphasize the importance of raising national standards and advancing a more coherent approach to adolescent SRHE in Sri Lanka by addressing media literacy gaps, bridging cultural sensitivities with evidence-based education, and combating cultural restrictions and misinformation.

Methodology

This study used a descriptive research design to evaluate the CSE integration into the Grades 6–9 curriculum of Sri Lanka, compared to international standards. Semi-structured interviews were conducted with 6 officials from the Ministry of Education and the National Institute of Education to gain perceptions into national policies, implementation efforts, and challenges related to CSE delivery. A systematic analysis was conducted on Science, Health, and Civic Education textbooks from Grades 6–9 using the Sexuality Education Review and Assessment Tool (SERAT). The tool assessed coverage across eight key CSE concepts and 27 subtopics from UNESCO guidance, such as relationships, gender, safety, and reproductive health. Each sub-topic was marked as present (1) or absent (0), allowing for a structured quantitative evaluation. Descriptive statistics (frequencies, percentages) were used to quantify CSE content coverage across subjects and grades, to ensure transparency in measurements. The quantitative dominant mixed methods approach combined curriculum content analysis with perceptions of stakeholders to ensure internal and external validity.

Results

The SERAT framework was used to analyze the content of health, science, and civics textbooks for grades 6-9. The results showed a 23.61% overall curriculum coverage density, with only 51 of the 216 possible instances of CSE concept coverage. Health education had the largest coverage of CSE content, accounting for 41.67% and 58.8% of all CSE coverage. Civics Education contributed 19.6% and 8.33%. Half of all topics appeared one time, with superficial implementation across all the grades. The distribution of CSE content across different grade levels within subjects is illustrated in Figure 01. Health Grade 7 had the highest single-grade coverage, covering 14 topics. Health Grades 6 and 8 covered 8 topics each. Civics Grade 6 had 0 topics, indicating a complete absence of CSE content. Science Grade 7 had the lowest individual grade coverage, with only 1 topic. Civics Grade 9 had the highest coverage, covering 9 topics (37.50%).

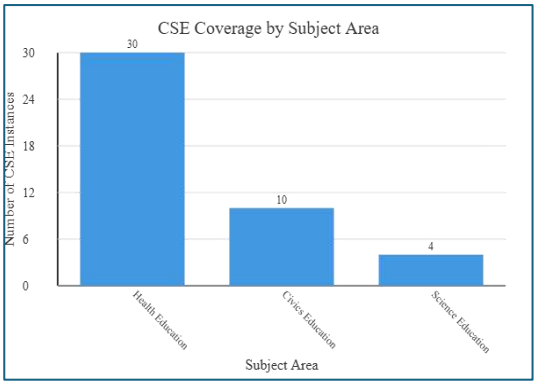

Figure 1. *The total number of CSE topic instances found in each subject area (Health, Civics, Science) across all analyzed grades*

Furthermore, the curriculum analysis in Figure 02 revealed significant differences in the frequency of individual CSE topics, with only one appearing four times, five appearing three times, six appearing twice, and 12 topics appearing only once. These under-represented topics include tolerance, inclusion, respect, values, sexuality, gender equality, stereotypes, bias, gender-based violence, communication, negotiation skills, decision making, safe use of ICT, and media literacy.

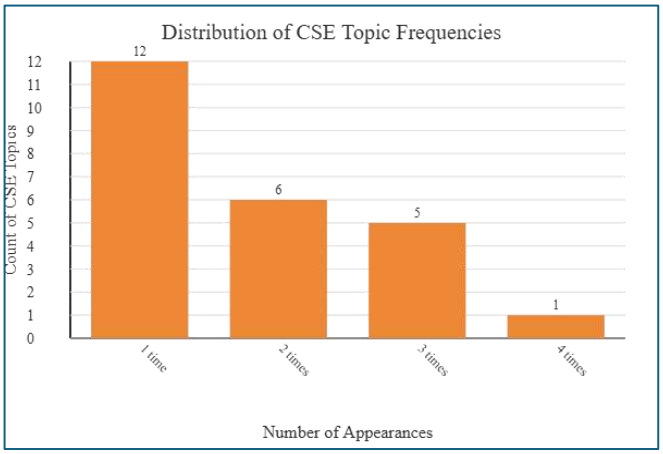

Figure 2. The number of CSE topics that appeared a specific number of times across the entire curriculum

Discussion

This study evaluates the integration of CSE in the Sri Lankan Grades 6-9 curriculum, revealing significant gaps compared to international standards. The overall coverage density of 23.61% indicates a lack of comprehensive CSE, with an inconsistent reliance on Health education (58.8% of all CSE coverage) and minimal contributions from science (7.8%) and Civics (19.6%). Half of the analyzed CSE topics appear only once across the entire curriculum, which is insufficient for students to develop a deep understanding, critical thinking skills, and behavioral competencies related to complex issues such as gender equality, gender-based violence, and communication.

Quantitative gaps identified from key informant interviews highlight socio-cultural sensitivities and institutional reluctance as major barriers to implementing CSE effectively. Cultural conservatism and religious influences contribute to the stigmatization of sexual discussions, leading to curricula that avoid comprehensive content on sensitive topics, as per the interview insights. The discomfort and inadequate training of teachers also play a critical role in the inconsistent and superficial delivery of CSE. The limitations of the study include a main focus solely on textbook content, which might not fully reflect classroom delivery or informal learning.

A truly comprehensive approach requires a strategic, integrated, and culturally sensitive framework that addresses both content gaps and implementation barriers.

Conclusion

The current study evaluates CSE based on the Grades 6-9 curriculum in Sri Lanka, revealing significant disparities between the current provision and international standards. The coverage density is low, with half of the 27 key topics only receiving isolated exposure. Key gaps persist in concepts crucial for adolescent well-being, such as gender identity, gender equality, violence prevention, communication skills, and media literacy. Recommendations could include the curriculum reform, teacher capacity-building, and policy-level advocacy to enhance CSE in the Sri Lankan setting, as underscored by the ITESE (International Technical Guidance on Sexual Education), which has offered the specific key learning objectives to deliver sexual education, appropriate to the age group.

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Fostering Proficient Digital Citizens: Communication and Media Studies as a Gateway in Sri Lanka

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Abstract

Digital technology has become integral to modern life, creating the need for new competencies among citizens (Pongrac et al., 2025). This study examined how digital citizenship skills (DCS) were integrated into the Communication and Media Studies (CMS) curriculum of secondary schools in Sri Lanka to prepare students for responsible digital participation. Despite students' growing engagement with digital media, formal education has not provided a structured framework for Digital Citizenship Education (DCE). A content analysis of the Grade 10 and 11 CMS curricula was conducted using Ribble and Park's (2022) S3 framework, Safe, Savvy, and Social, within the qualitative research design. The Safe domain addressed privacy and well-being, the Savvy domain emphasized critical judgment and reliable information use, and the Social domain focused on respectful, ethical online behavior. The S3 framework was chosen as the guiding framework for this study because it combined Ribble's nine elements into three interrelated domains, providing conceptual clarity and a strong analytical foundation. Moreover, its widespread international acceptance strengthened its relevance. Findings revealed that while the CMS curriculum offered a relevant foundation, the integration of DCS was fragmented. The Safe domain was minimally addressed, particularly in data protection and digital well-being. The Savvy domain emphasized media literacy but lacked guidance on evaluating credibility, countering misinformation, and ensuring digital financial safety. The Social domain covered ethics and media law, but insufficiently addressed cyberbullying, digital rights, and responsible social media use. The study recommended strengthening the CMS curriculum by embedding DCS into learning outcomes and aligning content with global standards. Teacher training, structured assessment tools, and cross-curricular approaches were identified as essential to foster ethical, safe, and competent digital citizens in Sri Lanka.

Keywords: Digital citizenship (DC), digital citizenship skills (DCS), digital citizenship education (DCE), curriculum integration, Communication and Media Studies (CMS)

Introduction

At present, the Sri Lankan education system does not include a subject directly related to digital citizenship (DC). Curriculum reforms had attempted on several occasions to provide skills related to digital technology and media through subjects such as Information and Communication Technology (ICT), Civic Education, and Communication and Media Studies (CMS). However, these reforms lacked a proper foundation for the systematic development of DC. Since DC remained a relatively new and evolving concept worldwide, it was not yet fully understood in the local context.

With the rapid growth of technology, digital citizenship has been globally recognized as an essential skill for modern digital society. Therefore, Sri Lanka should take initial steps to provide students with these digital citizenship skills (DCS) through educational reforms based on a strong conceptual foundation, enabling citizens to participate effectively in the global society. Given this urgent demand, it was necessary to consider how the local curriculum could be developed using globally recognized frameworks for digital citizenship education (DCE).

Background

The COVID-19 pandemic accelerated Sri Lankan students' engagement with digital technology as education rapidly transitioned to online platforms (Hayashi et al., 2020; Karunanayaka et al., 2021). Since then, digital technologies have continued to advance, reshaping the landscape of local education. Previous studies mainly focused on ICT and Civic Education, but these subjects addressed only technical or general civic aspects and did not systematically integrate the ethical, legal, and social dimensions of digital citizenship (Gamage, 2020a; Supun & Kuruppu, 2024). Nevertheless, research indicates that students often lack the essential skills and competencies required to navigate digital environments responsibly. This concern has been highlighted by local scholars, stressing the urgency of integrating DCE into the school system (Weerasundera, 2014). Addressing this need requires systematic curriculum reform that embeds a more practical, structured, and future-focused foundation for developing DCS.

The rapid digitalization of society has transformed how people learn, communicate, and participate in civic life. This shift necessitates new forms of literacies, including digital citizenship skills (DCS) that go beyond technical proficiency and include ethical, legal, and socially responsible digital behavior (Ribble, 2011; Royakkers et al., 2018). Ribble's frameworks, the Nine Elements (2015) and the S3 model, Safe, Savvy, Social (Ribble & Park, 2022), provide structured guidance for developing DCS in education. Many countries have formally embedded DCE into their curricula. For example, the European Union's DIGCOMP framework incorporates DCS into national education strategies (Crompton & Burke, 2015; Ferrari, 2013). Similarly, UNESCO and the International Society for Technology in Education (ISTE) adopted Ribble's principles and key elements. These were used to develop the DC standards in 2024 (Crompton & Burke, 2015; UNESCO, 2022; UNESCO & Global Education Monitoring Report Team, 2016). UNESCO has formally incorporated Ribble's nine elements into global DC initiatives, guided by Sustainable Development Goal 4. Furthermore, national curricula have been strengthened by integrating Ribble's models and frameworks. This integration can be evident in countries such as the USA, Hong Kong, Japan, Nigeria, Singapore, and India (Anekwe & Anekwe, 2023; Azeem, 2023; Chong & Pao, 2021; Drake & Reid, 2018; Tsukada, 2022).

Comparable to other countries, Sri Lanka's DCS curriculum requires evaluation for its alignment with globally standardized frameworks. Research has confirmed that adolescents in Sri Lanka face challenges in using digital media. This makes it imperative to integrate DCE more deeply into secondary school curricula. Sri Lanka also implements media studies in secondary grades, a subject that naturally links to DCS. The Communication and Media Studies (CMS) subject was introduced in 2006 (Circular No: 2005/16, 2005). Its objectives included understanding the media environment, developing communication skills and media literacy, and enhancing civic participation and critical awareness (National Institute of Education, 2006). Although the CMS curriculum provides a strong foundation for the integration of DCS, it remains in Sri Lanka. This study explores how DCS can be more effectively integrated into the CMS curriculum at the secondary level in Sri Lanka.

Despite global advances and increasing local demand, Sri Lanka had not systematically examined the extent to which the CMS curriculum addressed DC. Existing studies discussed ICT and civic education, but did not assess CMS in relation to structured frameworks such as Ribble's Nine Elements or the S3 model. As a result, the potential of CMS to serve as a platform for embedding DCS remained largely unexplored. This study addressed this gap by examining how CMS content aligns with the S^3 framework and by identifying strategies to enhance its role in developing proficient digital citizens in Sri Lanka.

Literature Review

DC encompasses values, attitudes, skills, and knowledge that enable responsible digital participation. Several frameworks have been developed to structure DCE. These include Ribble's Nine Elements (Ribble, 2011, 2015; Ribble et al., 2004), the REP model, Respect, Educate, Protect (Ribble & Miller, 2013), and the S3 model, which simplifies DCS into three domains: Safe, Savvy, and Social (Ribble & Park, 2022). These frameworks support curriculum alignment and have influenced international education policy (Richardson & Milovidov, 2017, 2019; UNESCO, 2022).

Global studies emphasize that DCE should be taught systematically within school curricula (Pérez-Escoda et al., 2016). For instance, Ciccone (2019) highlights the importance of reflective practices and norm-setting to teach online communication skills. Lenhart et al. (2011) reported widespread digital misbehavior among teens. They argued that parental guidance alone is insufficient and that structured education is essential.

Although international studies provide strong evidence for integrating EDIRS_2025_056 - KGM Perera into school curricula, less is known about how Sri Lanka's Communication and Media Studies curriculum explicitly incorporates these skills. Existing research has not systematically examined whether CMS content aligns with structured frameworks such as Ribble's Nine Elements or the S3 model. This gap underscores the importance of evaluating CMS as a potential platform for integrating DCE. In Sri Lanka, studies reveal that ICT and civics education only partially address DCS. ICT focuses mainly on technical skills, and civic education addresses general responsibilities; neither subject covers ethical digital conduct in depth (Gamage, 2020b; Supun & Kuruppu, 2024). At the same time, concerns over cyberbullying, misinformation, and digital addiction among students are rising (Harasgama & Jayathilaka, 2023; Palihawatta et al., 2023). Additionally, national organizations such as SLCERT (Sri Lanka Computer Emergency Readiness Team, 2024) and the Education Commission (2020) emphasize the urgent need to provide structured digital education. Local researchers propose integrating DCS into existing subjects to strengthen digital knowledge, safety, and legal awareness (De Silva et al., 2022; Herath, 2023; Karunanayaka & Weerakoon, 2020). Communication and Media Studies provide an especially suitable platform for such integration, as it directly addresses media use, critical analysis, and civic participation.

Methodology

A content analysis approach was adopted to evaluate how DCS was reflected in the CMS curriculum for Grades 10 and 11 as part of a qualitative research approach. The study employed Ribble and Park's (2022) S3 framework (Safe, Savvy, and Social) as the analytical lens. The S3 framework is considered a student-friendly model due to its simplicity and ease of learning (Koni, 2025). Moreover, it has been identified as a framework suitable for adaptation in the Sri Lankan context, as it aligns with Rebbel's nine elements of DC and was recognized and implemented by international organizations such as UNESCO and the International Society for Technology in Education (ISTE). Therefore, the S3 framework was adopted as the guiding framework for this study.

Each unit of the grade 10 and 11 CMS curriculum was reviewed to assess alignment with DCS domains and identify gaps limiting its effectiveness. The analysis followed a deductive coding process, where lesson objectives and content were systematically mapped against the three domains of the S3 framework. To strengthen reliability, a code–recode approach was applied by revisiting the coding after a two-week interval to ensure consistency. The three themes of S3 were then used to organize findings and draw conclusions.

Analysis and Discussions

The CMS curriculum of grades 10 and 11 consists of 12 lessons; each grade has 6 lessons (Department of Education Publication, 2014, 2015; National Institute of Education, 2015, 2016). In this study, all lessons were analyzed, and the content related to DCS was identified. The key points identified by content analysis and mapping them to the S3 framework (Ribble & Park, 2022) can be analyzed as follows.

Firstly, "safe," defined as "protecting self and others," encompasses digital security, rights and responsibilities, as well as health and wellness. Unit five of the grade 10 syllabus, 'Study on Social Representation of the Media' lesson, addresses communication as a human right and the importance of responsible behavior in the communication process. This lesson mainly addresses mass-media content analysis but may also incorporate the use of new digital media to empower students' DCS. The CMS syllabus inadequately addresses cyber safety, privacy settings, and the emotional and physical effects of digital usage. The instruction of safety and digital well-being as critical elements of DCS was not sufficiently emphasized in the CMS curriculum.

Secondly, the term "savvy" comprises digital literacy, communication, and commerce, signifying critical literacy and informed media usage. CMS curriculum has promoted effective communication, media analysis, media literacy, and critical thinking in the first lesson of grade 10, as well as in the seventh, tenth, and twelfth lessons of grade 11, which focused on communication theories, media analysis and literacy, information gathering, and news writing. These correspond effectively with informed digital practices, which are highlighted in "Savvy." Additionally, digital fluency is not explicitly recognized as a skill, although certain technical tools are referenced in unit three, which relates to media technical skills. This lesson outlines the applications of computers, mobile phones, and the internet, including email, web content, and digital tools. This curriculum can provide foundational knowledge to effectively use digital technology in their everyday life. The final unit, the twelfth unit, in Grade 11 focuses on critical media consumption, emphasizing the necessity for media consumers to adopt a critical perspective and engage actively with media content. Although this unit does not focus on digital media, it ~~can~~ still guide students in appropriate media use and its application in digital contexts. However, the CMS curriculum does not provide specific guidance on assessing the credibility of online content, identifying misinformation, utilizing social media platforms responsibly, and online financial safety topics.

Thirdly, "social," or "social responsibility," encompasses digital etiquette, rights and responsibilities, and legal considerations, and media usage ethics and foundational knowledge of media law are incorporated. The first lesson focused on the introduction to communication, emphasizing ethical conduct in both interpersonal and group contexts. Although digital communication is not explicitly addressed in this subject content, it can enhance students' awareness of ethical and legal communication conduct. Unit 5, "Study on Social Representation of the Media," has included digital etiquette, respect, and responsibility within its content, and the sub-content in this lesson, named "citizenship," included the rights and responsibilities of a citizen, and digital citizenship as a new form of citizenship can be included in this lesson. Units 11 and 12 address creative communication, media ethics, and law, focusing on intellectual property, plagiarism, and ethical issues in new media. However, it does not directly emphasize etiquette or law specific to digital contexts.

In summary, while the CMS curriculum offers foundational elements that align with aspects of the S3 framework, its treatment of DCS remains fragmented and insufficiently developed across key domains. These findings provide a critical basis for further discussion of the extent, effectiveness, and gaps in the current curriculum, as elaborated in the following section.

Findings and Suggestions

The CMS curriculum incorporates foundational elements relevant to DC but lacks depth and comprehensive integration. The "Safe" domain is the least represented, especially regarding digital well-being and personal data protection, which are both critical for young users. CMS addresses communication rights and responsible behavior in Unit 5 (Grade 10) but does not adequately cover privacy settings, emotional health, or protection from digital threats. Although communication rights are discussed, digital risks are not sufficiently emphasized. As a result, students may be unprepared for secure online participation. Finally, it can be revealed that CMS lessons on cyber safety and ethical digital conduct are limited.

In the "Savvy" domain, while media literacy and critical thinking are encouraged, students are not taught to assess the validity of online information or engage with digital content responsibly. The CMS curriculum promotes media analysis, critical thinking, and basic ICT use. Units in both grades introduce students to communication theories, information gathering, and the use of computers and the internet. However, the curriculum does not explicitly cover identifying misinformation, verifying online sources, or using digital financial tools. Online content credibility and digital consumer awareness are underrepresented. This gap is problematic in a digital era marked by misinformation and data manipulation (Reddy et al., 2022).

The "Social" domain is moderately represented through discussions of ethics and media law, but it is limited in contextualizing to cover online civic behavior. CMS units emphasize ethical communication and include media law topics such as plagiarism and intellectual property. Unit 01 introduces ethical behavior in interpersonal communication, while Units 11 and 12 discuss media ethics and legal considerations. However, the application of these principles to digital contexts is limited. Topics such as digital consent, cyberbullying, and online legal rights are missing. Legal aspects such as cybercrime, digital copyright, and responsible social media use are not explicitly addressed. The absence of these components undermines efforts to prepare students for real-world digital challenges (Buchholz et al., 2020).

To provide a clear overview of how the CMS curriculum addressed the three domains of the S3 framework, the findings are summarized in Table 1. The table presents the lessons identified, the aspects covered, and the gaps remaining in each domain. As shown in Table 01, of the twelve lessons in the CMS curriculum, eight included partial references to DCS. The Savvy domain appeared most frequently, particularly through lessons on media literacy, communication theories, and information gathering. The Social domain was moderately represented, mainly in relation to ethics and media law, but its application to digital contexts was limited. The Safe domain was the least addressed, with only one lesson covering aspects of communication rights and responsible behavior. Overall, the distribution indicates that while the CMS curriculum provides some foundational content, it does not consistently or explicitly integrate DC across the three domains of the S3 framework.

Table 1

Analysis of S3 Domain Coverage in the Communication and Media Studies Curriculum

S3 Domain	Lessons Addressed (out of 12)		Key Aspects Covered	Key Gaps Identified
	No.	Unit/ Sub Units		
Safe	01	Grade 10: Unit 5 (5.1.5)	Communication rights, responsible communication behavior	Extremely limited coverage of cyber safety, privacy settings, digital well-being, and emotional health
Savvy	04	Grade 10: Units 1 (1.1/ 1.13), 3 (3.3); Grade 11: Units 7 (7.1-4), 10 (10.3-4), 12 (12.1-4)	Media literacy, critical thinking, communication theories, and use of digital tools	No explicit focus on assessing online credibility, misinformation, or digital financial safety
Social	03	Grade 10: Unit 1 (1.13-14), 5 (5.1.4-5); Grade 11: Unit 11 (11.3); Unit 12 (12.1-4)	Ethical communication, media law (plagiarism, intellectual property), citizenship responsibilities	Digital etiquette, cyberbullying, consent, cybercrime, and responsible social media use are not addressed

In summary, while the CMS curriculum offers foundational elements that align with aspects of the S3 framework, its alignment of DCS remains fragmented and insufficiently developed across key domains. Nonetheless, the existing CMS content provides opportunities for improvement. With strategic curricular adjustments, such as embedding digital case studies, designing DCS-focused activities, and aligning lessons with international standards, the curriculum could better reflect students' digital experiences. Teacher training and appropriate learning materials are also necessary to enhance delivery and reinforce concepts across subjects. These findings provide a critical basis for further discussion of the extent, effectiveness, and gaps in the current curriculum, as elaborated in the following section.

Conclusion

Sri Lanka's CMS curriculum provides a viable foundation for fostering DC but currently falls short of enabling students to become proficient digital citizens. While the CMS curriculum covers communication principles, media ethics, and critical media analysis, it lacks coverage of online safety, privacy, digital rights, and responsible online behavior. The integration of Ribble and Park's S3 framework into the CMS curriculum ~~can~~ enhance students' understanding of digital safety, literacy, and ethics. Key recommendations include revising CMS learning outcomes to explicitly include DCS, developing structured assessment tools, and providing continuous professional development for teachers. Cross-curricular collaboration could further strengthen a holistic approach to DCE. These interventions are essential to equip students with the competencies needed for safe, responsible, and ethical participation in the digital world.

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Integrating Learning Theories and Assessment Strategies in Instructional Design: A Systematic Review

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Abstract

This systematic review investigates the inter-relation of instructional design, learning theories, and assessment for learning (AfL) strategies to identify best practices and frameworks that enhance learner outcomes and how learning theories - such as behaviorism, cognitivism, constructivism, and connectivism - have influenced instructional designs. Simultaneously, it investigates how assessment strategies, particularly AfL strategies, have aligned with instructional practices. Illustration on literature, the review identifies how instructional designs are informed by learning theories and how assessment for learning strategies can be effectively embedded into them. At its core, instructional design is heavily influenced by learning theories - frameworks that explain how people acquire knowledge - and assessment strategies, which guide how learning outcomes are measured and interpreted. The integration of these theories and strategies ensures that instructional practices are not only pedagogically sound but also adaptive, reflective, and impactful with learner needs and learning outcomes.

Keywords: Instructional design, learning theories, Assessment for learning strategies

Introduction

Instructional Design (ID) has evolved into a multidisciplinary field between theoretical learning paradigms and practical applications in educational contexts. According to the behaviorist models during the mid-20th century, instructional design initially focused on linear, content-centered delivery models that emphasized knowledge transmission and measurable outcomes (Gagne, Briggs, & Wager, 1992). However, since the early 2000s, there has been a significant paradigmatic transition from teacher-centered approaches to learner-centered approaches. This transition has been largely influenced by advances in cognitive psychology, social constructivism, neuroscience, and the digital revolution in education (Reigeluth & Carr-Chellman, 2009).

Instructional design is a systematic and structured process that aims to create effective and efficient learning experiences. It involves analyzing learner needs, defining learning objectives, designing instructional strategies, and selecting appropriate assessment tools. However, integrating these components - learning theories, AfL strategies, and instructional designs - in a clear and evidence-based manner remains a challenge for many educators. A critical component of successful instructional design is the alignment of learning theories and assessment for learning strategies. By integrating learning theories with AfL, instructional designers ensure that learners are not only engaged but also actively guided and supported throughout the learning process.

Methodology

The research questions: (1) how do learning theories integrate into instructional design, and (2) what is the role of AfL strategies in instructional design, were established for this systematic literature review. A comprehensive search was conducted across major academic databases known for educational and interdisciplinary research: ERIC (Education Resources Information Center), Scopus, Google Scholar, and ResearchGate. The search included Boolean operators and keyword combinations such as: “instructional design” AND “learning theory”, “assessment for learning strategy” AND “learning theory”, and “instructional designs” AND “assessment for learning integration”.

To ensure the relevance and the quality of the review articles, the inclusion criteria, such as articles published between the year 2000 and the year 2025, peer-reviewed journal publications (theoretical, empirical, systematic reviews), studies clearly addressing the relationships among learning theories, assessment for learning strategies, and instructional designs, and articles written in English, were applied.

Theoretical Background

Instructional design is basically rooted in learning theories that provide guiding principles for how knowledge is acquired, processed, retained, and applied. Over the period from 2000 to 2025, the evolution of instructional design has reflected an increasing combination of psychological theory, educational philosophy, and technological innovation. The following sub-sections elaborate on the major learning theories and their influence on instructional designs.

Role of the Learning Theories in Instructional Design

Learning theories serve as the foundation for instructional design by offering insights into how learners process, retain, and apply knowledge. These theories provide direction on what to teach, how to teach it, and why certain approaches work best for specific learners or contexts. Among the most influential theories are Behaviorism, Cognitivism, Constructivism, Social Learning Theory, and Connectivism.

Behaviorism and direct instructions

Behaviorism is rooted in the work of psychologists such as B.F. Skinner (1953) and Edward Thorndike (1931). Behaviorism emphasizes observable behaviors and external stimuli, reinforced through rewards and punishments. It suggests that learning is a response to environmental conditions, shaped through reinforcement and repetition. In instructional design, behaviorism informs the development of clear objectives, step-by-step instructions, and frequent reinforcement through rewards or feedback. Assessment strategies aligned with this theory are frequent small-scale quizzes to reinforce learning, immediate feedback on exercises or activities, performance-based checklists, and rubrics for measuring observable behaviors (Gagne, Wager, Golas, & Keller, 2005).

Cognitivism and information processing

Cognitivism focuses on the mental processes involved in learning, including memory, problem-solving, and perception. Influenced by Jean Piaget's developmental theory and further refined by educational psychologists such as Jerome Bruner and Richard Mayer, cognitivism emphasizes how learners encode, organize, store, and retrieve information in the brain (Piaget, 1972; Bruner, 1960; Mayer, 2009). It emphasizes the use of strategies such as scaffolding, sequencing, chunking, and advanced organizers to build knowledge progressively. Assessment Strategies that can be used under this theory are concept mapping to visualize learner understanding, think-aloud protocols to reveal thought processes, short reflections or journal entries to track metacognition, and diagnostic questions to identify misconceptions.

Cognitivism supports structured learning sequences, goal-directed learning, and the use of feedback to guide cognitive development. Its impact is visible in models such as Gagne's Nine Events of Instruction, which align with stages of cognitive processing: gaining attention, activating prior knowledge, providing guidance, and assessing performance (Gagne et al., 2005).

Constructivism and Problem-Based Learning

Constructivism states that learners actively construct knowledge through interaction with their environment and social context. The theory has its roots in the work of John Dewey, Lev Vygotsky, and Jean Piaget, all of whom emphasized the importance of authentic experiences, discovery learning, and social mediation (Dewey, 1938; Vygotsky, 1978; Piaget, 1972). Learners construct

knowledge through their experiences and reflection on prior understandings. Instructional designs based on constructivism emphasize learner autonomy, collaboration, and real-world applications in the authentic learning context. The role of the instructor is to facilitate in realistic contexts to make meaning rather than transmit the content. Constructivist instructional design promotes problem-based, inquiry-based, and collaborative learning. These models encourage learners to explore, hypothesize, and reflect - skills necessary for critical thinking and lifelong learning (Jonassen, 2002).

Importantly, constructivism aligns closely with assessment for learning practices, where assessment is embedded within the learning process to guide instruction and provide feedback (Black & Wiliam, 2009). Strategies such as peer assessment and self-assessments, portfolios, reflective journals, ongoing feedback during project development, exit tickets, or one-minute papers for reflection and informal group discussions or check-ins are commonly used within this paradigm.

Social Learning Theory and observational learning

Social Learning Theory was introduced by psychologist Albert Bandura (1971). The concept of social learning theory proposes that individuals learn through observation, imitation, and modeling within a social context. It's one of the most influential theories of learning and development, emphasizing the role of observation, imitation, and modeling in learning behavior. According to the theory, there are four stages of social learning.

Attention: In this stage, individuals must first pay attention to the behavior they are observing. This requires focus and concentration on the model's behavior.

Retention: In this stage, individuals must remember the behavior they observed. This involves cognitive processing and memory storage.

Reproduction: In this stage, individuals attempt to reproduce the behavior they observed. This may involve practicing and refining the behavior until it can be performed accurately.

Motivation: In this stage, individuals must have a reason or motivation to perform the behavior. This may involve reinforcement, punishment, social approval, disapproval, or other incentives.

Instructional design based on social learning theory integrates collaborative tasks like group work and activities, peer learning and modelling, and interactive discussions with collaborative tools. In this context, role-plays, simulations, and group projects are common. Learning is seen as a social process, where individuals learn from others in a shared environment. Social learning theory facilitates Instructional Design by integrating social and collaborative assessment tools, integrating peer modeling and mentorship in the learning process, evaluating interpersonal skills and participation, using social platforms or group-based tools for assessments, and controlling peer feedback and modeling behaviors.

Assessments are geared toward evaluating social interaction, collaborative skills, and the ability to learn from others, often through peer assessments or reflective journaling. Assessment for Learning Strategies that can be used with the social learning models are group activities, discussions, and role-plays as part of assessments with facilitator feedback, peer teaching and peer assessment, observational checklists for participation and collaboration, and assessment of interpersonal skills and collaborative abilities via online forums with instructor moderation.

Connectivism and Digital Learning

In the digital age, connectivism, a modern theory focused on learning in a digital world, has emerged as a new learning theory, recognizing that knowledge is distributed across networks, tools, and people, rather than solely within an individual. Proposed by George Siemens (2005) and

supported by Stephen Downes (2010), connectivism speculates that learning involves navigating, filtering, and synthesizing information across digital and social platforms.

In the digital age, connectivism addresses how learning occurs in a technology-rich, networked environment. Instructional design approaches guided by connectivism often incorporate online learning environments, digital tools, digital fluency, and networked resources. Assessment strategies include digital portfolios, blogging, online discussions, and structured content, which assess both knowledge and digital literacy.

Moreover, technological options such as real-time feedback, learning analytics, AI-driven tutoring systems, and e-portfolios allow instructional designers to create personalized learning paths that respond to learners' evolving needs and preferences (Downes, 2010).

Assessment Strategies align with Learning Theories

Assessment is not merely an endpoint in the instructional process; it is a central mechanism for facilitating, guiding, and enhancing learning. Assessment strategies vary in design and implementation based on the theoretical foundations of the learning environment. This section outlines key assessment strategies and examines their alignment with dominant learning theories.

Formative Assessment

Formative assessment is defined as an ongoing process that provides feedback to both teachers and learners, enabling them to identify learning gaps and adapt instruction accordingly (Heritage, 2010). This approach is deeply rooted in constructivist and cognitivist paradigms, where learning is viewed as a developmental and iterative process.

In constructivist terms, formative assessment supports learners in actively constructing understanding through interaction and reflection. Tools such as peer assessments, learning journals, classroom questioning, and exit tickets promote metacognition, self-regulation, and learner involvement (Black & Wiliam, 2009). From a cognitivist viewpoint, formative assessment aids in information processing and memory encoding by offering immediate, meaningful feedback, thereby strengthening schema development (Mayer, 2009).

Effective instructional designs integrate formative assessment into the learning cycle, not as a supplement but as a core component. Feedback loops, scaffolding, and adaptive instruction are built into e-learning platforms and classroom pedagogies, creating continuous opportunities for performance improvement (Sadler, 1989).

Summative Assessment

Summative assessment refers to the evaluation of student learning at the end of an instructional period, often for grading, certification, or accountability purposes. Traditionally aligned with behaviorist theories, summative assessments focus on measurable outputs and observable behaviors (Nitko & Brookhart, 2013).

Standardized tests, multiple-choice exams, and high-stakes assessments are hallmarks of summative approaches. These tools assume that learning can be discretely broken down into units and reliably measured using objective criteria - principles consistent with behaviorism's emphasis on stimulus-response and reinforcement (Gagne et al., 2005).

However, in more recent instructional designs, summative assessment is being reconsidered to include reflective components and student voice, as a way to better align with constructivist principles. For example, final projects that incorporate personal reflection or meta-cognitive summaries blur the line between formative and summative purposes, creating what some scholars call "integrated assessment models" (Taras, 2005).

Authentic and Performance-Based Assessment

Authentic assessment emphasizes real-world application, contextual relevance, and the use of higher order thinking skills. It is closely aligned with constructivist, sociocultural, and experiential learning theories. According to these paradigms, meaningful learning occurs when learners are engaged in solving complex, authentic problems that reflect the challenges of real-life settings (Wiggins, 1998; Vygotsky, 1978).

Performance-based assessments - such as portfolios, case studies, simulations, and project presentations - allow students to demonstrate competence across multiple domains, including creativity, collaboration, and critical thinking. These assessments require learners to construct knowledge, make decisions, and justify their reasoning in authentic contexts (Gulikers, Bastiaens, & Kirschner, 2004).

Instructional designs informed by this theory often include inquiry-based learning, scenario-based training, and projects. These models provide authentic tasks that are embedded in the learning process and assessed holistically rather than automatically, thereby supporting deeper learning outcomes (Herrington, Reeves, & Oliver, 2010).

Technology-Enhanced Assessment

Technology has dramatically transformed assessment practices, enabling more flexible, personalized, and data-driven approaches to assess learning. Connectivism theory supports many of these innovations, viewing learning as a process of building connections between sources of information, networks, and communities (Siemens, 2005).

Technology-enhanced assessments (TEA) - including e-portfolios, online quizzes, game-based assessments, and AI-driven feedback systems - support real-time feedback, progress monitoring, and adaptive pathways. These tools provide opportunities for self-paced learning, automated diagnostics, and interactive assessment environments that can adjust to individual learners' progress (Bennett, 2011).

Moreover, learning management systems (LMSs) like Moodle or Canvas integrate analytics dashboards that inform instructors of learning trends, misconceptions, and intervention needs. These affordances strengthen the alignment between assessment and instruction by supporting data-informed decision-making and just-in-time remediation (Pellegrino, Chudowsky, & Glaser, 2001).

Technology-based assessment is also central to blended and online instructional models, particularly after the widespread educational disruption caused by the COVID-19 pandemic. As distant learning grows, so too does the need for digitally-mediated assessment frameworks grounded in sound pedagogical theory.

Integrating Learning Theory and Assessment in Instructional Designs

Effective instructional design requires more than content delivery; it necessitates a coherent integration of learning theory, instruction, and assessment. The alignment of these elements ensures that instruction is not only educationally sound but also responsive to learners' cognitive and contextual needs. In this section, we examines three commonly implemented instructional design models - ADDIE, Backward Design, and Universal Design for Learning (UDL) - to illustrate how learning theories and assessment strategies are applied in instructional design.

ADDIE Model

The ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, one of the most continuing frameworks in instructional design, consists of five phases: Analyze, Design, Develop,

Implement, and Evaluate. Branch (2009) stated that this model, originally developed in the 1970s for military training, has since been adapted across various educational and corporate contexts.

While the ADDIE model was historically grounded in behaviorist and systems theory assumptions - with an emphasis on task analysis and measurable objectives - contemporary applications increasingly embed constructivist and cognitivist principles. According to Molenda (2003), during the Analysis and Design phases, designers are encouraged to assess prior knowledge, learner characteristics, and social context. The Evaluation phase has evolved to emphasize formative assessment, including peer feedback, self-assessment, and continuous design improvements.

Modern implementations of ADDIE often adopt quick methodologies, allowing for fast prototyping and continuous feedback loops. This reflects a constructivist orientation, where learning is refined through cycles of reflection and adaptation, and where learners are co-constructors of knowledge through authentic tasks and meaningful assessment.

Backward Design

Proposed by Wiggins and McTighe (2005), the Backward Design model revolutionized curriculum planning by flipping the traditional design process. Rather than starting with content delivery, this approach begins with identifying desired learning outcomes, followed by determining acceptable evidence of learning, and finally, planning instructional activities to achieve those outcomes.

This model is strongly aligned with constructivist and cognitivist learning theories. By focusing first on the learning goals and the evidence that will demonstrate mastery, instructors are encouraged to select or create authentic assessments that promote critical thinking, real-world problem-solving, and performance tasks (Wiggins & McTighe, 2005). It emphasizes the transition from "what to teach" to "what students should understand and be able to do," fostering deep learning over superficial content coverage.

Backward design also aligns well with formative assessment, as teachers continually revisit learning outcomes and make instructional adjustments based on learner progress. This repeated process enhances transfer of learning, a central principle of cognitive theory, by helping learners connect new knowledge to existing schemas through thoughtful practice and reflection (Bransford, Brown, & Cocking, 2000).

Universal Design for Learning (UDL)

Universal Design for Learning (UDL) is a research-based framework developed by CAST (Center for Applied Special Technology) and articulated by scholars such as Meyer, Rose, and Gordon (2014). Rooted in neuroscience, cognitive psychology, and inclusive education, UDL seeks to address learner variability by offering multiple means of representation, engagement, and expression.

Assessment within the UDL model is flexible, personalized, and ongoing. It aligns with constructivist and connectivism learning theories by recognizing that learners approach in diverse ways and need varied supports to succeed. UDL encourages the use of formative, low-risk assessments that are embedded throughout instructions, allowing learners to demonstrate understandings in the manner that suits their strengths - such as visual, oral, or kinesthetic formats (CAST, 2018).

Furthermore, UDL supports digital assessment tools and useful technologies to facilitate participation, access, and engagement. These tools reflect connectivism ideals, where technology expands the learning environment beyond traditional boundaries, empowering real-time feedback, collaboration, and adaptation to individual needs (Rose & Dalton, 2009). By integrating learner-centered assessment strategies with theoretically informed instructional designs, UDL promotes

equity, accessibility, and meaningful engagement across various disciplines, making it highly relevant for 21st-century instructional designs.

The concepts of Learning theories, Assessment for learning strategies, and Instructional Design approaches described above are shown together in Table 1 below.

Table 1

Integration of Learning Theories, Assessment Strategies, and Instructional Design Approaches

Learning theory and the key theorists	Key concepts	Role of the instructor	Instructional design approach	Assessment strategies
Behaviorism B.F. Skinner, Edward Thorndike	Emphasizes observable behaviors and external stimuli through reinforcement and repetition	Designs a learning environment with clear objectives, step-by-step instructions, and frequent reinforcement	Direct instruction, drills, and practice	Frequent small-scale quizzes, immediate feedback on activities, performance-based checklists, and rubrics
Cognitivism Jean Piaget, Jerome Bruner, Richard Mayer, Robert Gagné	Focuses on internal mental processes like memory, problem-solving, and perception. Learning is about encoding, organizing, storing, and retrieving information.	Designs structured learning sequences using scaffolding, sequencing, chunking, and advanced organizers	Structured learning sequences, goal-directed learning, and instructional models like Gagné's Nine Events of Instruction	Concept mapping, "think-aloud" protocols, short reflections, journal entries, and diagnostic questions to identify misconceptions
Constructivism John Dewey, Lev Vygotsky, Jean Piaget	Learners actively construct knowledge through experiences and reflection, emphasizing authentic contexts and discovery.	Facilitates a realistic learning environment rather than transmitting content, guiding learners to construct their own meaning	Problem-based learning, inquiry-based learning, and collaborative projects that emphasize real-world applications	Peer and self-assessments, portfolios, reflective journals, ongoing feedback during projects, and informal group discussions
Social Learning Theory Albert Bandura	Individuals learn through observation, imitation, and modeling within a social context. Involves stages of attention, retention, reproduction, and motivation	Integrates collaborative tasks and peer learning opportunities, using social interactions to facilitate learning	Group work, role-plays, simulations, and peer modeling and mentoring	Group activities, observational checklists for participation, peer assessments, and evaluation of interpersonal skills

Connectivism George Siemens, Stephen Downes	A modern theory where knowledge exists in digital networks and is distributed across people, tools, and platforms. Learning is about navigating and synthesizing information from these networks.	Guides learners in navigating digital resources and fostering digital literacy	Incorporates online learning environments, digital tools, networked resources, and AI-driven systems	Digital portfolios, blogs, online discussions, and the use of real-time feedback and learning analytics

Findings and Conclusions

Across the 25-year length from 2000 to 2025, significant pedagogical and technological developments have reshaped how instructional design is conceptualized and implemented. This systematic review identified four dominant and interrelated findings that have defined the alignment between learning theories, assessment strategies, and instructional design.

Move toward Learner-Centered Design:

One of the most important findings over the past two decades is the movement from teacher-centered to learner-centered instructional paradigms. Rooted in constructivist and social learning theories, this movement emphasizes active engagement, autonomy, and the co-construction of knowledge through interaction with content, peers, and context (Jonassen, 2002; Vygotsky, 1978).

Instructional designs increasingly adopt approaches such as project-based learning, collaborative inquiry, and flipped classrooms, which engage learners as agents rather than passive receivers of knowledge (Bransford, Brown, & Cocking, 2000). This reflects an enhanced understanding of the importance of learner motivation, prior knowledge activation, and contextualized learning experiences.

Furthermore, curriculum developers and policymakers have begun embedding learner-centered principles into national education standards and frameworks, recognizing their role in developing 21st-century skills such as critical thinking, problem-solving, and communication (OECD, 2018).

Rise of Formative and Authentic Assessments

Another dominant finding is the widespread adoption of formative and authentic assessments as integral components of instruction. Moving beyond the summative, post-instructional testing models of the past, these assessment forms are deeply embedded within the teaching-learning process. Formative assessment practices - such as peer feedback, self-reflection, learning analytics, and exit tickets - support ongoing adjustment of instruction and foster learners' metacognitive skills (Black & Wiliam, 2009; Heritage, 2010). Authentic assessments, including portfolios, simulations, and real-world projects, provide learners with meaningful contexts to apply their knowledge, aligning with constructivist learning theory (Gulikers, Bastiaens, & Kirschner, 2004). This reflects an increasing acknowledgment that assessment guides learning, and that when assessment is designed in line with learning theory, it can serve both assessing and developmental purposes.

Technology Integration in Instruction and Assessment:

The integration of educational technologies has significantly influenced both instructional design and assessment practices. Over the last decade, the emergence of digital learning environments - such as Learning Management Systems (LMS), e-portfolios, online quizzes, and AI-powered

platforms - has allowed instructional designers to implement extendable, interactive, and data-rich instructional systems (Bennett, 2011; Siemens, 2005).

These tools support the real-time alignment of instruction with assessment and learning theory by allowing instant feedback, adaptive questioning, and data-informed decision-making. For example, platforms like Moodle, Edmodo, and Google Classroom offer features that align instructional content with formative assessments and automatically track learner progress. Moreover, technology facilitates the use of multimodal representations - videos, simulations, infographics - thereby supporting cognitivist approaches to dual coding and universal design for diverse learners (Mayer, 2009; CAST, 2018).

Personalization and Adaptivity through Connectivism Design

Another main finding is the rise of personalized learning pathways and adaptive instruction. Informed by connectivism learning theory, which suggests that knowledge is distributed across networks and is constantly evolving, instructional design has begun to incorporate flexible, learner-driven models (Siemens, 2005).

For instance, AI-driven tutors and personalized dashboards offer just-in-time feedback and custom learning paths, reinforcing the notion that effective instruction must be both responsive and individualized. Such systems not only support achievement but also promote learner autonomy and motivation, which is central to the constructivist theory of learning (Deci & Ryan, 2000).

Recommendations

Based on the findings of this review, the following recommendations are proposed for stakeholders in education - particularly policymakers, curriculum developers, teacher educators, and school leaders:

Invest in Comprehensive Teacher Professional Development: Provide sustained and in-depth training for educators in instructional design theory, assessment literacy, and technology integration. Teachers should be empowered to design and implement learning experiences that reflect principles of constructivism, formative assessment, and universal design (Heritage, 2010; Ertmer & Newby, 2013).

Reform Policy to Support Assessment for Learning (AfL): National and regional education policies should shift from a sole trust in summative evaluation toward frameworks that embed formative assessment as a central instructional strategy. Policies must recognize the developmental function of assessment in shaping student learning paths (Stiggins, 2002; Wiggins, 1998).

Ensure Equitable Access to Digital Learning Tools: Governments and institutions must prioritize digital equity by addressing infrastructure gaps, particularly in underserved and rural regions. Equitable access to devices, connectivity, and technical support is foundational to realizing the potential of connectivism and adaptive learning environments (Selwyn, 2016; UNESCO, 2021).

Integrate Theory-Informed Design into Curriculum Development: Instructional design should be explicitly informed by validated learning theories at all stages of curriculum development - from goal setting to assessment design and resource selection. This alignment ensures internal consistency and maximizes learning impact (Gagne et al., 2005; Wiggins & McTighe, 2005).

Foster Collaboration Between Researchers and Practitioners: Encourage partnerships between academic researchers, teachers, and instructional designers to promote evidence-informed practices. Collaborative design research can bridge the theory-practice gap and generate contextually relevant, scalable models of instruction (Design-Based Research Collective, 2003).

Final Reflection

The future of instructional design lies in principles that are best achieved through assessment strategies and learning theories that inform every instructional decision. As education systems face evolving challenges - from digital transformation to socio-cultural complexity - the integration of theoretical foundations with adaptive assessment strategies will be key to achieving equitable and meaningful learning for all.

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A Comparative Study of Emotional Intelligence among Advanced Level Students across Streams and Urban–Rural Schools in Sri Lanka

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Abstract

Emotional Intelligence (EI) has emerged as a critical determinant of students' academic performance, emotional resilience, and social adjustment. In Sri Lanka, where Advanced Level (A/L) examinations are decisive for university admission, students often face severe academic pressure, yet limited empirical work has explored the role of EI in this context. This study aimed to compare EI across academic streams-Mathematics, Biology, Arts, and Commerce—and between urban and rural school settings, providing one of the first localized analyses of its kind. The research was conducted among 100 Grade 12 students from 1AB government schools in the Western Province, using stratified random sampling to ensure equal representation across streams and school types. Data were collected using a structured questionnaire based on Goleman's five EI domains - self-awareness, self-regulation, motivation, empathy, and social skills. The instrument was pilot-tested, yielding acceptable internal consistency (Cronbach's alpha = 0.78). Data were analyzed using SPSS, employing descriptive statistics, t-tests, and one-way ANOVA with a significance level of $p < 0.05$. Results indicated that overall EI levels were low among A/L students. Arts students showed comparatively higher empathy and motivation but weaker self-regulation, while Mathematics and Biology students demonstrated moderate motivation with lower empathy. Urban students reported significantly stronger social skills, whereas rural students displayed higher self-awareness and empathy, reflecting cultural and community ties. No significant gender differences were observed across EI components. These findings highlight the complex relationship between academic demands, school environments, and emotional development. They emphasize the need for targeted teacher training programs and peer-support initiatives to build EI among students, particularly in under-resourced schools. The study contributes to educational psychology by addressing a clear research gap in the Sri Lankan context and underscores the importance of embedding EI development in policy and practice.

Keywords: Emotional intelligence, advanced level students, academic streams, urban and rural schools, Sri Lanka

Background

Emotional Intelligence (EI) refers to the ability to recognize, understand, and regulate emotions in oneself and others, while applying this awareness to guide thinking and behavior (Salovey & Mayer, 1990). Daniel Goleman (1995) popularized EI through his mixed model, highlighting five interrelated domains: self-awareness, self-regulation, motivation, empathy, and social skills. These dimensions extend beyond cognitive intelligence, emphasizing that success in academic and social contexts is closely tied to the capacity to manage emotions effectively.

In education, EI has been associated with multiple positive outcomes, including enhanced learning engagement, reduced stress, improved classroom behavior, and higher academic achievement (Petrides, Frederickson, & Furnham, 2004). Students with higher EI are more resilient, better able to balance exam pressure, and more successful in peer and teacher relationships. For this reason, schools worldwide have begun to prioritize EI through social-emotional learning (SEL) programs and teacher training initiatives.

In Sri Lanka, the stakes of academic achievement are particularly high at the A/L stage, which serves as the gateway to higher education and future career pathways. A/L students face

intense examination pressure, extended tuition hours, and strong parental expectations. These factors often contribute to stress, anxiety, and emotional exhaustion. Teachers and administrators frequently observe that students' emotional maturity significantly influences their ability to cope with academic demands and personal challenges.

Although global research highlights the significance of EI, Sri Lankan research remains limited. Zayapragassarazan and Kumar (2011) pointed to the lack of EI-focused teacher education in Sri Lanka, while Perera and Fernando (2017) found that Sri Lankan undergraduates with higher EI exhibited stronger stress management and motivation. Yet, little empirical work has been done with school-level students, especially at the A/L stage, where pressure is most intense. Moreover, EI differences across academic streams (Mathematics, Biology, Arts, and Commerce) and between urban and rural contexts remain largely unexplored. This study addresses this gap by systematically comparing EI in different groups of A/L students, providing both theoretical insights and practical implications for Sri Lankan education.

Objectives

1. To assess the emotional intelligence levels of A/L students across the Mathematics, Biology, Arts, and Commerce streams.
2. To examine whether significant differences in EI exist between students attending urban and rural schools.
3. To analyze which components of EI vary most significantly by stream and school environment.

Research Questions

1. Are there significant differences in emotional intelligence levels among A/L students in different academic streams?
2. How does the school environment (urban vs. rural) affect students' emotional intelligence?
3. Which EI components show the greatest variation across academic disciplines?

Literature Review

Theoretical Models of Emotional Intelligence

The concept of EI is framed primarily through two perspectives. The ability model (Mayer, Caruso & Salovey, 2016) treats EI as a cognitive ability to perceive, use, understand, and regulate emotions. In contrast, Goleman's mixed model (1995) emphasizes emotional competencies that can be developed through learning and experience, organized into five domains: self-awareness, self-regulation, motivation, empathy, and social skills. Goleman's model has been widely applied in school-based research because of its practical relevance to education.

EI and Academic Achievement

A robust body of evidence confirms that EI predicts academic success. Petrides et al. (2004) demonstrated that higher EI was associated with stronger grades and reduced deviant behavior in schools. Goroshit and Hen (2012) identified EI as a predictor of learning engagement, resilience, and academic persistence. Students with high self-regulation and motivation are better able to sustain concentration, while empathy and social skills enhance collaboration and classroom relationships.

Disciplinary Variations in EI

Studies indicate that EI varies by academic stream. Murphy (2006) found that science students often demonstrate stronger motivation and perseverance due to high workload demands, while arts students show higher empathy and interpersonal sensitivity. Kaur and Bhatia (2015) reported

similar trends in India, where humanities students scored higher in empathy but lower in self-regulation compared to science students. These disciplinary variations suggest that the nature of academic study influences emotional development.

School Context: Urban and Rural Differences

The school environment is a crucial determinant of EI. Urban schools, typically better resourced, offer diverse social interactions and extracurricular opportunities that foster social skills. In contrast, rural schools, embedded in close-knit communities, often cultivate stronger self-awareness and empathy due to cultural and interpersonal dynamics (Khakhlari & Balakrishnan, 2018). Such differences highlight the need for comparative EI research across geographic contexts.

Sri Lankan Context

Sri Lankan research on EI is scarce but growing. Zayapragassarazan and Kumar (2011) emphasized integrating EI into teacher education. Perera and Fernando (2017) found that Sri Lankan undergraduates with higher EI reported better stress management and stronger academic motivation. However, there is little research on A/L students, despite their unique challenges and the decisive role of A/L exams in shaping their futures. This study, therefore, contributes to the localized literature by examining how EI varies across streams and between urban and rural students in Sri Lanka.

Methodology

A quantitative comparative design was employed to examine EI differences across streams and school contexts. The study population comprised Grade 12 A/L students from 1AB government schools in the Western Province, representing all four academic streams. Stratified random sampling was used to ensure proportional representation: 100 students were selected—25 from each stream and evenly divided between urban (50) and rural (50) schools.

A structured questionnaire was developed based on Goleman's five EI domains. Students rated each item on a five-point Likert scale. The tool was pilot-tested among 20 students from similar schools to ensure cultural appropriateness and clarity. Reliability analysis produced a Cronbach's alpha of 0.78, indicating acceptable internal consistency. Data were analyzed using SPSS. Descriptive statistics summarized EI across domains. ANOVA tested differences between streams, while t-tests examined urban–rural comparisons. A significance level of $p < 0.05$ was applied.

Results

The analysis revealed that overall EI levels among A/L students were relatively low.

- By Stream: Arts students scored higher in motivation and empathy but weaker in self-regulation. Mathematics and Biology students demonstrated moderate motivation but lower empathy. Commerce students showed balanced yet lower-than-average EI across domains.
- Urban–Rural Differences: Urban students had significantly stronger social skills, likely due to exposure and resource access, while rural students displayed higher self-awareness and empathy, reflecting community bonds.
- Gender Differences: No significant gender-based differences were observed.

Discussion

The findings underscore the role of academic and contextual factors in shaping EI. Arts students' higher empathy is consistent with Murphy's (2006) findings linking the humanities with interpersonal sensitivity, while their weaker self-regulation points to the need for targeted interventions. The stronger social skills of urban students mirror Kaur and Bhatia's (2015)

conclusions that resource-rich environments enhance EI. Conversely, rural students' self-awareness and empathy echo Perera and Fernando's (2017) observations of context-driven emotional strengths. These findings extend Goleman's framework, showing that while EI domains are universal, their development depends heavily on academic context and socio-cultural environment. Practically, this means interventions should not be one-size-fits-all but tailored to specific streams and school types.

Conclusion and Recommendations

This study provided one of the comparative analyses of EI among Sri Lankan A/L students. It found that EI levels were generally low, but with distinctive strengths and weaknesses: Arts students excelled in empathy and motivation yet struggled with self-regulation; urban students demonstrated stronger social skills, while rural students showed higher self-awareness and empathy. No gender differences were found.

Recommendations:

1. Teacher Training – Integrate EI modules into teacher professional development.
2. Peer-Support Programs – Encourage peer mentoring to strengthen motivation and empathy.
3. Curriculum Integration – Embed EI activities into classroom practice.
4. Policy Action – Implement EI-focused interventions in rural schools.

Limitations include the small sample and focus on one province. Future research should expand to other regions and explore qualitative insights.

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Existing level of academic Stress among the Student Teachers (A Study Based on Tamil-Medium National Colleges of Education in Sri Lanka)

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Abstract

Academic stress is a significant concern affecting student teachers globally, particularly in teacher education institutions where expectations are high and support systems are often inadequate. This study investigates the current state of academic stress among student teachers in Tamil-medium National Colleges of Education in Sri Lanka. Using a mixed-methods approach, data were collected through structured questionnaires and semi-structured interviews involving final-year student teachers. The study explores various stress-inducing factors such as academic workload, practicum-related pressures, time management challenges, and the struggle to balance personal and academic responsibilities. Findings reveal that a majority of student teachers experience moderate to high levels of academic stress, with females reporting slightly higher stress levels than males. Key stressors identified include assignment deadlines, examination preparation, limited access to Tamil-medium academic resources, and the pressures of performing effectively during teaching practice. Moreover, cultural expectations and the competitive environment within teacher education programs exacerbate stress. Despite the prevalence of stress, coping strategies adopted by student teachers remain limited, with many relying on peer support, self-motivation, or avoidance techniques rather than institutional or psychological support. The study highlights the urgent need for targeted stress management programs, culturally relevant counseling services, and curriculum reforms that reduce academic overload while enhancing support for Tamil-speaking student teachers. Addressing academic stress in teacher education not only improves student well-being but also enhances the quality of future educators, which is crucial for the broader educational system in Sri Lanka.

Keywords: Academic stress, student teachers, teacher education, stress factors, coping strategies, teaching practicum

Introduction

Academic stress has emerged as a significant concern in the field of teacher education, particularly in developing countries like Sri Lanka, where the education system is undergoing continuous transformation. Student teachers, especially those enrolled in National Colleges of Education, face a unique set of challenges that stem from the dual demands of academic learning and professional training. These include intensive coursework, practicum responsibilities, high performance expectations, language barriers, and social or economic pressures, all of which contribute to heightened stress levels.

In the Sri Lankan context, National Colleges of Education play a pivotal role in training future educators through a rigorous three-year diploma program. Tamil-medium student teachers, in particular, often navigate this academic journey with additional burdens such as limited access to Tamil-language resources, underrepresentation in educational policy discussions, and sociopolitical challenges rooted in ethnic and regional disparities. These factors exacerbate stress levels and can adversely influence their academic performance, emotional well-being, and future teaching efficacy.

While numerous studies have been conducted globally on academic stress among university students, limited research exists on teacher trainees in the Sri Lankan Tamil-medium context. Given the crucial role teachers play in shaping the nation's future, understanding the

psychological and academic pressures faced by student teachers is essential. This study aims to fill this gap by examining the current state of academic stress among Tamil-medium student teachers in Sri Lanka's National Colleges of Education, with the goal of identifying key stressors, exploring coping strategies, and proposing institutional interventions that can enhance their academic and personal well-being.

Aim of the Study

The primary aim of this study is to explore and analyze the current state of academic stress experienced by student teachers enrolled in Tamil-medium National Colleges of Education in Sri Lanka. The study seeks to identify the key sources and contributing factors of academic stress, understand its intensity and impact on students' academic performance and mental well-being, and examine any gender, institutional, or year-of-study variations. By gaining insights into these dimensions, the research aims to provide evidence-based recommendations to policymakers and teacher education stakeholders for developing effective strategies to mitigate academic stress and promote a supportive learning environment within teacher education institutions.

Research Objectives

1. Understanding the impact of workload on academic stress among student teachers.
2. An investigation into how practicum-related pressures contribute to academic stress among the student teachers.
3. An investigation into how time management challenges affect academic stress among student teachers.
4. Identifying the impact of the struggle to balance personal life on the academic stress of student teachers.
5. Exploring how academic responsibilities impact academic stress among student teachers.

Literature Review

Academic stress has become a significant concern within teacher education globally, and its impact is increasingly being recognized in developing countries like Sri Lanka. Student teachers, who are simultaneously learners and novice practitioners, often experience stress due to multiple academic, social, and institutional pressures (Kaur, 2012). The teacher education environment, especially in national colleges, is characterized by rigorous academic workloads, practical teaching components, and a high expectation for professional competence (Kyriacou, 2001). These factors contribute to elevated levels of academic stress among student teachers.

Numerous studies worldwide have investigated the sources and consequences of academic stress in teacher training programs. According to Misra and McKean (2000), academic stress arises from perceived imbalance between academic demands and the individual's ability to meet those demands. Student teachers often report stressors such as fear of failure, time constraints, examination pressure, and performance in teaching practicum (Kumar & Bhukar, 2013). In countries like India and Malaysia, similar teacher training environments have revealed high levels of anxiety and psychological distress among student teachers (Subramaniam, 2018). These challenges often lead to burnout, lack of motivation, and even dropout from training programs (Sharma & Saini, 2014).

In Sri Lanka, National Colleges of Education (NCOEs) play a crucial role in preparing schoolteachers. Tamil-medium student teachers, who often come from marginalized or rural backgrounds, face unique stressors. These include limited access to learning resources, instruction in a second language (especially for subjects like science and mathematics), socio-political marginalization, and cultural expectations (Sivakumar, 2017). Additionally, the rigid structure of the curriculum and administrative expectations in NCOEs create a competitive and high-pressure environment for students (Fernando & Perera, 2019).

Theoretical Frameworks

The Transactional Model of Stress and Coping by Lazarus and Folkman (1984) is frequently applied in education research to understand how individuals assess and respond to stressors. In this framework, student teachers' stress levels are seen as a result of how they appraise their academic challenges and the coping strategies they employ. For Tamil-medium student teachers, coping mechanisms may be further constrained by cultural stigma around mental health, limited peer support, or institutional inattention to well-being. Gaps in Existing Literature - Although several studies have examined stress among undergraduates in Sri Lanka, literature focusing specifically on Tamil-medium student teachers in National Colleges of Education is scarce. Most existing research is generalized across the higher education sector or focuses on Sinhala-medium institutions. Furthermore, few studies explore the intersectional effects of language medium, socio-economic background, and regional disparity on academic stress levels. This study aims to address these gaps by offering empirical insights specific to Tamil-medium NCOEs.

Research Methodology

This study has been designed as Descriptive Survey Design research and has been conducted using a mixed-methods approach. Questionnaires, developed based on Likert's Scale principles, were distributed to teachers for data collection. The data gathered through these questionnaires, prepared by the researcher after reviewing related literature, were entered and analyzed using software tools Statistical Package of Social Science (SPSS 29). The population for this study includes all student teachers enrolled in Tamil-medium National Colleges of Education across Sri Lanka. The study focuses on first and second-year students. The total sample of these groups, 114, was taken as the foundation for conducting the study.

Results

The existing level of academic Stress among the Student Teachers, the impact of independent variables such as Academic workload, Practicum-related pressures, Time management Challenges, and Struggle to balance personal and academic responsibilities, was analyzed in relation to the dependent variable, the level of Academic Stress among the Student Teachers. The data was analysed using inferential statistical methods to determine these effects. During the pilot phase of the questionnaire, the obtained Cronbach's Alpha reliability coefficient was 0.879, indicating that the internal consistency of the questionnaire was at a very high level.

Table 1

Multiple Linear Regression Analysis Summary

Hypotheses	Regression Weight	Beta Coefficient	t-Value	P-Value	95.0% Confidence Interval for B	
					Lower Bound	Upper Bound
Ho^1	AW to AS	.185	3.052	.000	.215	.531
Ho^2	PR to AS	.361	4.661	.000	.065	.304
Ho^3	TM to AS	.411	4.611	.001	.250	.605
Ho^4	SB to AS	.186	3.042	.000	.064	.307
Ho^5	AR to AS	.185	3.012	.000	.061	.305
R^2	.511					
F(3,371)	135.161					

To investigate whether the independent variables, Academic workload, Practicum-related pressures, Time management Challenges, and Struggle to balance personal and academic responsibilities have a significant effect on the dependent variable, Academic Stress among the student teachers. Hypotheses were formulated and tested using appropriate statistical techniques. Based on the results, it was found that these independent variables exert a significant effect on the dependent variable ($\chi^2 = 135.161$, $p \leq .001$), and the obtained R^2 value of .511 indicates that they explain 51.1% of the variance. To confirm the impact of each independent variable on experiential teaching, the β coefficients were analysed, and the statistical results are shown in Table 1. Here, the independent variable Academic workload shows a direct and significant positive effect on Academic Stress among the student teachers ($\beta = .185$, $t = 3.052$, $p = .000$).

The independent variable, Practicum-related pressures, was found to have an impact on the dependent variable, Academic Stress. The results show that Practicum-related pressures have a direct and significant positive effect on the student teachers ($\beta = .361$, $t = 4.661$, $p = .000$). The hypotheses developed to examine whether the independent variable, Time management, has an influence on Academic Stress were tested. The results show that Time management has a significant effect among the student teachers ($\beta = .411$, $t = 4.611$, $p = .001$).

The hypotheses developed to examine whether the independent variable, Struggle to balance personal Challenges, impacts Academic Stress were tested. The results show that Struggle to balance personal Challenges has a significant effect among the student teachers ($\beta = .186$, $t = 3.042$, $p = .000$). The hypotheses developed to examine whether the independent variable, Academic responsibilities, influences Academic Stress were tested. The results show that the use of Academic responsibilities has a significant effect among the student teachers ($\beta = .185$, $t = 3.012$, $p = .000$).

Conclusions

The present study aimed to examine the Existing level of academic stress among student teachers in Tamil-medium National Colleges of Education in Sri Lanka by analyzing the impact of several key independent variables: academic workload, practicum-related pressures, time management challenges, struggle to balance personal life, and academic responsibilities.

1. **Academic Workload**: Academic workload was found to have a direct and significant positive effect on academic stress, suggesting that heavy coursework and academic expectations are key contributors to stress among student Teachers.
2. **Practicum-Related Pressures**: The pressures related to teaching practicum were shown to significantly elevate stress levels. This indicates that student teachers experience heightened anxiety during their school-based training, possibly due to performance evaluations, lack of preparedness, or insufficient mentoring.
3. **Time Management Challenges**: The ability (or lack thereof) to manage time effectively was identified as a major factor influencing academic stress. Poor time management may lead to delays, incomplete assignments, and heightened pressure, thereby worsening stress levels.
4. **Struggle to Balance Personal**: Difficulties in balancing personal responsibilities with academic demands were found to significantly contribute to academic stress. This reflects the dual burden many student teachers face in managing their family, social, and academic obligations.
5. **Academic Responsibilities**: The study also found that increased academic responsibilities, including lesson planning, assessments, and projects, significantly add to the stress experienced by student teachers.

The study concludes that academic stress among student teachers is a complex phenomenon influenced by multiple interrelated factors. Educational policymakers, teacher educators, and administrators should consider implementing targeted support systems, stress management workshops, improved mentoring during practicum, and training in time management skills. By addressing these contributing factors holistically, institutions can foster a healthier and more productive learning environment for future educators.

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Adapting and Validating the Academic Self-Efficacy Scale for Advanced-Level Students in Sri Lanka

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Abstract

Academic self-efficacy (ASE) plays a vital role in shaping students' motivation, persistence, and academic success. Despite its theoretical importance and frequent use in international settings, there is a lack of a validated scale for measuring ASE among advanced-level students in the Sri Lankan context. This study introduces and validates the Academic Self-Efficacy Scale (SL-ASES-AL), tailored for advanced-level students in Sri Lanka. The scale was adapted from Dullas (2018) and comprises three dimensions: Perceived Control, Competence, and Persistence, with Self-regulated Learning excluded, as it is considered a distinct construct within the broader research framework. The validation process employed a three-phase approach, consisting of a two-round Delphi and a pilot study. In the first round, responses from 14 experts were analyzed, resulting in the exclusion of items that fell below the 80% consensus threshold. This process led to 16 items advancing to the second round. In the second round, eight experts evaluated these items for relevance and clarity. Using the Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index, all items attained the maximum I-CVI value of 1.00, indicating excellent content validity. Subsequently, a pilot study was conducted with 64 advanced-level students to assess reliability and construct validity. An overall Cronbach's alpha of .841 and dimension-specific alpha values above .70 confirmed high internal consistency. Item-total correlation values further supported construct validity, with eleven items demonstrating strong correlations (≥ .5), and five items rated as acceptable. One item, with a slightly lower correlation, was retained in a rephrased form based on expert judgment. These findings confirm that the adapted SL-ASES-AL scale is both valid and reliable for assessing ASE within the Sri Lankan context. It offers a contextually relevant tool to enhance educational assessment and student well-being.

***Keywords*:** Academic self-efficacy, scale adaptation, content validity, construct validity, Delphi method

Introduction

The concept of academic self-efficacy (ASE) refers to a learner's belief in their ability to learn or perform academic tasks to a certain standard (Schunk & DiBenedetto, 2021). ASE is central to Bandura's Social Cognitive Theory (SCT), which explains human behaviour as the result of interactions among personal, environmental, and behavioural factors (Bandura, 1997). In educational settings, self-efficacy plays a significant role in shaping students' motivation, learning behaviours, and performance outcomes. Despite its importance, ASE is often measured using instruments that present it as one part of a broader framework. For example, tools such as those developed by Pintrich and De Groot (1990), Jinks and Morgan (1999), Midgley et al. (2000), and Anderman et al. (2005) include self-efficacy as a subscale. These tools tend to assess only one specific source of self-efficacy, such as personal success experiences or social encouragement (Anderman et al., 2005; Chen & Usher, 2013; Jinks & Morgan, 1999, 1999; Midgley et al., 2000). This narrow focus is also evident in studies conducted within Asian contexts, where researchers like Kim et al. (2015) and Huang (2013) have primarily emphasized mastery experience when developing ASE scales. However, self-efficacy is a complex and multi-dimensional concept. Research has consistently demonstrated that ideas such as self-regulated learning (SRL), perceived control, persistence, and competence are closely linked to ASE (Bandura, 1997; Luszczynska &

Schwarzer, 2015; Salmerón-Pérez et al., 2010; Schnell et al., 2015; Schunk & Pajares, 2002; Zimmerman, 2008; Zimmerman & Schunk, 2012).

Perceived control, also known as an internal locus of control, reflects a person's belief that their actions determine outcomes. Individuals with a high sense of control believe in their ability to bring about change through effort and effective decision-making (Feist et al., 2013; Wood & Wood, 1996, as cited in Dullas, 2018). This belief is similar to the characteristics seen in individuals with strong self-efficacy (Bandura, 1997). Persistence, the ability to continue striving despite setbacks, is also a core element of self-efficacy. Students who persist in the face of difficulties often demonstrate higher levels of confidence and academic resilience (Pajares & Miller, 1994; Schnell et al., 2015; Schunk & Pajares, 2002). Likewise, students' beliefs about their academic skills and competence strongly influence their motivation and ability to succeed (Azar et al., 2010; Wigfield & Eccles, 2000).

In response to the need for a more comprehensive measure, Dullas (2018) developed a scale that included four key dimensions: perceived control, persistence, competence, and SRL. For this study, permission was obtained to adapt the scale to the Sri Lankan context. Because self-directed learning (SDL) is treated as an independent variable in the present study, the SRL dimension from the original scale was excluded to avoid conceptual overlap. Only the remaining three domains: perceived control, competence, and persistence, were retained. This adaptation aligns with recommendations from Bandura (2006) and Schunk and Pajares (2002), who emphasize the importance of considering the context when designing self-efficacy measurements. To date, there is no publicly available or validated ASE scale explicitly developed for Sri Lankan advanced-level students. This highlights a clear need for an adapted and context-sensitive tool that can accurately and meaningfully assess students' academic self-beliefs. Therefore, this study aims to adapt and validate a contextually relevant and psychometrically sound Academic Self-Efficacy Scale for use among Sri Lankan advanced-level students.

Aim

To develop and validate a contextually appropriate instrument for measuring ASE among advanced-level students in Sri Lanka by adapting the original scale developed by Dullas (2018).

Objectives

1. To adapt the original ASE Scale developed by Dullas (2018) to the Sri Lankan educational and cultural context.
2. To establish the content validity of the adapted scale through expert evaluation using the Delphi method.
3. To evaluate the reliability and construct validity of the adapted scale through a pilot study with advanced-level students.
4. To produce a validated context-specific ASE scale suitable for use in future educational research and practices in Sri Lanka.

Literature Review

Theoretical Foundations of ASE

SCT has provided a robust conceptual base across multiple domains, including education, psychology, health, and human behaviour. Bandura first introduced this theory in 1986 (as cited in Luszczynska & Schwarzer, 2015). The theory highlights how cognitive processes, in conjunction with behavioural and environmental influences, shape learning and action. At the heart of SCT lies the concept of perceived self-efficacy, which reflects an individual's belief in their ability to plan and execute actions necessary to achieve specific outcomes (Bandura, 1997). Bandura (1995)

described self-efficacy as individuals' beliefs about their ability to perform at certain levels in ways that influence events in their lives. These beliefs have a significant impact on how people feel, think, and behave (Bandura, 1993). Individuals with strong self-efficacy tend to approach complex tasks with confidence, maintain effort in the face of challenges, and treat setbacks as learning experiences. In contrast, low self-efficacy is often associated with avoidance, diminished effort, and increased vulnerability to stress (Bandura, 1997). These beliefs not only determine behaviour initiation but also affect effort, emotional regulation, and persistence (Bandura, 1977; Schunk, 1984).

Construct Definitions and Dimensions

To adapt a valid scale, it is important to understand how self-efficacy is defined and structured. Self-efficacy can be broadly defined as a person's belief in their capacity to perform tasks at a certain level (Bandura, 1997). It encompasses perceptions of one's effectiveness, adequacy, and capability to manage tasks, as described by Schultz and Schultz (1994) and Feist and Feist (2002), as cited in Paradewari (2017). These beliefs are known to affect individuals cognitively, emotionally, and behaviourally. ASE is commonly viewed as comprising three core dimensions: perceived control, or belief in one's ability to influence outcomes through effort and decision-making; competence, or belief in one's academic skills; and persistence, the capacity to sustain effort despite setbacks (Bandura, 1977; Karsten & Roth, 1998).

ASE in Educational Contexts

The role of ASE has been widely documented in educational research, particularly for its influence on students' performance, learning behaviour, and decision-making (Bandura, 1986). It plays a key role in shaping students' goal-setting behaviour, strategy use, motivation, and self-regulation in learning environments (Bandura, 1986). Findings from various studies confirm the close link between self-efficacy and student engagement, academic motivation, and achievement (Linnenbrink & Pintrich, 2002; Schunk, 1991). Students with strong efficacy beliefs are more likely to apply effective learning strategies and maintain sustained academic effort (Pajares & Schunk, 2001). This relationship between self-efficacy and academic performance is consistently supported across disciplines. For example, high levels of self-efficacy are associated with better performance in mathematics and science (Lent et al., 1984, 1993; Pajares & Miller, 1994). In the context of language learning, students who believe in their ability to succeed are more motivated, resilient, and willing to persist (Ghonsooly et al., 2012; Liu, 2013; Rahımı & Abedını, 2009). On the other hand, students with low confidence in their abilities often feel overwhelmed and perform poorly (Başaran & Cabaroğlu, 2014).

Correlation with Achievement

There is substantial empirical support for the relationship between ASE and academic success. Learners with high self-efficacy are more likely to apply self-regulatory behaviours, invest effort in their studies, and achieve better academic results (Caprara et al., 2003; Doordinejad & Afshar, 2014; Rahimpour & Nariman-Jahan, 2010). Conversely, low self-efficacy often correlates with anxiety, reliance on ineffective strategies, and poor academic outcomes (Hsieh & Schallert, 2008). This connection has been notably observed in foreign language learning. Students with higher self-efficacy are more confident and perform better in language tasks (Mills et al., 2006; Wang et al., 2013), while those with lower self-efficacy often disengage from tasks, fearing poor results or failure.

Contextual Gap in Sri Lanka and Justification for Scale Adaptation

Despite extensive global research on ASE, a critical gap exists in the Sri Lankan context: the absence of a culturally validated tool designed for advanced-level students. Most self-efficacy measures have been developed in Western or other Asian settings and may not fully align with the

socio-cultural realities, learning environments, and educational expectations of Sri Lankan students. As such, direct application of these tools without adaptation risks misinterpretation and limits their relevance.

To address this, the current study adapts the ASE Scale developed by Dullas (2018) for Filipino junior high school students. The original scale included four components: perceived control, competence, persistence, and SRL. In this study, SRL was excluded, as SDL is explored as an independent variable. This refinement aligns with Bandura's (2006) assertion that self-efficacy instruments should be contextually and domain-specific. Accordingly, the adapted scale focuses on three core dimensions: perceived control, competence, and persistence, all of which are well-supported by literature and highly relevant to the academic challenges faced by Sri Lankan advanced-level students. Developing a localized and validated scale is both practical and timely, ensuring more accurate assessments of students' beliefs and guiding effective educational strategies.

Methodology

To achieve this, the scale was modified based on the Academic Self-Efficacy Scale initially developed by Dullas (2018). To establish content validity, a two-round Delphi process was carried out. Subsequently, a pilot study was conducted to assess the construct validity and reliability, as well as to determine the suitability of the adapted scale within the Sri Lankan context. The following sections, Adaptation of the Scale, Participant Selection, and Data Presentation and Analysis, provide a detailed account of these procedures. The structure of Dullas's (2018) ASE scale for Filipino Junior High School students is shown in Table 1 below.

Table 1

Structure of Dullas's ASE Scale

Dimensions	Number of items
Perceived Control	12
Competence	15
Persistence	15
Self-regulated Learning (SRL)	20

Out of the initial 62 items, the 20 items related to self-regulated learning (SRL) were excluded during the early stages of questionnaire development, as this dimension was addressed separately within the questionnaire through a focus on self-directed learning (SDL). To avoid redundancy, the SRL-related items were removed, leaving 42 items for further adaptation. From these remaining 42 items, only 20 were selected for adaptation in the first round of the Delphi process, based on their relevance to the Sri Lankan educational context. For instance, items such as *"I am competent to pass Filipino subject," "I will be able to finish Junior high school because I am smart enough to do so,"* and *"I am persistent to pass Araling Panlipunan (Social Studies) subject"* were omitted. Additionally, items that referenced specific subjects like *"I am competent to pass the Science subject"* and *"I believe that I can pass the Math subject because I have the ability to do so"* were also excluded, considering the intended length of the scale and its applicability across all advanced-level streams in Sri Lanka. These 20 items were subsequently revised to reflect the local context, specifically the advanced-level context of Sri Lanka.

Selecting the experts to participate in the Delphi is an essential component, as the output of the Delphi is based on their opinions (Ashton, 1986; Bolger & Wright, 1994; Parente et al., 1984). The experts for the Delphi were selected through judgmental sampling technique, as the

requirements, Knowledge and experience with the problem that has been taken for the investigation, Willingness, and capacity to take part, enough time to participate, and possessing the communication skills must be satisfied in the selection of experts for the Delphi (Adler & Ziglio (1996, as cited in Skulmoski et al., 2007). On this basis, 26 selected experts were invited for the first round of the Delphi process, and nine experts were invited for the second round of the Delphi process. The minimal reasonable sample size for the pilot study must be a minimum of 30 (Bujang et al., 2024; Johanson & Brooks, 2010). According to Hertzog (2008), the minimal sample size for a pilot study in social science research must be 10 to 40 per group. On this basis, 64 students were selected purposively for the pilot study. Gender representation was also taken into consideration during the sample selection.

Data Presentation and Analysis

Delphi Round One

The scale for round one of the Delphi process encompassed 20 items, including seven items in the perceived control dimension, eight items in the competence dimension, and five items in the persistence dimension. Among the 26 experts invited, only 16 responded. As one response was incomplete, 15 valid responses were used to determine consensus. According to Phillips et al. (2014), it was determined that items with consensus agreement below 80% should be excluded. The item number and the consensus rate in the first round of the Delphi are shown in Table 2 below.

Table 2

Consensus Rate in the First Round of the Delphi

Dimensions	Perceived Control	Item No	1.1	1.2	1.3	1.4	1.5	1.6	1.7	
		Consensus Rate	100.00	85.71	100.00	100.00	100.00	100.00	64.29	
	Competence	Item No	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
		Consensus Rate	92.86	92.86	100.00	92.86	92.86	100.00	92.86	71.43
	Persistence	Item No	3.1	3.2	3.3	3.4	3.5			
		Consensus Rate	85.71	92.86	100.00	100.00	100.00			

Based on the consensus rate, items that fell below 80% of the rate, such as item 1.7, *'I hope that I will enrol at a state university'*, were excluded. Additionally, item 2.8, *'I can pass the subjects General English and General Aptitude'*, was split into two separate questions*: 'I can pass the subject, General English',* and *'I can pass the subject, General Aptitude'*, following the experts' comments. In addition to the above, despite the remaining 18 items reaching the consensus threshold, four items were excluded based on the qualitative comments provided by the experts, considering the length of the questionnaire and the extent to which they conveyed the same meaning. Accordingly, item 1.2 in the perceived control dimension and items 2.1, 2.2, and 2.6 in the competence dimension were excluded. The remaining items in the competence dimension stayed the same. Therefore, the final 16 items- five under the perceived control dimension, six under the competence dimension, and five under the persistence dimension- were considered for the second round of the Delphi. The structure of the scale for the second round of the Delphi is depicted in Table 3 below.

Table 3

Structure of the Scale, SL-ASES-AL for the Second Round of Delphi

Dimensions												Total Number of Items
	Perceived Control	Item No in round 1	1.1	1.2	1.3	1.4	1.5	1.6	1.7		7	
		Item No in round 2	1.1	E	1.2	1.3	1.4	1.5	E		5	
	Competence	Item No in round 1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	8	
		Item No in round 2	E	E	2.1	2.2	2.3	E	2.4	2.5 &2.6	6	
	Persistence	Item No in round 1	3.1	3.2	3.3	3.4	3.5				5	
		Item No in round 2	3.1	3.2	3.3	3.4	3.5				5	

Note: The E denotes 'Excluded'.

Delphi Round Two

The scale for the second round of the Delphi process included 16 items, as previously mentioned. The structure of the SL-ASES-AL for the second round of the Delphi is illustrated in Table 4 below.

Table 4

Revised SL-ASES-AL Structure for Delphi Round Two

Dimension	Number of Items	Item Number
Perceived Control	5	1.1,1.2,1.3,1.4,1.5
Competence	6	2.1,2.2,2.3,2.4,2.5,2.6
Persistence	5	3.1,3.2,3.3,3.4,3.5

Nine experts, selected purposively, were invited to participate in the second round of the Delphi. They were asked to complete the questionnaire on two aspects: Relevance and Clarity. Four options were provided for each aspect. For the relevance aspect, they were instructed to choose one if the item is not relevant to the measured dimension of ASE, two if it is somewhat relevant, three if it is quite relevant, and four if it is highly relevant to the measured dimension of ASE. Similarly, regarding relevance, they were asked to mark one if the item is unclear, two if it requires some revision, three if it is clear but needs some revision, and four if the item is very clear. Among the nine experts invited, only eight responded. Therefore, based on the responses received from these eight experts, a content validity analysis was conducted based on I-CVI and S-CVI, as described by McCoach et al. (2013), to ensure and improve the content validity of the scale. The calculated I-CVI results based on the relevant aspects and clarity are shown in Table 5 below.

Table 5

Expert Ratings of Content Validity: I-CVI and S-CVI Scores

Dimension	Item No	Relevant (Rating 3 or 4)	Irrelevant (Rating 1 or 2)	I-CVI	UA	Clarity (Rating 3 or 4)	Clarity (Rating 1 or 2)	I-CVI		Interpretation
Perceived Control	1.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.5	8	0	1.00	1	8	0	1.00	1	Appropriate
Competence	2.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.6	8	0	1.00	1	8	0	1.00	1	Appropriate
Persistence	3.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.5	8	0	1.00	1	8	0	1.00	1	Appropriate
S-CVI/Average (Based on I-CVI)				1.00				1.00		
S-CVI/Average (Based on PR)				1.00				1.00		
S-CVI/Average (Based on UA)					1.00				1.00	

Note: I-CVI denotes the item-level content validity index, S-CVI denotes the scale-level content validity index, S-CVI/Average (Based on PR) indicates the scale-level content validity index calculated using the proportion relevance method, and S-CVI/Average (Based on UA) refers to the scale-level content validity index based on the universal agreement method, as proposed by Davis (1992), Lynn (1986), Polit et al. (2007), and Polit & Beck (2006). According to Zamanzadeh et al. (2015), items with I-CVI below .7 (I-CVI < .70) should be removed, while items with I-CVI between .70 and .90 (.70 ≤ I-CVI ≤ .90) should be revised, and items with I-CVI above .90 (I-CVI > .90) should be retained. In contrast, Raharjanti et al. (2022) stated that I-CVI > .79 means that the item is relevant and does not need further revision, and S-CVI/Ave ≥ .9 indicates that the items have excellent content validity. Based on this, all 16 items reach the maximum I-CVI value of 1.00, indicating that each item of this scale has excellent content validity (Raharjanti et al., 2022) and can be retained without revision (Zamanzadeh et al., 2015). Similarly, the S-CVI, the CVI for the scale, based on I-CVI, Proportion Relevance (PR), and Universal Agreement (UA), also reaches its maximum of 1.00. Here, all 16 items attain a maximum I-CVI value of 1.00 for relevance and clarity. Therefore, all 16 items were retained and included in the pilot study.

Pilot Study

The responses of the 64 students were analysed to ensure the reliability and construct validity of the scale and to verify its appropriateness in the local context. The results of the pilot study are shown in Table 6 below.

Table 6

Pilot Study Results: Reliability and Construct Validity

Dimension	Item No	Corrected Item-total correlation	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Perceived Control	1.1	.575	.798	.761	.841
	1.2	.579		.760	
	1.3	.684		.729	
	1.4	.500		.783	
	1.5	.586		.763	
Competence	2.1	.403	.728	.712	
	2.2	.527		.672	
	2.3	.506		.678	
	2.4	.452		.694	
	2.5	.383		.715	
	2.6	.570		.672	
Persistence	3.1	.296	.701	.719	
	3.2	.505		.632	
	3.3	.531		.623	
	3.4	.551		.609	
	3.5	.445		.663	

The reliability coefficient, Cronbach's alpha, is a widely accepted measurement that calculates the internal consistency of a scale (Raharjanti et al., 2022). According to Straub et al. (2004) and Hinton et al. (2004), as cited in Taherdoost (2016), a reliability coefficient of 0.60 or higher is considered acceptable for pilot studies. According to Hinton et al. (2004, as cited in Taherdoost, 2016), reliability levels can be categorised into four groups: excellent (≥ 0.90), high (0.70–0.90), moderate (0.50–0.70), and low (≤ 0.50). Additionally, as cited in Said (2018), Wim et al. (2008) proposed that an alpha value in the range of 0.60 to 0.80 is acceptable. Here, as all three dimensions have the Cronbach's alpha value greater than .70, it was concluded that the reliability level of each dimension is high. Furthermore, achieving a Cronbach's alpha value of .841 for the overall scale indicates that the reliability of this scale is also high.

The item-total correlation method and the inter-item correlation method can be used to assess the construct validity of a scale. For this study, only the item-total method was employed to establish the construct validity. The corrected item-total correlation value indicates the correlation between a specific item and the total scores of all other items on the scale. Robinson (2010) recommends that when the item-total correlation exceeds 0.50, the construct validity is established. Additionally, a score above 0.5 indicates a strong, positive correlation, while a score between 0.3 and 0.5 is considered acceptable (Raharjanti et al., 2022). In this study, eleven out of sixteen items had a corrected item-total correlation of 0.5 or higher, whereas four items (Items 2.1, 2.4, 2.5, and 3.5) had correlations between 0.3 and 0.5, specifically 0.403, 0.452, 0.383, and 0.445, respectively. The item with an item total correlation of 0.296 was rephrased for clarity. The expert panel agreed to keep the item, as it was deemed a vital aspect of ASE.

Results of the Delphi and Pilot Studies

Delphi Round One

Out of the 26 experts invited, 15 responded, and 14 complete responses were utilised for analysis. Based on the predetermined 80% consensus threshold, items with agreement below this threshold, such as Item 1.7: "I hope that I will enrol at a state university", were excluded. Item 2.8, which initially combined passing both General English and General Aptitude into a single item, was revised into two separate items based on expert feedback. Four additional items were removed based on qualitative expert feedback, primarily to eliminate redundancy and reduce scale length. This led to the development of a refined 16-item scale, distributed across three dimensions: Perceived Control (5 items), Competence (6 items), and Persistence (5 items).

Delphi Round Two

In the second round, eight of the nine invited experts responded. As outlined in the methodology, they assessed each item for relevance and clarity using a four-point rating scale. Based on their feedback, both the I-CVI and the S-CVI were calculated. All 16 items achieved an I-CVI of 1.00, and the S-CVI, calculated using both I-CVI, PR, and UA, also reached 1.00, indicating excellent content validity.

Pilot Study

The pilot study, conducted with 64 advanced-level students, aimed to assess the scale's reliability and construct validity, as outlined in the methodology. The overall Cronbach's alpha was .841, indicating strong internal consistency. Subscale reliability scores for the dimensions of Perceived Control, Competence, and Persistence each exceeded .70. Item-total correlation analysis supported construct validity, with 15 items showing strong and acceptable correlations. One item with a slightly lower correlation (.296) was retained due to its conceptual significance as endorsed by experts.

Discussion

This study aimed to adapt and validate the SL-ASES-AL scale, specifically designed for the unique needs of advanced-level students in Sri Lanka. The three-phase validation process, including Delphi rounds and pilot testing, confirmed the scale's strong content validity, internal consistency, and construct validity. High reliability coefficients and item-total correlations across all dimensions demonstrate that each item meaningfully contributes to assessing ASE in this demographic. The Delphi process enabled refinement of the scale through expert consensus, ensuring alignment with both theoretical frameworks and cultural relevance. Importantly, the decision to exclude the SRL domain from the original Dullas (2018) scale was justified by the need to prevent conceptual overlap with SDL, a distinct construct in this broader study. Notably, this study addresses a significant gap: the lack of a validated ASE scale for Sri Lankan students, particularly at the critical advanced level. Given the increasing academic pressures faced by students in this context, a culturally adapted and psychometrically robust scale is essential for both educational research and practical interventions. Limitations include the relatively small pilot sample and the exclusion of students from non-government schools, which may affect the generalizability of the findings. Future research should explore large-scale validation, longitudinal use, and correlations with actual academic outcomes. Furthermore, future research could employ a larger and more diverse sample representing different provinces and ethnic groups of students to enhance generalizability. It is also recommended that confirmatory factor analysis (CFA) be conducted using a sample of at least 300 participants to verify the factor structure identified in this study. Such large-scale validation would provide stronger evidence for the robustness and applicability of the SL-ASES-AL scale across varied educational settings in Sri Lanka.

Conclusion

ASE plays a vital role in influencing students' motivation, persistence, learning strategies, and ultimately, their academic achievement. Although international research has extensively examined the construct and its dimensions, there has been a lack of contextually relevant tools to measure ASE among Sri Lankan advanced-level students. This study addressed that gap by adapting the ASE Scale, initially developed by Dullas (2018), focusing on three dimensions: perceived control, competence, and persistence. The exclusion of the SRL dimension was a deliberate methodological choice, considering that SDL is regarded as a separate construct within the broader research framework. The adapted scale was validated by experts and refined through two rounds of the Delphi method and a pilot study, ensuring its content validity and contextual relevance. Consequently, this scale offers a reliable and valid tool for assessing ASE in the advanced-level educational environment of Sri Lanka. Its application can provide educators, researchers, and policymakers with more accurate insights into students' academic confidence and behavioural tendencies, enabling more targeted interventions and support strategies. Future studies may focus on the large-scale validation of the instrument across various regions and educational streams in Sri Lanka, examining how ASE interacts with other psychological and contextual factors, such as motivation, the learning environment, and educational outcomes.

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A Comprehensive Evaluation of a Formal Peer Tutoring and Support Centre in Sri Lankan Higher Education: An Impact Analysis

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Abstract

Peer tutoring has been widely accepted as an effective complement to traditional teaching, enhancing academic performance, fostering collaboration, and accommodating diverse learning needs and gaps. However, in Sri Lanka, peer learning within the higher education sector has remained chiefly informal. This study evaluated the first-ever formal Tutoring and Support Centre (TSC) established in a technological faculty of a state university with the objectives: (1) to understand its impact on students' core subject comprehension, (2) to assess its ability to create an inclusive environment that overcomes language barriers, and (3) to identify key aspects required for the successful establishment of a formal peer tutoring approach within the Sri Lankan higher education sector. This study employed a mixed-methods approach to analyse data collected over an eight-month period, which included tutor availability, session activity logs, and student feedback. The dataset analysed consisted of inputs from 100 undergraduates who were tutees and 36 peer tutors. One hundred one tutoring sessions were conducted, with the focus being on the core subjects of Mathematics, Physics, Programming, and Statistics. The study's outcomes indicated high student satisfaction, with 85.1% of 208 feedback responses rating the sessions 10/10 and 11.5% rating them 9/10. Thematic analysis of qualitative student feedback highlighted the tutors' clarity in explaining complex concepts, the judgment-free environment, and personalised guidance in familiar language as key strengths. The overall analysis further revealed strong and continuous engagement among both tutees and tutors, showcasing the operational feasibility of a formal peer tutoring establishment. While the study primarily measured self-assessed impact rather than objective academic outcomes, the consistently positive responses underscore the centre's potential as a replicable model within Sri Lankan higher education. To ensure long-term sustainability, it is recommended that peer tutoring be embedded into academic calendars, that pedagogical training be provided for tutors, and that dedicated infrastructure be established for tutoring sessions.

Keywords: peer tutoring, peer-assisted learning, higher education, Sri Lanka, student support

Introduction

Peer tutoring, which involves students learning and supporting one another, is widely acknowledged as a valuable complement to traditional teaching worldwide. It enhances academic performance, deepens subject understanding, and fosters a collaborative learning environment (Moumoulidou Et al., 2020). This approach is not intended as a substitute for traditional teaching but rather as a robust complement that can address diverse learning needs and enhance overall educational outcomes (Bogamuwa, 2017).

Despite its widespread international integration, structured peer tutoring and support have not been formally established within Sri Lankan education institutions. While informal peer learning, often colloquially known as 'Kuppi' sessions, has an enduring tradition within local state universities (Kommalage & Thabrew, 2011), these initiatives typically operate without formal oversight. One major challenge in Sri Lankan higher education is the language barrier faced by students transitioning from schooling in Sinhala or Tamil to university education in English. This shift often hinders comprehension of complex academic material, creating significant learning gaps.

This study evaluates a pioneering initiative: a formal Tutoring and Support Centre within a technological faculty at a Sri Lankan state university designed to address these challenges. This initiative aims to transform existing informal practices into a structured and guided environment for peer-led academic assistance. The evaluation leverages an extensive dataset gathered over eight months, encompassing tutor availability and expertise, tutor activity logs, and student feedback. By rigorously analysing these diverse data streams, this study provides empirical evidence supporting the value of a formalised peer tutoring model within the Sri Lankan higher education sector.

Objectives

The objectives of this study were:

1. To evaluate the effectiveness of a structured peer tutoring Centre in enhancing undergraduates' understanding of core subject areas.
2. To assess the program's success in fostering an inclusive and judgment-free environment, including the provision of support in native languages where appropriate, thereby catering to diverse linguistic backgrounds.
3. To comprehensively assess student satisfaction, measure tutor engagement and commitment, and identify key operational insights necessary for the sustainable implementation of a formal peer tutoring model in the Sri Lankan higher education context.

Literature Review

Peer Assisted Learning (PAL) represents a well-established pedagogical strategy that is globally recognised, affirming that knowledge dissemination is significantly enhanced through collaborative interaction among peers. The existing literature in this regard provides an extensive evidence base for the efficacy of formalised peer tutoring programs across a broad spectrum of academic disciplines and educational tiers (Moumoulidou et al., 2020). These programs typically distinguish themselves from informal study groups through their structured frameworks and varying degrees of institutional oversight, resulting in more consistent learning outcomes.

Numerous studies link active participation in peer support to tangible improvements in academic grades, superior performance in examinations, and increased student retention rates, particularly for those struggling with foundational course material (Bandarage et al., 2021). A critical factor contributing to the success of PAL is the approachable and non-intimidating support of peer tutors, even though they are not professional teachers or ‘experts’ in the subject they teach (Kommalage & Thabrew, 2011). Within the specific higher educational context of Sri Lanka, the need for a structured peer tutoring approach is further reinforced by the academic transition faced by fresh undergraduates, who shift from secondary education, primarily conducted in their native languages (Sinhala or Tamil), to university-level instruction predominantly delivered in English. This study directly addresses these critical needs by providing data-driven insights into the student satisfaction, tutor engagement, and operational dynamics of a formal Tutoring and Support Centre (TSC) implementation.

Methodology

This study employed a mixed-method case study approach to evaluate a pilot implementation of a formal Tutoring and Support Centre (TSC) at the Faculty of Computing and Technology (FCT), University of Kelaniya. Data collection spanned eight consecutive months of operation, integrating both quantitative metrics and qualitative insights to assess the program’s effectiveness and feasibility for broader implementation.

This research employed both quantitative metrics and qualitative data to construct a comprehensive understanding of the TSC program’s impact and operational feasibility, enabling

the derivation of valuable insights for potential broader implementation across other academic settings. The study successfully engaged over 100 undergraduates who actively participated in the tutoring sessions and provided their valuable feedback. The tutors were selected from second and third-year undergraduates who volunteered their time and expertise. Out of 44 registered volunteers, 36 were carefully chosen based on academic excellence (a minimum of A- or higher in the volunteered subject) and performance on a faculty-conducted assessment. Data collection was systematically executed through three primary instruments:

1. *Tutor Availability and Expertise Survey*, which captured weekly availability (categorised as physical presence, online availability, and after-hours accessibility) alongside subject expertise and language preference.
2. *Tutor Attendance and Session Duration Logs* were captured for each engagement to gain session-level insights, with a total of 101 productive tutoring sessions being recorded.
3. *Structured Post-Session Questionnaires* were utilised to capture the ratings via Likert-scale type questions (rated from 1 to 10) and an open-ended section to elicit detailed qualitative comments. A total of 208 feedback submissions were collected throughout the evaluation period.

The data analysis involved standardising the gathered tutor availability and activity data, converting time durations into consistent numerical formats. Further, tutor identifiers were normalised across datasets to consolidate entries referring to the same individual. Student feedback ratings were analysed using frequency distributions and percentage breakdowns to gauge satisfaction levels. Concurrently, the data derived from the open-ended comments in the student feedback forms were subjected to rigorous thematic analysis to highlight key aspects of the student experience.

Findings

The comprehensive analysis revealed valuable insights into the effectiveness and viability of the formalised peer tutoring Centre.

Expertise and Inclusive Language Support

The tutor registration data systematically confirmed that the volunteer pool possessed a broad spectrum of subject matter expertise, comprehensively covering the core subject areas of Mathematics, Physics, Programming, and Statistics that constituted the primary focus of the TSC. A significant finding of the tutor volunteering and availability was the program's inherent capacity for linguistic inclusivity. Notably, 8 out of 36 selected tutors (22%) were Tamil-speaking, allowing them to support students in their native language. This inclusivity proved essential, as 36 of the 100 tutees sought help in Tamil, highlighting the program's role in addressing language-based learning barriers.

Tutor Engagement Metrics

The program demonstrated remarkable success in mobilising and sustaining a substantial pool of dedicated volunteers. A total of 44 senior students formally registered their availability and willingness to serve as peer tutors. From this broader volunteer base, 36 approved tutors were selected to conduct active tutoring sessions. Over the eight months, tutors logged approximately 150 hours of direct instruction, underscoring their strong dedication and sustained engagement as volunteers.

Tutee Satisfaction and Program Impact

The analysis of student feedback demonstrated an exceptionally high level of satisfaction with the tutoring sessions. Out of the 208 responses, 85.1% (177) rated the sessions a perfect 10/10, and

11.5% (24) rated them 9/10. This reflects strong confidence in the tutoring centre's effectiveness. The remaining small percentage of feedback comprised ratings from 1 to 8. This consistently high level of positive feedback indicates that the majority of students found the tutoring sessions to be highly effective and supportive.

Thematic analysis of open-ended feedback highlighted clarity of explanation, a judgment-free environment, and personalised guidance. Students appreciated the tutors for their ability to articulate complex concepts with unparalleled clarity. This directly addresses the comprehension gaps faced by many students, often due to the English language barrier. The peer-led setting encouraged open dialogue, making students feel comfortable asking questions. Tutors were also commended for their ability to provide individualised attention, meticulously addressing specific student difficulties and offering tailored guidance to navigate challenging concepts. These findings collectively affirm the program's positive impact and its potential as a replicable model in similar academic contexts.

Discussion

As the first empirically evaluated formal peer tutoring initiative within a Sri Lankan university, this study confirms the viability and effectiveness of a structured peer tutoring and support Centre in the local higher education context. The exceptionally high student satisfaction rating, with 85.1% of perfect scores and another 11.5% rated 9/10, underscores the immediate and tangible value perceived by the new undergraduates. These results align with international evidence supporting structured Peer-Assisted Learning (PAL) models (Moumoulidou et al., 2020).

A key notion of this study is the demonstrated linguistic inclusivity. With 22% of tutors offering support in Tamil and over a third of tutees seeking help in Tamil, the program addresses a critical gap in equal education in a multilingual context. Qualitative feedback emphasised the clarity of explanations, comfort in asking questions, and personalised guidance, indicating the program's success in addressing academic challenges, especially those related to the English language barrier.

Operationally, the centre mobilised a committed pool of tutors who contributed approximately 150 hours of direct support, reflecting both the program's sustainability and its appeal to volunteers. The tutor selection process ensured quality, distinguishing this initiative from informal "Kuppi" sessions that lack oversight and consistency. That said, it is essential to clarify that this formal peer tutoring centre is not intended as a substitute for formal instruction, but rather as a valuable complement to existing teaching methods.

While the study provides robust evidence of satisfaction and operational feasibility, it is important to acknowledge certain limitations to ensure transparency. The primary measure of impact was student self-reported satisfaction. While these are critical indicators for student support programs, they do not directly quantify improvements in objective academic performance (e.g., exam scores, GPA). The absence of a control group also means that direct inferences about the program's definitive effect on overall academic outcomes, independent of other factors, cannot be made. Nevertheless, the overwhelmingly positive and consistent qualitative feedback across a significant number of sessions strongly suggests a profound perceived benefit that is highly likely to translate into tangible academic advantages over time.

Conclusions and Recommendations

This pioneering formal peer tutoring and support Centre represents a pivotal advancement for academic support within Sri Lankan higher education. The study clearly demonstrates that a structured, guided, and consistently monitored peer-led learning environment is both feasible and highly effective. It not only improves student comprehension and confidence but also fosters a more inclusive and collaborative academic culture. Building upon these demonstrable successes, it is recommended to:

- Implement pedagogical training programs for peer tutors covering essential skills such as active listening and effective communication strategies.
- Formally embed the peer tutoring into the broader academic calendar to reinforce its value and encourage participation.
- Provide dedicated infrastructure, ensuring dedicated physical and online learning spaces for tutoring sessions to promote continuity and sustainability.

By implementing these recommendations, universities in Sri Lanka can establish robust, formalised peer tutoring models that not only adhere to international best practices but also address the specific academic and linguistic needs of Sri Lanka's diverse student populations, ultimately contributing to a more supportive and unbiased higher education sector across the nation.

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Most Frequently Applied Theoretical Models Among Practicing Counsellors in Sri Lanka

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Abstract

Effective counselling relies on selecting appropriate interventions, with success largely depending on the theoretical models the counsellor uses to address each client's issues. This study aims to explore counsellors' perspectives on the importance of applying counselling theoretical models in the context of their professional practice, to determine the most frequently used theoretical models in assisting clients with their problems, using a cross-sectional survey design. Preliminary data were collected using a self-developed questionnaire through an online survey administered at a single time point to a purposive sample of 78 practising counsellors. Data analysis was conducted using MS Excel, employing techniques of descriptive statistics, correlation, and regression analysis. The findings revealed that all participants perceived the impact of theoretical models on their counselling practice and the significant role these theoretical models play in shaping their approach (M = 4.6, SD = 0.42; M = 4.3, SD = 0.53). The most frequently used is the Cognitive Behavioural Model (97.4%), and the humanistic model also showed a high usage level, with 89% of counsellors reporting frequent use. Furthermore, the findings also revealed a significantly positive correlation between counsellors' self-reported theoretical knowledge of each theoretical model and its application, as well as a moderate positive relationship (r = 0.49) between counsellors' years of experience and their confidence in applying counselling theoretical models. However, many counsellors reported using multiple theoretical models, showing that integrated or eclectic approaches are common in practice. This result is consistent with existing literature. Rather than strictly adhering to a single theoretical model, counsellors appear to adopt a flexible approach by drawing from multiple frameworks to respond to clients' diverse and complex needs.

Keywords: counselling theoretical models, counselling intervention, theoretical orientation

Introduction

Counselling, as a helping profession, involves the application of structured theoretical frameworks to assist clients in understanding and resolving their psychological, emotional, and behavioural concerns. These frameworks, known as counselling theoretical models, serve as the foundation for selecting interventions, building therapeutic alliances, and fostering personal growth. Globally, models such as Cognitive Behavioural Therapy (CBT), Psychodynamic Therapy, Behavioural Therapy, Humanistic Therapy, and Family Therapy have demonstrated varying degrees of effectiveness depending on the clients' issues and context. However, while the demand for mental health services has increased in Sri Lanka, there is limited empirical evidence on how local counsellors apply counselling theoretical models in their practice.

Sri Lanka's unique socio-cultural context, marked by collectivist values, post-conflict trauma, and mental health stigma, necessitates culturally sensitive and contextually relevant therapeutic interventions. However, it remains unclear how counsellors in Sri Lanka adopt counselling theoretical models in their client interventions. Understanding the practical application of theoretical models and the factors influencing model selection is vital for strengthening training, supervision, and service delivery in the country's mental health sector.

Research Problem

As stated by Gladding, effective counsellors adhere to specific systems of counselling, as well as the theories underlying it (Gladding, 2018). Comprehensive subject expertise, combined with the capability to identify and foster clients' strengths through informed practice and self-awareness, is essential for effective counselling (The Asia Foundation, 2020). Despite the crucial role of counselling theories in shaping interventions and outcomes, a significant gap in empirical knowledge regarding the actual use of these theoretical models is evident among counsellors in Sri Lanka. There is limited research examining the preferences, patterns, and perceived effectiveness of counselling models as applied in real-world practice. Moreover, counsellors' confidence, theoretical orientation, and decision-making processes regarding model application remain largely unexplored. This research addresses the need to understand the perceived importance of applying counselling theoretical models and which models are the most commonly used by practitioners in Sri Lanka, as well as to investigate how their knowledge, experience, and confidence in applying theoretical models influence model usage.

Research Objectives

The primary aim of this study is to explore the perspectives of practising counsellors in Sri Lanka regarding the use of counselling theoretical models in their professional practice. Specifically, the objectives include:

1. To assess counsellors' perceptions of the importance and effectiveness of using theoretical models in counselling interventions.
2. To determine the most frequently applied counselling theoretical models among practising counsellors.
3. To examine the relationship between counsellors' experience, knowledge, and confidence in applying theoretical models.

Literature Review

The practice of counselling encompasses a crucial dimension that contributes to adequate client support. That is, counsellors must possess a thorough understanding of the prevailing scientific knowledge regarding human behaviour and development (Murdock, 2004; Seligman, 2005). This foundational expertise enables practitioners to interpret client issues accurately and devise informed intervention strategies tailored to individual needs. In counselling, observational theories, though not scientifically confirmed, can assist counsellors in addressing client issues (Fall, Holden & Marquis, 2017).

Counselling theoretical models provide structured ways of understanding client problems and guide the selection of appropriate interventions (Gladding, 2018). It provides guidelines for how counsellors should develop a treatment plan to aid clients (Capuzzi & Gross, 2007; Seligman, 2005). Theory provides a consistent framework that links understanding, interpretation, and action. Consistency and integrity are crucial for achieving practical goals (Macleod, 2013). Without a unified approach, counsellors cannot efficiently address clients' issues. Kottler highlights the significance of theories for counsellors, stating that a strong understanding of a theory is necessary to interpret situations and structure interventions effectively. Without this knowledge, counsellors may be unable to help clients and could potentially worsen their circumstances (Mohamad, Jusoh & Omar, 2011). When counsellors base their understanding solely on their own education and training, counselling becomes subjective and may worsen the client's condition. Without theoretical backing, counsellors operate haphazardly in a trial-and-error manner, being both ineffective and a harmful risk (Gladding, 2018).

Fall, Holden, and Marquis (2017) note that most counselling theories, out of more than 400, fall into six main models: psychoanalytic, behavioural, humanistic, cognitive-behavioural, systemic, and constructionist. These various theoretical models offer counsellors a range of tools and techniques. Applying theories in counselling increases consistency and professionalism. Additionally, understanding theoretical models helps counsellors in selecting and using suitable techniques for specific issues, as these techniques are derived from the models (Gladding, 2018). Effective counsellors are choosy, however. They scrutinise theories for proven effectiveness and match them to personal beliefs and realities about the nature of people and change. While early practitioners often adhered strictly to a single model, contemporary trends suggest a movement towards integrative and eclectic approaches, especially in multicultural settings (Lazarus & Beutler, 1993; Sharf, 2016; Gladding, 2018).

Cook et al. (2010), using data collected from an online study of 2000 psychotherapists in North America, identified that Cognitive Behavioural Therapy (CBT) was the most endorsed theoretical orientation, followed by family systems, psychodynamic, and client-centred humanistic approaches. Hicks, Alexander, and Jones (2016) surveyed 24 Australian counsellors and psychotherapists to explore their dominant theoretical orientations and trends in integration. CBT emerged as the commonly used approach, followed closely by person-centred therapy. Mohamad and Rahman studied 241 Malaysian counselling practitioners, finding that person-centred approaches were most dominant, followed by "rational emotive behavioural therapy" and an eclectic approach.

The studies, however, are sparse in investigating the application of counselling theoretical models in the Sri Lankan context. Anecdotal evidence suggests a preference for CBT in structured institutional settings, but the extent to which other models are used remains unclear (GPG Ltd., 2018). Therefore, more research is necessary to understand the viewpoints of counsellors across different specialities and various experience levels regarding the importance of applying Counselling Theoretical Models in interventions to assist with client issues within their professional practice. Thus, this study attempts to bridge the literature gap by systematically examining the counselling landscape in Sri Lanka.

Methodology

This study employed a quantitative research approach, including a cross-sectional survey designed to capture data at a single point in time. This method was appropriate for assessing patterns, relationships, and perceptions related to the use of counselling theoretical models among practising professionals.

The target population consisted of counsellors currently practising in Sri Lanka across the governmental sector. A purposive sampling method was employed to select counsellors who were professionally trained and had at least three years of practical experience. An invitation to participate in the study was disseminated via email and professional networks, and a total of 78 counsellors participated in the study.

A self-developed online questionnaire was designed and validated through expert review. The instrument included both closed-ended and Likert-scale items addressing:

- Demographics and professional background
- Perceptions of model importance and effectiveness
- Self-assessed knowledge and confidence in application
- Frequency of use of various theoretical models
- Tendency towards integration of models

The survey was administered via Google Forms and completed anonymously. Quantitative data were analysed using Microsoft Excel, employing descriptive and inferential statistical techniques. Specifically:

- Descriptive statistics (mean, standard deviation, frequency) were used to summarise counsellors' model usage and perceptions.
- Correlation analysis was conducted to explore relationships between model applications and experience, knowledge, and confidence.
- Regression analysis examined predictors of theoretical knowledge of each theoretical model and its application.

Results and Key Findings

Perceptions of Importance and Effectiveness:

An analysis assessed counsellors' views on the importance of applying theoretical models and the effectiveness of counselling models in counselling intervention, using a 5-point Likert scale where higher scores indicated stronger agreement. Descriptive statistics, including frequency, mean, and standard deviation, were used to summarise participants' agreement levels.

Table 1

Perceived Importance and Effectiveness of Counselling Theoretical Models

Variable	Mean	SD
Perceived importance	4.6	0.49
Perceived Effectiveness	4.3	0.53

Counsellors rate the use of theoretical models as highly important ($M = 4.63$, low SD) and perceive them as effective ($M = 4.28$) in interventions.

Model Usage Trends

The analysis utilised questionnaire responses to determine which theoretical model practitioners apply and how frequently they apply it. The data on model usage responses were analysed using Microsoft Excel, where frequencies and percentages were calculated to provide a detailed understanding of the distribution.

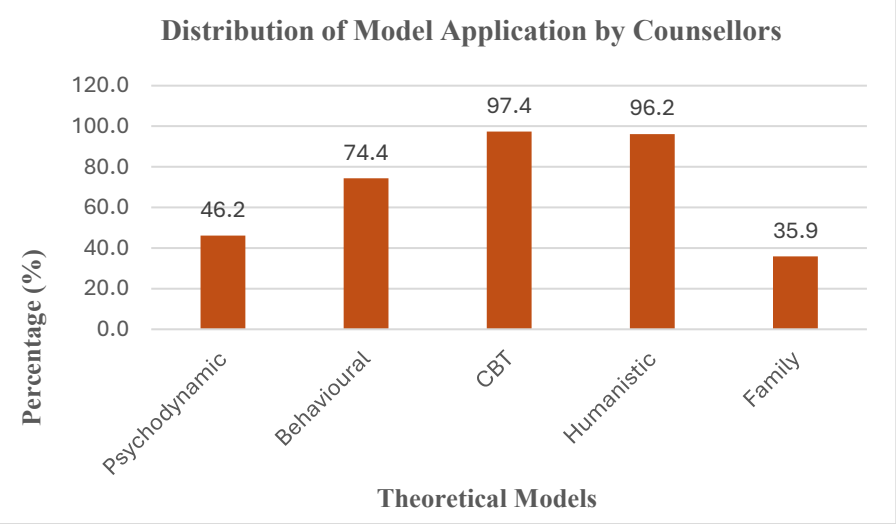

Figure 1. Distribution of Model Application by Counsellors

The data revealed that most respondents reported using multiple models. However, the most frequently cited theoretical model was the CBT (97.4%), followed by the Humanistic model (96.2%). The Psychodynamic and Systemic models were utilised less frequently.

Table 2 displays participants' tendency to use various theoretical models during counselling sessions. Responses were gathered using a 5-point Likert scale, where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Always. Responses rated as 4 (Often) and 5 (Always) were only considered as a frequently used model for analysis. The table presents the number and percentage of counsellors who reported frequent use for each model, as well as the mean score, which provides an overall indication of each model's usage trend across the sample.

Table 2

Frequency and Trend of Counsellors' Use of Theoretical Models in Practice

Model	Frequency (Likert ≥4)	Mean	SD	Percentage
Psycho Dynamic	7	2.92	0.50	8.97
Behavioural	26	3.17	0.69	33.33
CBT	77	4.46	0.53	98.72
Humanistic	69	3.95	0.58	88.46
Family	26	3.27	0.70	33.33

The data reveal a clear preference among counsellors for CBT and Humanistic models, which dominate current counselling practice in the sample. Behavioural and Family therapy models showed moderate usage, while the Psychodynamic model was the least frequently used, indicating infrequent application, with an integrated use of various models depending on the context and client needs. This flexible model of usage aligns with both global trends and the complex needs of Sri Lankan clients.

Relationship between Experience, Knowledge, and Confidence

A series of linear regression analyses was conducted to examine how knowledge of an individual's counselling theoretical models predicts their application in practice.

Table 3

Predictive Value of Counsellors' Knowledge of Theoretical Models on Their Application in Practice

Predictor Variable (Knowledge)	Unstandardized Coefficient		Standardized Coefficient	t	p
	B	SE	β		
Psychoanalytic Model	1.58	0.24	0.41	6.70	<0.001
Behavioural Model	0.89	0.44	0.65	2.02	<0.001
CBT Model	0.94	0.32	0.80	2.97	<0.001
Humanistic Model	0.87	0.33	0.79	2.62	<0.001
Family Model	1.99	0.67	0.31	2.98	0.058

Counsellors' knowledge of CBT and Humanistic approaches indicated a strong predictive relationship, while the Psychoanalytic and Behavioural models showed a moderate relationship between theoretical knowledge and its application. Family models showed a non-significant relationship despite a moderately high coefficient.

A bar chart was developed to visually represent the average (mean) self-reported scores of counsellors' knowledge on theoretical models and frequency of use for five major counselling

theoretical models: Psychoanalytic, Behavioural, Cognitive Behavioural Therapy, Humanistic, and Family Therapy.

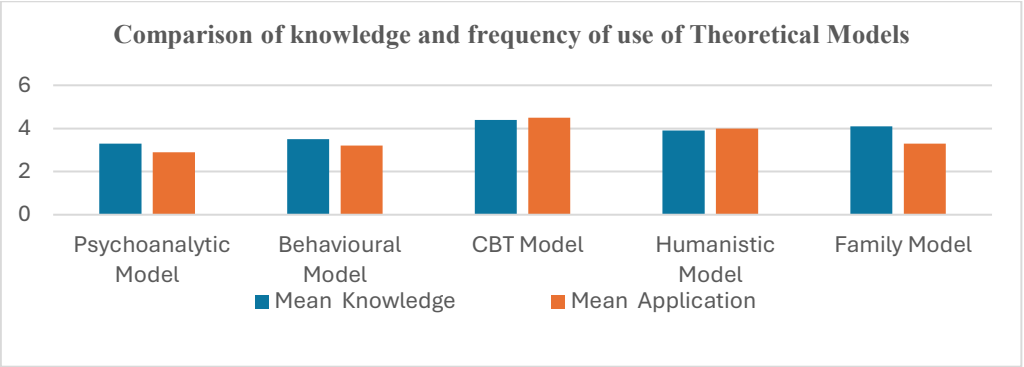

Figure 2. Comparison of knowledge and frequency of use of Theoretical Models

The visual comparison clearly highlights that CBT received the highest scores in both knowledge and frequency of use, followed by Humanistic models. In contrast, Psychoanalytic and Behavioural models received comparatively moderate levels of knowledge and a slightly lower frequency of use. The Family Model had a relatively high mean knowledge score but a notably lower frequency of use. This may reflect a gap between theoretical exposure and practical opportunity, especially given that many counselling settings do not routinely accommodate family-based sessions. The chart illustrates a clear visual pattern that supports the quantitative findings, reinforcing the notion that increased theoretical knowledge tends to align with more frequent model application in practice. Overall, the data indicate a positive correlation between knowledge and usage across models, with notable discrepancies.

Confidence scores rose with experience

Counsellors with 3–5 years of experience had an average score of 3.5, those with 6–10 years of experience averaged 3.9, and those with over 10 years of experience peaked at 4.1.

Table 3

Counselors' Experience and Confidence in Applying Counseling Models

Experience (Years)	Average Confidence	
	Mean	SD
3-5	3.5	0.58
6-10	3.9	0.50
>10	4.1	0.70

These findings indicate a consistent improvement in confidence aligned with increased years of practice.

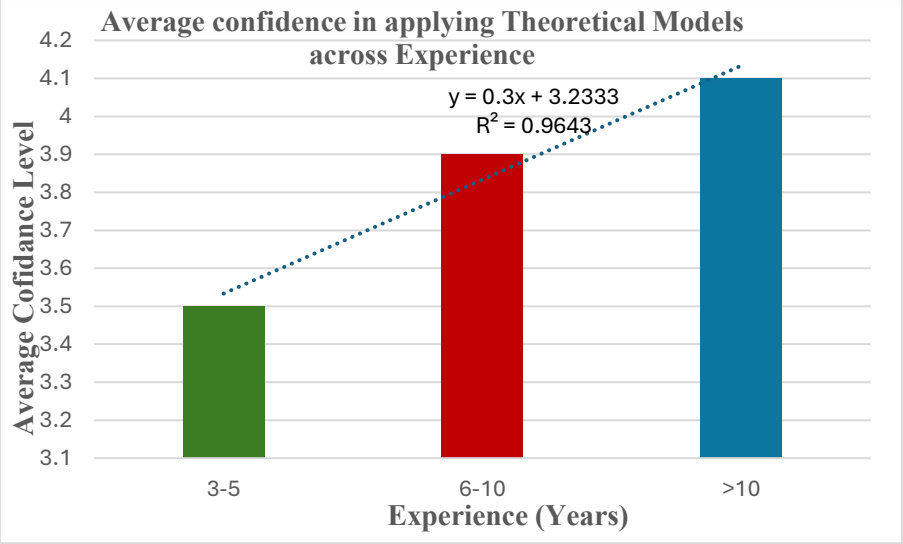

Figure 3. Average confidence in applying Theoretical Models across Experience

A linear trend line was applied to assess the strength of association, yielding a regression equation of y = 0.3x + 3.2333, where x represents years of experience (1: 3–5 years, 2: 6–10 years, 3: over 10 years). The R^2 value of 0.9643 indicates a strong fit, meaning that approximately 96% of the variation in confidence levels can be explained by years of experience. This strong correlation underscores the role of practical experience in enhancing counsellors' confidence when applying theoretical models in their interventions.

These results suggest that familiarity with theoretical approaches improves over time, and professional experience enhances confidence in applying models, underscoring the value of practical experience and sustained involvement in counselling.

Discussion

The findings revealed that counsellors place high importance on counselling models and perceive them as practical tools for facilitating positive mental health outcomes in clients. The dominant use of CBT reflects its structured, goal-oriented nature and compatibility with evidence-based practice. The high use of the Humanistic model further suggests that counsellors' emphasis on empathy, genuineness, and client autonomy —core values aligned with relational and culturally sensitive counselling —has been a key aspect of their approach. The prevalence of integrated or eclectic approaches indicates that counsellors in Sri Lanka are not rigidly confined by theoretical boundaries, but tailor their methods to client needs.

The moderate positive correlation between experience and confidence implies that practical exposure over time builds counsellors' ability to navigate and apply theoretical models effectively. Meanwhile, the strong link between theoretical knowledge and application highlights the importance of robust training curricula and continued professional development. Furthermore, the quality and availability of supervision and institutional support may affect how confidently counsellors use theoretical models.

Conclusions

This study provides a timely insight into the application of counselling theoretical models among Sri Lankan counsellors. The findings suggest:

- Theoretical models play a critical role in shaping counselling interventions in Sri Lanka.
- CBT and Humanistic models are the most commonly applied frameworks.
- Integrated approaches are common, suggesting a trend towards practical flexibility.

- Theoretical knowledge and Experience are significant predictors of counsellor confidence.
- Counsellors value theory-driven practice and believe it significantly impacts intervention effectiveness.

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Assessment as a Catalyst for Metacognitive Learning: Insights from a Longitudinal Study of the ESP–Engineering Curriculum at the University of Moratuwa

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Abstract

This study examines how assessment practices in English for Specific Purposes (ESP) can be redesigned to foster metacognitive development among engineering undergraduates in an English-medium instruction (EMI) context. The focus is on the EL1030 Language Skills Enhancement module at the University of Moratuwa, Sri Lanka, a foundational ESP course designed to support EMI adaptation and academic literacy. Although formally aligned with outcome-based frameworks such as UTEL, assessments remain largely summative and product-driven, with limited opportunities for self-regulated learning (SRL) or reflective practice. Guided by Goodlad's Five Dimensions, Zimmerman's SRL model, and the Critical Emancipatory Constructivist Analysis Model (CECAM), this longitudinal qualitative study analysed curriculum documents, lecturer interviews (n = 5), alum reflections (n = 12), and continuous assessments. Thematic analysis revealed a persistent gap: while metacognitive skills are valued, they are neither explicitly taught nor assessed. Rubrics are underused, feedback is inconsistent, and students rarely engage in self-monitoring or revision. Alumni and teachers called for formative and dialogic assessment models that emphasise reflection and feedback literacy. Concrete pathways for reform include redesigning existing tasks. For example, timed essays could be paired with planning sheets and post-task reflection logs, and oral presentations could incorporate peer and self-assessment checklists—such changes shift evaluation from one-off performance toward iterative learning. While the small lecturer sample limits generalizability, the findings provide original insights from a South Asian EMI context where research remains sparse. The study presents a localised, evidence-informed framework for assessment reform, highlighting the transformative role of assessment in fostering reflective, autonomous learners.

Keywords: metacognitive competence, ESP assessment reform, Self-Regulated Learning (SRL), curriculum–assessment alignment, English-Medium Instruction (EMI)

Introduction

In contemporary higher education, there is a growing recognition that success depends not only on mastering disciplinary content but also on cultivating the ability to manage one's own learning. This capacity, often described as metacognition, enables learners to plan, monitor, and regulate their academic activities in ways that extend beyond classroom performance (Flavell, 1979; Zimmerman, 2002). Within English for Specific Purposes (ESP), and especially in engineering programs taught through English-medium instruction (EMI), the need for metacognitive growth becomes even more critical. Students are simultaneously grappling with technical knowledge, adapting to instruction in a second language, and acquiring discipline-specific communicative competence (Hyland, 2006). In such contexts, assessment practices can become potent mediators of self-regulated learning (SRL), yet they often remain narrowly product-oriented and summative in design (Black & Wiliam, 1998).

Traditional ESP assessments in South Asian universities typically privilege linguistic accuracy and final outputs, offering limited scaffolding for reflection or strategy use. This risks producing technically competent but strategically unprepared graduates. Current debates in applied linguistics and educational assessment emphasise that assessments should not only measure achievement but also foster transferable skills such as self-monitoring, reflection, and goal-setting (Carless & Boud, 2018; Teng & Zhang, 2021). However, in Sri Lanka's EMI engineering programs,

there is limited evidence on how existing assessment designs contribute to metacognitive development. This study addresses that gap by examining the ESP–Engineering module at the University of Moratuwa, exploring how assessments can be re-engineered to serve as catalysts for reflective, autonomous, and future-ready learning.

Although curriculum documents for ESP–Engineering in Sri Lanka often claim to promote independent and strategic academic literacy, the actual assessment tasks embedded in these modules rarely fulfil this promise. Much of the assessment remains summative, emphasising timed essays, comprehension tests, or presentations that measure linguistic performance but do not explicitly guide students to reflect on their learning processes. This disconnect between curriculum intention and classroom practice has been widely noted in higher education assessment debates, where formative, process-oriented designs are seen as essential for cultivating self-regulated learners (Black & Wiliam, 1998; Carless & Boud, 2018). In EMI environments, where students must negotiate both disciplinary content and language demands, the absence of structured metacognitive support further compounds the challenge (Andrade & Evans, 2013).

As a result, students often progress through ESP courses with limited exposure to reflective practice, feedback literacy, or self-assessment. This raises a critical question: *how do existing assessment practices in the ESP–Engineering module at the University of Moratuwa support, hinder, or remain neutral toward the development of metacognitive skills among undergraduate learners?*

Objectives and Research Questions

The central purpose of this study is to explore the role of assessment in fostering metacognitive growth within the ESP–Engineering curriculum at the University of Moratuwa. While the module is formally aligned with the University Test of English Language (UTEL) descriptors, its actual assessment practices have not been systematically examined for their capacity to nurture reflection, self-monitoring, and learner autonomy. Addressing this gap is critical in EMI environments, where the dual challenge of language acquisition and disciplinary study demands greater strategic awareness from learners (Hyland, 2006; Teng & Zhang, 2021).

Accordingly, the study pursues four objectives:

1. To examine formal curriculum and assessment documentation for evidence of metacognitive alignment.
2. To explore teachers' and alums's perceptions of assessment design in relation to metacognitive behaviours.
3. To identify gaps and tensions in the operational and experiential dimensions of assessment tasks.
4. To propose a re-engineered model that integrates metacognitive scaffolding into ESP pedagogy.

The guiding research questions are:

- To what extent are metacognitive elements embedded in ESP curriculum and assessment structures?
- How do lecturers and alums perceive the metacognitive value of existing assessments?
- What reforms can be proposed to better support metacognitive development in EMI engineering contexts?

Literature Review

Assessment in language education has long been debated as either a mechanism for certifying achievement or as a tool for deepening learning. The traditional emphasis on assessment of learning (AOL) has been challenged by scholars who argue for assessment for learning (AfL), where feedback and formative cycles actively support student growth (Black & Wiliam, 1998). Within this shift, the integration of metacognition - the awareness and regulation of one's own cognitive processes - has become central (Flavell, 1979; Zimmerman, 2002). Metacognitive strategies, such as planning, goal-setting, self-monitoring, and reflection, enable learners not only to succeed in academic contexts but also to transfer these skills into professional and lifelong learning (Andrade & Evans, 2013).

In English for Specific Purposes (ESP), particularly in engineering education, assessments are expected to serve dual roles: measuring language proficiency while also fostering discipline-specific communication skills (Hyland, 2006). However, many ESP programs remain dominated by summative tasks such as timed essays, comprehension tests, or oral presentations, where the focus rests on product correctness rather than process-oriented growth (Teng & Zhang, 2021). The result is that metacognitive skills, though implicitly present, are rarely made explicit in assessment design.

Recent scholarship calls for rethinking feedback not as a one-way transfer of judgment, but as a dialogic, developmental process in which students learn to interpret and act on evaluative information, a capacity described as "feedback literacy" (Carless & Boud, 2018). Research also highlights the potential of embedding reflective prompts, self-assessment checklists, and peer review cycles into ESP assessments as a way to cultivate metacognition (Teng & Zhang, 2021). Despite these insights, most studies have been conducted in East Asian or Western contexts, with limited attention to South Asian EMI environments.

From a curriculum studies perspective, frameworks such as Goodlad's Five Dimensions (intended, perceived, operational, experiential, ideological) provide powerful tools for mapping gaps between policy and practice. Coupled with critical-constructivist approaches, these frameworks allow researchers to interrogate how institutional structures shape or constrain assessment reform. While such models are increasingly used in curriculum analysis, there is a lack of empirical work applying them to ESP–Engineering programs in Sri Lanka or similar contexts.

Thus, what is known is that assessment can be redesigned to promote self-regulation and feedback literacy. What remains unknown and often underdocumented is how localised ESP–engineering assessments in South Asian EMI settings can be systematically re-engineered to integrate metacognitive scaffolding. This study addresses that gap by analysing assessment design through both theoretical and practical lenses, aiming to generate contextually grounded models for reform.

Methodology

This study adopts a longitudinal qualitative design situated within an interpretive-critical paradigm. The approach is grounded in the view that assessment is not a neutral measurement tool but a socially constructed practice that reflects institutional ideologies and pedagogical choices. A qualitative, multi-source strategy was therefore essential to capture how assessment both supports and constrains the development of metacognitive skills in ESP–Engineering.

Three categories of data sources were engaged:

- ESP Lecturers (n = 5): purposively selected based on their experience teaching the Engineering English module.

- Alumni (n = 12): graduates who had completed the module and could reflect on its long-term value in academic and professional settings.
- Curriculum Documents**:** including syllabi, UTEL-aligned intended learning outcomes, assessment rubrics, and activity plans.

Semi-structured interviews captured the perspectives of lecturers and alums, while document analysis examined the formal curriculum and assessment design. Data were coded thematically using Braun and Clarke's (2006) framework, with analytic categories informed by Zimmerman's self-regulated learning (SRL) model, Bloom's revised taxonomy (Anderson & Krathwohl, 2001), Goodlad's Five Dimensions, and the prospective Critical Emancipatory Constructivist Analysis Model (CECAM). NVivo software was used to support coding and ensure analytic rigour.

Methodological triangulation across documents, teacher voices, and alum experiences enhanced internal validity. Rich contextual description strengthened external credibility. However, the relatively small sample of lecturers may constrain generalizability. This limitation is mitigated by the longitudinal design and the depth of qualitative insights, which prioritise *richness of meaning* over statistical representativeness.

Results

The analysis revealed several interconnected themes that highlight both the potential and the current limitations of assessment in fostering metacognitive growth within the ESP–Engineering module. Table 1 presents selected alums and lecturer voices, illustrating shared concerns about the absence of reflection, the underutilization of rubrics, and the limited developmental value of feedback. These perspectives provide concrete evidence of how assessment practices are currently perceived by both groups, reinforcing the argument that the module remains product-oriented rather than process-enriched. Table 2 highlights how current assessment tasks, such as timed essays and oral presentations, can be re-engineered to embed metacognitive scaffolding. By comparing existing practices with proposed redesigns, the table demonstrates that even modest changes, such as adding reflective prompts, requiring self-assessment checklists, or introducing feedback cycles, can shift tasks from summative hurdles to formative opportunities for strategic learning.

Table 1

Alums and Lecturer Voices on Assessment Practices

Theme	**Alumni Voices**	**Lecturer Voices**
Lack of Reflection	"We never learned how to revise or improve. It was all about submitting and moving on."	"We encourage reflection, but it is not graded, so students ignore it."
Feedback Practices	"Feedback was just a grade, not guidance."	"We give rubrics, but students rarely know how to use them."
Reform Needs	"Earlier training in citation and scientific writing would help."	"Adding short process logs would make students more conscious of their strategies."

Table 2

Current vs. Re-engineered Assessment Tasks

Current Task	Limitation	Suggested Redesign
Timed essay	Focus on product, no planning/reflection	Add pre-task goal sheet + post-task reflection log
Oral presentation	Performance only, feedback one-way	Include peer feedback + self-evaluation checklist
Report writing	Graded for final output, no iterative process	Draft + feedback cycle with revision required

Curriculum–Assessment Misalignment

While the syllabus emphasises higher-order skills such as synthesis and evaluation, assessment rubrics rarely articulate how these outcomes are to be measured. Document analysis revealed that tasks were primarily product-driven, with minimal scaffolding for planning and reflection. As one lecturer admitted, *"We tick boxes for learning outcomes, but students do not really know how those outcomes connect to what they do in assignments."* This disconnect suggests that the formal curriculum's metacognitive ambitions are not realised in operational practice.

Alumni Reflections on Lived Experience

Alumni recalled the pre-academic English program as confidence-building and interactive, yet described the semester module as rigid and transactional. Several emphasized the absence of guided reflection: *"We never learned how to revise or improve. It was all about submitting and moving on."* Their accounts suggest that while tasks such as presentations and reports could support self-monitoring, they were treated as summative hurdles rather than developmental opportunities. Alumni repeatedly called for earlier introduction of scientific writing skills, more dialogic feedback cycles, and structured opportunities for self-assessment.

Teacher Perspectives on Constraints and Possibilities

Lecturers recognized that certain tasks held latent metacognitive value but admitted they were rarely exploited. One noted, *"We give rubrics, but students rarely know how to use them. Feedback ends up being a grade, not guidance."* Teachers also pointed to institutional barriers such as large class sizes, tight marking deadlines, and a lack of professional development in assessment literacy. Nevertheless, they advocated simple reforms such as embedding reflective prompts in essay assignments, requiring short process logs alongside presentations, or using peer feedback as part of group projects.

Practical Pathways for Redesign

Findings indicate that modest but deliberate shifts, such as introducing structured self-assessment checklists, mandating post-task reflections, and making rubrics dialogic tools, could transform assessment into a catalyst for metacognitive development. Rather than discarding existing formats, the emphasis should be on reframing tasks to reward process as well as product. The study identified five key findings that illuminate the relationship between assessment and metacognitive development in the ESP–Engineering module:

1. Metacognitive skills are implicitly present but not explicitly taught or assessed.
2. There is a marked gap between intended curriculum outcomes and the design of assessment tasks.

3. Feedback practices remain inconsistent, with rubrics underused as tools for self-regulation.
4. Alumni and lecturers alike call for formative, dialogic approaches that emphasize reflection, peer review, and self-assessment.
5. Institutional structures align with UTEL descriptors but lack mechanisms for evaluating process-oriented learning strategies essential for academic and professional growth.

Together, these findings are synthesized in Figure 3, which provides a comprehensive framework linking current limitations, alumni and teacher perspectives, and proposed reforms to the development of core metacognitive skills. The figure illustrates how institutional context, assessment practices, and re-engineered tasks converge to position planning, monitoring, and reflection as the foundation of metacognitive growth in EMI engineering contexts.

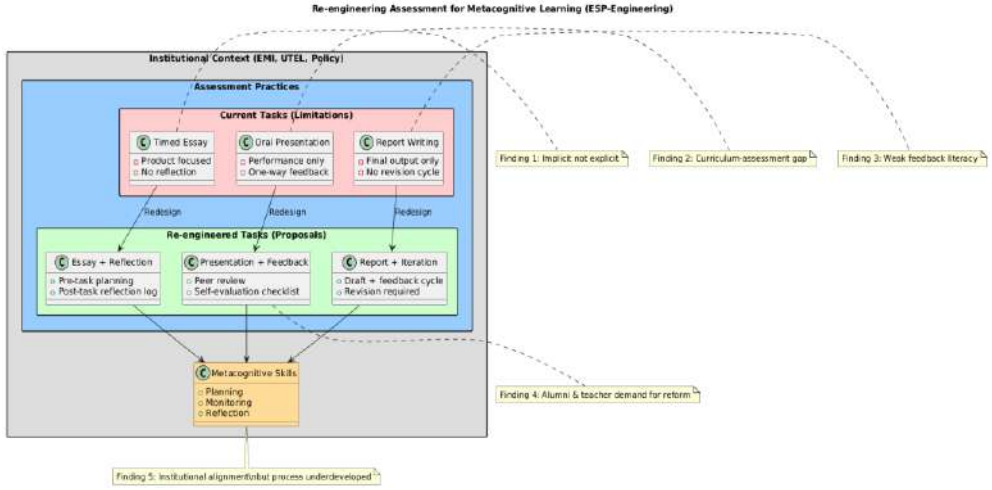

Figure 1. Integrated framework linking current practices, reforms, and metacognitive skills in ESP–Engineering

Conclusion

This study demonstrates that while the ESP–Engineering module at the University of Moratuwa aspires to support academic literacy and self-regulated learning, its assessment practices remain largely product-oriented, leaving the metacognitive potential of tasks underdeveloped. The findings highlight an urgent need to reframe assessment not merely as a measurement device but as a formative process that cultivates reflective, strategic, and autonomous learners.

Practical recommendations emerging from this research include embedding structured reflection prompts into assignments, incorporating self- and peer-assessment checklists, and designing rubrics that explicitly signal metacognitive expectations. Even modest redesigns, such as requiring students to document their planning processes alongside final submissions, could shift the culture of assessment toward learning as a dynamic, participatory activity. Teacher professional development in assessment literacy and institutional support for dialogic feedback practices are also critical if reforms are to be sustainable.

Looking forward, assessment in ESP–Engineering should be envisioned as a collaborative partnership between teachers and learners, where students are co-constructors of their learning trajectory. Such an approach not only prepares undergraduates for the linguistic and cognitive demands of EMI but also nurtures the adaptive, reflective competencies required in engineering professions. Future research will extend this study by incorporating student reflections and learner analytics to trace longitudinal growth in metacognitive awareness.

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Existing Level of Socio-Emotional Skills among Junior Secondary Students (Study Based on Kinniya Education Zone)

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Abstract

This study aims to investigate the current status of socio-emotional skills among junior secondary students across Grades 6-9 with a specific focus on identifying differences based on gender and age in the Kinniya Education Zone, to gain scientific knowledge that guides the students to become successful professionals. In the 21st century, students are required to be skilled and knowledgeable learners in their learning process from various aspects. Therefore, there is a need for the development of their desired social-emotional skills, such as self-awareness, self-management, social awareness, interpersonal relationship skills, and responsible decision-making, throughout their lifelong journey. In this regard, social-emotional skills are important to the students. For this study, 103 students were selected using the stratified random sampling technique according to the Krejcie-Morgan sample size method. Data collection tools, a questionnaire, and an interview were used to gather data. This study was designed as a descriptive survey with quantitative and qualitative data. This is considered mixed-method research. So the quantitative data were statistically analyzed using SPSS software, and qualitative data were analyzed thematically. This study's results indicate that socio-emotional skills among junior secondary students develop progressively with age, though gender-based differences appear in nuanced ways across specific domains and grades. Both boys and girls show significant advancement in responsible decision-making and self-management by Grade 9, reflecting the broader cognitive and emotional maturity characteristic of late adolescence. These findings highlight the importance of grade - and gender sensitive approaches in fostering socio-emotional skills learning throughout the junior secondary section.

Keywords: Status, socio emotional skills, junior secondary students

Introduction

In the 21st century, education systems across the globe are increasingly recognizing the importance of nurturing not only academic abilities but also social and emotional competencies among students. In Sri Lanka, junior secondary students. Children who are typically between the ages of 11 and 14 experience significant physical, emotional, and social changes. This transitional period often brings challenges such as peer pressure, academic stress, and identity formation. In such a context, the development of social emotional skills (SES) becomes essential for students to navigate daily life effectively and build resilience.

Sri Lanka is driven by a traditional education system that mainly focuses on academic performance, which predominantly assesses socio-emotional skills, leading to elitism and expecting them to be among the best, which is synonymous with success, power, and money. In this backdrop, assessing the level of their socio-emotional skills will shed light on their emotional preparedness for becoming future socially responsible adults. Also, identifying the factors associated with such socio-emotional skills will enable the policy makers and educationists to revisit the school curricula to suit children of the modern world. Although studies have been done on this topic in various countries, only a few studies have been carried out in Sri Lanka on the magnitude and associated factors of socio-emotional skills among junior secondary level students (Lankashini et al., 2017). This study aimed to describe the level of socio-emotional skills among junior secondary students in Sri Lanka and to identify their relationship with their academic performances.

Social-emotional skills encompass self-awareness, emotional regulation, empathy, interpersonal skills, and responsible decision-making. These competencies are vital for students' personal well-being, academic engagement, and successful social interactions. In Sri Lanka, although the National Education Commission and Ministry of Education have taken steps to promote child-friendly and holistic education, the integration of structured Social Emotional Learning (SEL) programs into the school curriculum remains limited (Ministry of Education, 2022).

Furthermore, there is a noticeable gap in empirical research regarding the existing status of SES among junior secondary students in the school system. Many schools prioritize academic performance over emotional development, which can lead to increased behavioural issues, poor peer relationships, and mental health concerns among adolescents. A deeper understanding of the current level of social-emotional skills among this age group is necessary to inform evidence-based intervention and curriculum reforms (Dumbuya, 2025). By assessing the current state of social-emotional skills among junior secondary students in the Kinniya Education Zone, educators and policymakers can better design and implement effective strategies to support holistic development. This research aims to fill this gap and contribute to the growing recognition of social-emotional skills (SES) as a fundamental component of education in the Sri Lankan context.

Social and emotional skills encompass a range of abilities, including self-regulation, empathy, communication, and problem-solving, which are crucial for building positive relationships, managing emotions, and navigating social environments. Research has consistently demonstrated that high-quality school education programs can effectively promote social and emotional development in young children (Premarathna, 2023). These programs provide structured learning environments that facilitate social interactions, emotional expression, and the development of pro-social behaviours.

The primary goal of school is to ensure that each student achieves the fullest possible development to live morally, artistically, and effectively in a society (Sloan on ASCD, 2012). Development among students should be the foremost focus of the school. During face-to-face classes, teachers use a variety of teaching strategies to train and develop students, especially their emotional well-being. In the past, students' grades and test scores were the key measures of educational success. But after, it was measured by some of the following indexes. Such as getting skills, pursuing goals, understanding and managing emotions, dealing with setbacks, showing empathy, collaborating, and engaging in positive social relationships. They lead to good decision-making in a critical situation. It is also preventing them from accessing the basic supports that schools provide, such as organizing recreation and face-to-face contact with teachers and friends, which is critical for social-emotional skills development. Even though they have an effect on the students who are in lower and average levels in their educational and socio-emotional development (Garcia and Weiss, 2021)

The need for Social and Emotional skills (SES) for student development and academic achievement has long been recognized. But the lack of students' social-emotional skills development has highlighted the need to emphasize its importance. Social-Emotional skills (SES) are a behavioural paradigm that incorporates various skills that determine academic and life success. Over the past two decades, the model has demonstrated its effectiveness in schools, yielding benefits such as improved academic performance, reduced disciplinary incidents, and greater student awareness and understanding of emotional regulation (Ducharme, 2020).

Social-emotional skills encompass self-awareness, emotional regulation, empathy, interpersonal skills, and responsible decision-making. These competencies are essential for students' personal well-being, academic engagement, and successful social interactions. Therefore, this study was carried out to know the status of the social-emotional skills of junior secondary students of the school in Kinniya Education Zone.

Literature Review

Socio-emotional skills at school have been mainly explored in the framework of social and emotional skills (SES), which organizes social and emotional skills around five types of skills: self and social awareness, self-management, relationship skills, and responsible decision-making (Jones and Doolittle, 2017). High-quality teacher-student relationships established in education and care group settings provide a meaningful context for nurturing students' socio-emotional competencies (Leal & Guedes, 2016).

A successful childhood is the foundation of a successful life. It is not enough to focus only on academics, but it is also crucial to have rich social and emotional skills in a child to be a respected citizen of the country in the future (Lankadari & Rodrigo, 2021). Students can develop the socio-emotional skills according to their preferences. This kind of intelligence exists in humans, but it is a challenge for artificial intelligence and machines to reach that level, even though artificial intelligence can benefit students in developing their socio-emotional skills (Ginige et al., 2014).

There are significant gender differences in social-emotional skills development among students, in which male children have significantly higher learning behaviour than female students. Even though male and female students do not have significantly different global social emotional intelligence, gender does not considerably influence various dimensions of social emotional intelligence, namely, identification of emotions, assimilation of emotions, understanding of emotions, and regulation of emotions (Mokhlesi & Patil, 2018). Despite the importance of socio-emotional skills for both males and females, the challenges, variations, and situations they face are not the same, especially during junior secondary level (Kågesten et al., 2016). This might lead to differing development of social emotional skills that could be highlighted by mean differences in social emotional skills at different ages (For Example, males show higher/lower scores than females) but also by differences in the cross-sectional trajectories of social emotional skills between 11 to 14 years old (For Example, the slope/trajectory of social emotional skills varies between the two genders). In particular, gender differences might emerge from sources of variation, including genetic, biological, and hormonal differences, but also from the cultural and social environment they are exposed to. For example, an environment might frame women as more prone to social interactions than men, which can induce males and females to engage differently in social and cultural activities, such as sports, arts, or volunteering (Feraco and Meneghetti 2022; Ristori et al. 2020; Sawyer et al. 2018). In other words, if females engage less in team sports activities, they might develop less effective cooperation skills than males if participating in team sports increases cooperation skills. These suggestions are corroborated by findings that show that females outperform males in emotion recognition abilities, prosocial behaviours, empathy, and responsible decision-making (Allemand et al. 2015; Ross et al. 2019; Van der Graaff et al. 2014; Wright et al. 2018)

Garcia-Rodriguez et al (2020). Conducted a systematic review of 24 studies over the last ten years, focusing on students aged 11-14 and their teachers, and revealed significant associations between teacher-student relationship quality and students' outcomes such as school liking, peer acceptance, self-concept, emotional regulation, and externalizing and internalizing behavior. Additionally, students who had low levels of closeness with their teachers showed higher levels of externalizing and internalizing behavior problems in schools. Other studies have also provided evidence that teacher-student closeness serves a protective function for children to develop their socio-emotional skills and behaviors. For example, higher levels of teacher-student closeness were associated with better social, emotional, and behavioral classroom adjustment among students receiving special knowledge and skills (Garcia-Rodriguez, Redin & Abaitua, 2022).

Cadima et al. (2016) also found that closer teacher-student relationships improved social self-regulation among junior secondary students who were economically disadvantaged. Moreover, Acar et al. (2020) suggested that for junior secondary school students with high levels of shyness,

an increase in teacher-student closeness was associated with improved social competence ratings. Note that most previous studies have only examined the relationship between teacher-student closeness and children's socio-emotional competencies among students attending schools. Given the pivotal role of teachers as primary caregivers in educational settings, further research is warranted to deepen our understanding of how teacher–student closeness influences the development of students' socio-emotional competencies throughout the learning process.

Aim of the Study

Investigate the current status of socio-emotional skills among junior secondary students across Grades 6-9 with a specific focus on identifying differences based on gender and age.

Objectives

The main objectives of this study were

1. To identify the differences in socio-emotional skills among junior secondary students based on gender.
2. To explore the relationship between social-emotional skills and students' age level.
3. To suggest appropriate strategies to enhance socio-emotional skills among junior secondary students.

Methodology

Research design

A descriptive survey design was adopted to determine the status of social-emotional skills among the population and junior secondary students, as the population is increasing, and the study objectives are designed to obtain quantitative data. This is a survey method study, as quantitative and qualitative data were collected and analysed. The main objective is to present accurate information completely and accurately. The sample for the study is selected based on the nature of the population, the nature of the study, and the amount of data required. Based on this, 73.5**%** (out of the 140) junior secondary section students were selected using a stratified sampling method from 1AB, 1C, and Type II schools in the Kinniya Education Zone.

When selecting samples for the study, students in each class in the junior secondary section were selected as the study samples based on stratified sampling. Table 1 illustrates the population and sampling.

Table 1

Population and Sample

No	Grade	Population	%	Sample		
1	Grade - 6	20	73.5**%**	15	**M** 9	**F** 6
2	Grade - 7	30	73.5**%**	22	**M** 14	**F** 8
3	Grade - 8	40	73.5**%**	29	**M** 19	**F** 10
4	Grade - 9	50	73.5**%**	37	**M** 24	**F** 13
	Total	140	73.5**%**	103	**M** 66	**F** 37

Questionnaires and interviews were used as data collection tools to collect data for the study. Accordingly, a questionnaire was prepared for students to obtain data from the students, and an interview questionnaire was also prepared to obtain data from teachers for the study.

Findings

According to the data obtained from the student questionnaire, 64% of the respondents were boys and 36% were girls. The group of junior secondary students was divided to collect the data from Type of school 1AB, 1C, and Type II. The data were analysed using SPSS, and their mean and standard deviation were described in a table 2.

Table 2

Differences in socio-emotional skills among junior secondary students based on gender

Socio-Emotional Skills	Grade	Gender	Mean	Standard Deviation
	6	Male	4.17	1.58
Self-Awareness	6	Female	4.23	2.01
Self-Management	7	Male	4.59	1.46
Social Awareness	7	Female	4.07	1.67
Relationship Skills	8	Male	4.82	1.66
Responsible Decision Making	8	Female	4.44	1.40
	9	Male	5.02	1.67
	9	Female	4.67	1.71

Male students tend to report greater self-awareness, especially as they age. Female students showing moderate awareness exhibit lower confidence and higher disagreement in describing their skills. Items related to Introspection (SA2, SA3) are notably more difficult for female students, with increasing neutral or negative responses from grade 6 to 9. In self-management, gender based differences are evident, particularly in grades 7 and 9. Where females showed stronger emotional regulation and planning skills. Male students reported slightly better performance under pressure (SM10) in older grades. Indicating resilience during challenges. Social awareness of female students in early grades (Especially Grade 6) showed stronger social empathy and fairness awareness. In higher grades, gender differences narrow, indicating a more balanced development of social awareness across both groups. While boys tend to exhibit stronger relationship skills in Grade 6, girls match or slightly surpass them in Grades 7 and 8, particularly in areas such as trustworthiness and collaboration. By Grade 9, boys appear to regain or slightly exceed girls in expressing opinions, honesty, and group collaboration. Overall, gender-based differences are minimal, with both boys and girls demonstrating relatively balanced relationship skills. Across grades, gender differences are minimal but show small patterns. Boys lean more toward independent and peer-based decision-making. Girls score better on reflective thinking and considering impacts, particularly in Grades 7 - 8. Grade 9 boys show the highest responsibility indicators, suggesting increased maturity and confidence.

Table 3

The relationship between social-emotional skills and students' age level

Socio Emotional Skills	Grade	Age	Overall Mean	Overall Standard Deviation
Self-Awareness			4.50	1.76
Self-Management			4.89	1.77
Social Awareness	6-9	11-14	5.11	1.58
Relationship Skills			5.23	1.46
Responsible Decision Making			4.91	1.39

Self-awareness improves steadily with age, particularly in values and beliefs recognition, understanding the influence of socio-emotional skills on actions, and confidence. Students in Grade 9 consistently show the highest levels of self-awareness. Grades 6 -7 show a learning curve, with many students still developing reflection and self-concept clarity. Self-management develops with age, aligning with cognitive maturity. Emotional control and stress handling improve significantly from Grade 6 to 9, especially among girls. The ability to act under pressure strengthens more among boys in older grades. Social awareness follows a U-shaped trend. High in Grade 6 (early social values instilled), Lower in Grades 7 - 8 (transitional adolescence), rising again in Grade 9 as cognitive maturity improves. This suggests a positive correlation with age, though temporary dips occur due to adolescent development.

Relationship skills improve with age, though Grade 8 marks a transitional dip as students navigate more complex social dynamics. Grade 9 students, especially boys, exhibit a stronger ability to collaborate, express respectfully, and maintain friendships indicative of growing maturity. Girls consistently perform steadily across all grades, with fewer fluctuations. Developmentally, students grow significantly in responsible decision-making as they age. Grade 9 students demonstrate stronger critical thinking, peer engagement, and ethical reflection. This aligns with cognitive maturation and social awareness gains in late adolescence.

Table 4

Teacher perception and Practices in Developing Socio-Emotional Skills among junior secondary students

S.No	Item
1	Are you aware of the importance of socio-emotional skills for student growth?
2	Do you agree that Socio-emotional skills directly impact students' academic performance?
3	Do you use classroom activities to help students reflect on their emotions and behaviour?
4	Would you like more training in how to teach socio-emotional skills?
5	Are you integrating SEL concepts into your regular teaching plan?
6	Does your school provide adequate support for implementing SEL practices?
7	Have you received any training or participated in workshops on socio-emotional learning?
8	To what extent do time constraints make it difficult for you to focus on socio-emotional learning (SEL) activities in the classroom?
9	To what extent does a lack of parental involvement limit the development of SEL in students?
10	To what extent do you agree with the statement that SEL should be formally included in the school curriculum?

According to the data obtained from interviews with teachers, most of the teachers reported a strong understanding of socio-emotional skills and their impact on students' learning. While teachers generally apply socio-emotional skills learning practices in classrooms. Practical implementation varies, especially in empathy and decision-making activities. Teachers moderately recognize differences in socio-emotional skills development between genders and across grade levels. Responses indicate challenges such as a lack of time, limited training, and insufficient parental involvement. There is a strong consensus among teachers on the need for structured socio-emotional skills learning programs and further training.

Conclusion

The analysis reveals that socio-emotional skills among junior secondary students develop progressively with age, though gender-based differences appear in nuanced ways across specific domains and grades. Male students generally exhibit increasing self-awareness and resilience under pressure as they mature, while female students demonstrate stronger emotional regulation, planning, and reflective decision-making, particularly in middle grades. Social and relationship skills show more balanced growth across genders, with fluctuations aligning with key transitional periods such as Grade 8. Overall, both boys and girls show significant advancement in responsible decision-making and self-management by Grade 9, reflecting the broader cognitive and emotional maturity characteristic of late adolescence. These findings highlight the importance of grade - and gender sensitive approaches in fostering socio-emotional learning throughout the junior secondary students.

Recommendations

To effectively develop socio-emotional skills (SES) among students, interventions should be age-appropriate, reflecting developmental stages. For Grades 6–7, programs should focus on building foundational self-awareness and emotional regulation, while Grades 8–9 should emphasize advanced skills such as ethical reasoning, decision-making, and peer collaboration.

Gender-specific support is recommended: female students should receive guidance to build confidence and self-concept clarity, particularly in introspective areas, whereas male students should be supported in emotional regulation and planning skills during early adolescence. Reflective practices should be integrated to help all students understand their values and emotional patterns, with teachers trained to facilitate discussions around self-concept and personal growth.

Group work and peer projects should be promoted to enhance relationship skills and reduce gender stereotypes, ensuring balanced roles and opportunities for all students. Additional support is particularly important during transitional years (e.g., Grade 8), complemented by mentoring programs or peer-support systems.

Real-life decision-making tasks, such as student councils or service-learning projects, should be included, along with reflective discussions to link choices with consequences. Professional development for educators is crucial to understand socio-emotional trends by age and gender and to create inclusive, emotionally safe classrooms. Finally, periodic assessments of socio-emotional skills should be conducted, with data disaggregated by gender and grade to inform instructional adjustments and targeted interventions.

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Global Perspectives on School-Based Assessment (SBA): A Systematic Review of Practices and Challenges

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Abstract

This systematic review explores the implementation, philosophical foundations, methodologies, and challenges of School-Based Assessment (SBA) across 12 diverse educational contexts, including Finland, Canada, New Zealand, Hong Kong, Singapore, South Africa, the Caribbean, Australia, Malaysia, China, the United States, and Sri Lanka. Drawing from policy documents, empirical research, and academic literature, the study reveals that SBA has emerged as a global educational reform strategy aimed at promoting student-centered learning, formative assessment, and holistic evaluation. The review categorizes SBA systems according to underlying philosophies—such as constructivist and learner-centered models prevalent in Western nations versus the standardized, centralized frameworks dominant in many Asian countries. Despite these variations, SBA is universally acknowledged for its potential to foster deep learning, intrinsic motivation, and meaningful student engagement. However, implementation is hindered by shared challenges, including high teacher workload, limited assessment literacy, insufficient training, and the difficulty of achieving consistency in assessment practices. A comparative analysis of 48 key publications from 12 countries using a PRISMA-style approach reveals both commonalities and regional differences in School-Based Assessment (SBA), providing a structured foundation for global policy development. Recommendations emphasise the importance of capacity-building, ongoing moderation, and integrated policy support to guarantee successful and equitable implementation, thereby enabling SBA to fully enhance student-centered learning.

Keywords: School-Based Assessment, formative assessment, global educational reform, PRISMA-style approach, philosophical foundations, methodologies, and challenges

Introduction

School-Based Assessment (SBA) is an innovative and flexible method for evaluating students in schools, allowing for actual, formative, and ongoing assessments that align with students' learning and curricular goals. SBA has emerged as a significant strategy to modernize education and develop 21st-century skills like critical thinking, creativity, and teamwork. However, the implementation of SBA varies across different areas due to differences in educational policy, socio-cultural context, and teacher training. This comprehensive research aims to identify best practices, impediments, and possibilities related to SBA adoption, focusing on experiences from twelve different countries. SBA is a formative and performance-oriented alternative to traditional high-stakes examinations, developed to align assessment with real-world skills and learning objectives for the 21st century. It emphasizes continuous evaluation, authenticity, and student agency in the learning process. The study aims to investigate the influence of various educational philosophies and system structures on SBA practices, identify universal obstacles, and suggest policy solutions on a global scale. SBA encourages authentic, continuous, and relevant examination processes, but many poor countries, such as Sri Lanka, face significant obstacles in realizing its promise. Despite countries with high incomes, such as Finland, Canada, and Australia, incorporating the SBA into their national assessment policies, Sri Lanka faces significant challenges in implementing it.

Despite the widespread adoption of School-Based Assessment (SBA) across the world, the academic literature does not provide any systematic and profound reviews of it, which would critically examine its philosophical foundations and practical implementation problems. The majority of studies are inclined to concentrate on the efficiency of SBA in specific countries or in

definite schools, and few attempts are made to compare the results in a meaningful cross-context with another setting. These analyses are essential, not only in that they help to clarify the theoretical underpinnings, such as constructivist or competency-based learning models, on which SBA is based, but also reveal the situational barriers and practical difficulties of the problem. These issues are the preparedness of the teachers, resources, assessment literacy, and policy congruity.

The research aims to analyze Sri Lanka's history and present trajectory in implementing SBA into its educational framework and provide a comprehensive review of various SBA techniques being implemented globally.

Literature Review

School-Based Assessment (SBA) has been widely adopted across educational systems globally, driven by philosophies emphasizing constructivism, learner-centered pedagogy, and formative evaluation. Countries such as Finland have institutionalized SBA through formative feedback, portfolio assessments, and strong teacher autonomy, fostering deep learning and student ownership (Sahlberg, 2011). Similarly, Canada's "Growing Success" policy promotes individualized and reflective assessment strategies to cater to diverse learner needs (Ontario Ministry of Education, 2010; Earl & Katz, 2002).

And also, New Zealand's NCEA framework connects SBA with national qualifications through curriculum-aligned tasks, encouraging self-regulation and inquiry (NZQA, 2023; Hipkins & Vaughan, 2019). In Hong Kong, SBA is integrated within the high-stakes HKDSE examination system through inquiry-based and project work methods, supported by structured training and moderation (Carless et al., 2011; Tong & Adamson, 2015). Singapore, known for innovation-based education, employs SBA via frameworks like Project Work and Design Thinking (MOE, 2020).

Also, South Africa's Continuous Assessment System (CASS) uses SBA to address educational equity but faces infrastructure and training challenges (Chisholm & Leyendecker, 2007; Sayed et al., 2013). The Caribbean region has advanced digital SBA through the CXC system, strengthening authentic learning and teacher-student engagement, especially after COVID-19 (Evans, 2021; Issaka et al., 2020). Australia integrates SBA into high school assessments under the HSC and SACE boards, balancing formative and summative assessments with strong moderation (Klenowski, 2011; NESIA, 2023).

But, in Malaysia, the Pentaksiran Berasaskan Sekolah (PBS) model promotes a hybrid approach combining psychometric, co-curricular, and formative assessments. However, initial implementation challenges led to revisions under PBS 2.0 to enhance training and tool support (Zakaria et al., 2024). China's SBA reforms emphasize reflective learning and soft skills but face rural-urban disparities (Tan, 2016; Deneen & Hoo, 2021). The United States, with decentralized education policy, implements SBA through portfolio and performance assessments in models like NYPSC, aimed at civic engagement and deeper learning (Brookhart, 2013a; Fine et al., 2020).

In contrast, Sri Lanka officially introduced SBA in 1998 (MOE, circular, 1998/45) following foundational reform movements dating back to the Handessa scheme of 1945 (Aturupane & Little, 2019). Despite multiple policy circulars (1998/45, 2001/23, 2017/23) and a comprehensive framework of 31 assessment types, actual implementation faces persistent barriers. These include limited teacher assessment literacy (Weerakoon, 2025), over-reliance on summative exams (Senarath, 2020), inadequate infrastructure (NEC, 2016), and domination of classroom practices by lower-order assessments (Abayasekara & Arunatilake, 2018; Edussuriya et al., 2018). Moreover, Sri Lanka's curricular reforms have not fully embraced 21st-century assessment principles such as authentic rubrics and higher-order thinking evaluation (Hapugoda & Kulasekara, 2024). The absence of validated SBA tools, weak moderation systems, and a lack of community awareness

further widen the gap between policy and practice (Perera et al., 2020; UNESCO, 2022). While the Ministry of Education has provided SBA guideline handbooks, training inadequacies and administrative burdens have undermined their effective use (Circular No. 2003/13; 2017/23). Scholars advocate for realigning SBA with the broader goals of national education transformation (Sachith & Niroshinie, 2025).

Across all reviewed contexts, countries with successful SBA systems share several key features:

- Comprehensive and sustained teacher professional development
- Clearly defined assessment rubrics and feedback structures
- Robust moderation and quality assurance mechanisms
- Student participation in assessment through self and peer evaluation

But, Sri Lanka's limited progress is attributed to:

- The absence of validated and standardized SBA tools (Perera et al., 2020)
- Persistent exam-centric mindsets in schools and among parents (Senarath, 2020)
- Teacher resistance to new assessment paradigms (NEC, 2016)
- Increased workload for teachers, inconsistent implementation across schools, lack of professional development, and Low parental and community trust in SBA mechanisms (Sachith & Niroshinie, 2025)

To move forward, the literature recommends the development of contextually validated SBA tools, alignment of SBA with the formative curriculum, capacity-building for educators and administrators, and national-level awareness campaigns to build confidence in SBA as a valid measure of student learning.

Methodology

This systematic literature review aimed to synthesize global and local literature on School-Based Assessment (SBA) practices, following the PRISMA guidelines. The review process involved four steps: identification, screening, eligibility, and inclusion. Key components included a comprehensive search across various academic and policy-related databases, such as ERIC, JSTOR, Google Ads for Professionals, and repositories managed by the government and institutions. The search keywords included "School-Based Assessment," "Formative Assessment," "Portfolio Assessment," "continuous assessment," and "performance-based assessment." The inclusion criteria included articles published in academic journals, policy briefs, reports produced by the government, and dissertations reviewed by another peer.

An internal quality rating grid was used to assess each selected study's methodological rigor, policy relevance, and contextual clarity. A framework for analytical considerations and coding based on individual themes was used, using a method known as theme analysis. A thorough coding approach was used to identify recurring concepts and patterns, which were then classified into five categories: assessment philosophy, methods of assessment, teacher responsibilities and role, challenges, and policy-level interventions.

To find patterns, differences, and policy ramifications, each topic was researched in-depth across countries, resulting in a comparative framework relevant across different countries. Procedures were carried out to verify the provenance of documents, evaluate the publication's legitimacy, double-code themes, and validate results unique to each nation through at least two trustworthy sources. A PRISMA flow diagram was developed to provide a visual representation of the selection process, and a comparative summary table was prepared to compare and contrast different aspects of SBA implementation among the twelve countries studied in this study. PRISMA Summary Table of SBA Implementation is shown below in Table 3.1.

Table 1
PRISMA Summary Table of SBA Implementation

Country	Philosophy	Assessment Methods	Teacher Role	Challenges	Moderation System	Key Features
Finland	Constructivist	Project work, portfolios	High autonomy, Trained in assessment literacy	None significant	Minimal moderation	Emphasis on teacher autonomy
Canada	Student-centered	Formative tasks, peer/self eval	Customized feedback, Ongoing training	Varies by province	Provincial variation	Flexible models; strong emphasis on equity
New Zealand	Competency-based	NCEA, internal assessments	Design curriculum-aligned tasks	Moderation consistency	External moderation	Clear links to curriculum competencies
Hong Kong	Standards-driven	SBA tied to DSE exams	Responsible for detailed assessment	Teacher workload, Implementation gap	Strong moderation	Integrated into high-stakes assessment
Singapore	Hybrid	Oral tasks, project work	Integrated with MOE-SEAB moderation	Workload, Neutrality	Internal + external	High-performing, systematized teacher PD
South Africa	Equity-focused	Continuous assessment	Track learner progress, Resource-constrained	Class size, Training, Resources	Cluster moderation	Overcomes exam-centric legacy system
Caribbean	Moderated SBA	CAPE SBA projects	CXC guidelines, Moderate responsibilities	Workload, Feedback time	Regional moderation	Structured regional frameworks
Australia	Outcome-based	Projects, reflective tasks	State-guided, Moderated	Standardization, Workload	State-based moderation	Flexible implementation across states
Malaysia	Centralized	Oral, written, and observation	Use the SPPBS system, Trained regularly	Tech issues, Teacher confidence	National moderation	Phased SBA integration; limited teacher agency
China	Nationally-driven	Task banks, behavioral rubrics	BEQMS-monitored, varies by region	Exam-centered culture, Standardization	Local + central checks	Reforming exam-centric tradition
USA	Standards-based	Portfolio, digital assessments	Formative-driven, Diverse by state	Policy variance, Resource gaps	School/district level	Diversity across states; equity concerns
Sri Lanka	Exam-reduction	Continuous, unit-based	Formative Assessment Facilitator, Record Keeping and Reporting	High teacher-pupil ratios, Limited training in assessment literacy.	Limited moderation	Early stages of SBA institutionalization

Results and Discussion

Assessment Philosophy and Methods

Schools of Business Administration (SBA) in nations such as Finland, Canada, New Zealand, and Singapore are founded on constructivist and student-centred ideologies that promote active learning and learner autonomy (Sahlberg, 2011; Earl & Katz, 2002). Educational approaches such as project-based learning (PBL), performance tasks, portfolio evaluations, and reflective diaries are commonly utilized to enhance students' critical thinking and engagement (Brookhart, 2013a; NZQA, 2023).

Finland and New Zealand place a strong emphasis on formative feedback, personalized learning pathways, and curriculum-aligned tasks, which enable students to regulate their learning and receive continuous support (Sahlberg, 2011; Hipkins & Vaughan, 2019). In contrast, countries like Singapore and Hong Kong have adopted more structured and standardized SBA formats tied closely to national examinations, often focusing on subject-specific assessments and rigorous moderation (Tan & Ng, 2020; Carless et al., 2011; Tong & Adamson, 2015).

At the same time, countries like China and Malaysia are moving away from systems focused only on exams to more mixed assessment models that include psychological testing, evaluations of extracurricular activities, and lessons on morals and values. These changes reflect a growing commitment to aligning assessment practices with 21st-century learning needs and national identity goals.

Role of Teachers and Moderation

Teachers are central to SBA implementation, as they are responsible for designing assessment tasks, delivering timely feedback, guiding student reflection, and recording learning progress (Brookhart, 2013a; Earl & Katz, 2002). In countries such as Canada and Australia, this role is supported through structured training programs and moderation frameworks, allowing teachers to assess with confidence and consistency (Klenowski, 2011; Ontario Ministry of Education, 2010; ACARA, 2020).

Moderation mechanisms play a vital role in ensuring inter-school reliability and fairness. For example, New Zealand's NZQA implements rigorous teacher moderation and professional judgment verification (Hipkins & Vaughan, 2019; NZQA, 2023). Similarly, Singapore's SEAB and South Africa's Umalusi enforce national quality assurance processes through benchmarking, marking schemes, and cross-school moderation practices (MOE, 2020; Sayed & Kanjee, 2013).

However, in countries such as Sri Lanka and China, gaps in teacher training, limited exposure to formative assessment strategies, and a lack of effective moderation structures hinder the full realization of SBA's potential (Perera et al., 2020; Deneen & Hoo, 2021; NEC, 2016; Weerakoon, 2025). Without reliable moderation, disparities across schools and regions undermine assessment equity and validity.

Challenges

Across diverse educational contexts, challenges to effective SBA implementation are often linked to excessive teacher workload, limited assessment literacy, inequitable resource allocation, and policy-practice misalignment (Klenowski, 2011; NEC, 2016; Earl & Katz, 2002; Sachith & Niroshinie, 2025). These systemic issues reduce teachers' capacity to design meaningful assessments and offer timely feedback, undermining the core objectives of formative and student-centred evaluation.

In developing countries, additional structural limitations compound these problems. The digital divide, insufficient technological infrastructure, and large class sizes act as significant

obstacles to equitable SBA deployment, particularly in under-resourced rural areas (Sayed & Kanjee, 2013; UNESCO, 2022; Zakaria et al., 2024).

The credibility of SBA has been particularly vulnerable in nations such as South Africa and Sri Lanka, where inconsistent implementation and lack of standardization have led to stakeholder mistrust and accountability issues (Perera et al., 2020; Weerakoon, 2025; Chisholm & Leyendecker, 2007). These examples highlight the critical need for robust monitoring, moderation mechanisms, and continuous professional support to maintain the integrity and reliability of school-based assessment systems.

Technological Integration and Innovation

The COVID-19 pandemic served as a critical inflection point, accelerating the digital transformation of School-Based Assessment (SBA) systems across the globe (UNESCO, 2022; Evans, 2021). Countries such as the United States, Australia, and Caribbean nations adopted digital tools like e-portfolios, Google Classroom, and virtual feedback platforms to maintain instructional continuity and formative assessment (Brookhart, 2020; ACARA, 2020; Issaka et al., 2020).

To address educational challenges, Malaysia and China created hybrid SBA models that mixed traditional tests with information about students' emotions and moral thinking (Mahmud et al., 2020; Tan, 2020; Zakaria et al., 2024; Deneen & Hoo, 2021). These models aimed to support holistic learning and well-rounded student development.

Even with these new approaches, there is still a big problem with digital inequality, particularly in rural and poorly funded schools, where issues like poor infrastructure, lack of internet access, and insufficient teacher training make it hard for digital SBA tools to work well) UNESCO, 2022; Weerakoon, 2025; Perera et al., (2020. This points out the need for equitable digital investment and policy mechanisms to bridge the digital divide and ensure inclusivity in post-pandemic assessment reforms.

Policy and Recommendations

Effective SBA (School-Based Assessment) systems are underpinned by clear national policy frameworks, comprehensive teacher training, and stakeholder engagement mechanisms (Earl & Katz, 2002; OECD, 2013). Countries such as Finland, New Zealand, and Singapore demonstrate that successful SBA depends on aligning assessment practices with pedagogical goals while offering institutional support structures such as continuous professional development and robust moderation (Sahlberg, 2011; Hipkins & Vaughan, 2019; Tan & Ng, 2020).

For Sri Lanka, the review recommends a multi-pronged strategy to enhance SBA credibility and effectiveness. First, the development of validated and reliable SBA tools is essential to reduce inconsistency and increase standardization (Perera et al., 2020). Second, moderation mechanisms must be strengthened to ensure inter-school equity and fairness in grading (NEC, 2016; Weerakoon, 2025). Third, ongoing teacher professional development in formative assessment principles, rubrics, and feedback strategies is necessary to build assessment literacy (Abayasekara & Arunatilake, 2018; Brookhart, 2013a).

Lastly, the integration of SBA into Sri Lanka's national education policy must be done with institutional clarity, clear role definitions, and sustained policy commitment to ensure alignment across curricular, assessment, and accountability domains (Sachith & Niroshinie, 2025; UNESCO, 2022).

Conclusion

Globally, School-Based Assessment (SBA) is increasingly recognized as a flexible and context-sensitive tool for evaluating student learning in a manner that is holistic, authentic, and inclusive (OECD, 2013; Brookhart, 2013a). Rooted in constructivist and formative paradigms, SBA

empowers learners to engage meaningfully with content through reflection, feedback, and performance-based tasks (Earl & Katz, 2002; Hipkins & Vaughan, 2019). It is not only a method of assessment but also a pedagogical tool that supports deep learning, metacognition, and self-regulation (Sahlberg, 2011; Tan & Ng, 2020).

Despite differences in socioeconomic and educational contexts, recurring themes emerge globally—most notably, the critical role of teacher preparedness, policy coherence, and systemic institutional support (Klenowski, 2011; UNESCO, 2022). Successful examples from Finland, New Zealand, and Singapore illustrate that when SBA is embedded within national curricula, supported by robust moderation systems, and complemented with sustained professional development, it enhances both equity and learning outcomes (Sahlberg, 2011; Hipkins & Vaughan, 2019; MOE, 2020).

Conversely, nations like Sri Lanka, South Africa, and China reveal how implementation gaps, such as insufficient teacher training, weak infrastructure, and policy-practice disconnects, continue to undermine the full potential of SBA (Perera et al., 2020; Deneen & Hoo, 2021; Sayed & Kanjee, 2013; Weerakoon, 2025; Sachith & Niroshinie, 2025). These challenges call for targeted reforms, particularly in the areas of assessment literacy, tool validation, and digital equity, especially in rural and underserved areas (UNESCO, 2022; Zakaria et al., 2024).

As education systems globally move beyond the limitations of high-stakes, summative examinations, SBA presents a promising pathway for cultivating lifelong learners, critical thinkers, and adaptive citizens for the 21st century (Brookhart, 2020; ACARA, 2020). Its emphasis on learner agency, formative feedback, and real-world applicability aligns with the evolving demands of modern economies and democratic societies.

Future research should focus on longitudinal studies that evaluate the sustained impact of SBA on academic performance, student well-being, and post-school outcomes. Moreover, cross-national comparative studies are needed to identify effective models of SBA implementation and scalability across diverse educational systems, including those in low- and middle-income countries.

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Early Human Communication: Modes of Knowledge Transmission in Sri Lanka

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Abstract

Communication is a fundamental human practice essential for the exchange of information and the transmission of knowledge. This study investigates the evolution of knowledge transmission in prehistoric Sri Lanka, with particular emphasis on the development of educational practices during the earliest periods of human settlement. Focusing on pre-modern educational systems, it examines how communication methods and mechanisms of knowledge dissemination evolved alongside cognitive and social transformations, particularly during the era of the Balangoda Man. The study is guided by the central research question: "How was knowledge transmitted among prehistoric human communities in Sri Lanka?" It aims to identify and analyze the mechanisms of educational practices through archaeological and anthropological evidence. The main aim of this study was to identify the modes of knowledge transmission among early humans in Sri Lanka. The research adopts an interpretivist methodological framework, drawing primarily from archaeological sources, including cave paintings, tools, and hunting implements that offer insights into subsistence strategies, social organization, and communal learning practices. Supplementary approaches such as linguistic archaeology, symbolic analysis, and cultural anthropology are employed to interpret oral traditions and experiential learning. Furthermore, the study integrates an analysis of technological evolution to trace the intergenerational transmission of practical skills. Findings indicate that knowledge in prehistoric Sri Lanka was transmitted through three principal systems: practical skill education (e.g., hunting and toolmaking), symbolic communication (e.g., rock art), and collaborative group activities that promoted social cohesion and environmental adaptation. As societies transitioned into the Neolithic era, educational practices became more sophisticated, eventually laying the foundation for subject-specific and formal education systems. This research contributes to educational anthropology, cultural evolution studies, and indigenous knowledge discourse, offering perspectives for both contemporary educational reform and the preservation of Sri Lanka's cultural heritage.

***Keywords*:** Prehistoric education, knowledge transmission, oral tradition, Balangoda man, cultural transmission

Introduction

Since the beginning of human civilization, sharing knowledge has been key to human survival and development. As societies became more organized, educational systems began to form, enabling the transmission of essential knowledge across generations. In Sri Lanka, archaeological findings suggest that such processes began during the prehistoric period (Deraniyagala, 1992), which marks the earliest phase of human settlement and cultural development in the region.

Despite the absence of written language, prehistoric communities developed effective strategies for transmitting essential knowledge, such as hunting techniques, plant-based medicine, and tool-making through oral traditions, demonstration, and imitation (Donald, 1991). These forms of education were instrumental in facilitating environmental adaptation and communal survival strategies. For instance, findings from Batadomba-lena and Fa-Hien caves suggest structured habitation patterns and the use of symbolic tools, implying complex communication (Kennedy and Deraniyagala, 1989). These reinforce the hypothesis that prehistoric communities in Sri Lanka employed intentional modes of knowledge sharing. This study seeks to examine how knowledge was transmitted and preserved in prehistoric Sri Lanka, focusing on methods such as oral storytelling, symbolic communication, and practical demonstration. By understanding these

mechanisms, we gain insights into the origins of educational practices and social organization in early human communities.

Research Problem

Education in prehistoric societies was not formalized but deeply embedded in communal life. Evidence suggests that early Sri Lankans engaged in systematic knowledge sharing through oral and practical means (Deraniyagala, 1992). This research explores how early communication and cultural transmission practices, particularly demonstration-based learning, imitation, and symbolic cues, enabled the survival and development of human communities. The study further investigates how these educational systems facilitated ecological adaptation, social cohesion, and innovation. It analyzes how group-based learning and intergenerational knowledge transfer were central to Paleolithic, Mesolithic, and Neolithic populations in Sri Lanka.

Objective

1. This study aims to explore how knowledge was shared and preserved among prehistoric communities in Sri Lanka, especially during the era of Balangoda Man.

Research Question

1. What were the primary modes of knowledge transmission practiced by early humans in prehistoric Sri Lanka?

Literature Review

While global research has extensively explored prehistoric education in regions such as Africa and Europe, limited attention has been given to the South Asian context, particularly Sri Lanka. In the absence of writing, oral traditions were the primary mode of education in prehistoric societies. Myths, legends, and songs served not only as entertainment but also as repositories of critical information (Donald, 1991). In Sri Lanka, these traditions likely conveyed knowledge about wild animals, natural hazards, and medicinal plants, thereby shaping cultural identity and reinforcing survival skills.

Learning by observation and participation was fundamental. Skills such as tool-making and fire generation were passed down through demonstration. Sites like Belilena and Pahiyangala reveal consistent tool-making techniques, indicating a robust tradition of practical education (Deraniyagala, 1992). These findings parallel global discoveries such as Olduvai Gorge, where similar hands-on learning occurred (Leakey, 1971). Artistic expression offered a visual form of knowledge transfer. Symbolic engravings and paintings found at Sri Lankan sites like Thanthirimale and Komarika Gallena (Bandaranayake, 1986) likely served ritualistic, educational, and social functions. These practices mirrored global trends, as seen in cave art from Altamira and Chauvet (Leroi-Gourhan, 1967).

Prehistoric humans acquired complex ecological knowledge through daily interaction with their environment. In Sri Lanka, elders likely guided youth through forests, teaching them to interpret animal tracks and plant properties. This tribal knowledge was key to adaptive survival. This review reveals a notable gap in localized studies that connect prehistoric archaeological findings in Sri Lanka to evolving educational practices. The current study addresses this gap by synthesizing symbolic, oral, and practical traditions within the framework of prehistoric communication.

Methodology

This study aims to identify prehistoric modes of knowledge transmission in Sri Lanka. The specific objective is to interpret archaeological and anthropological data to understand how oral, symbolic, and practical knowledge was shared intergenerationally. This study employs a qualitative,

interpretivist framework, utilizing a hermeneutic methodology to reconstruct prehistoric educational practices. By interpreting archaeological and anthropological data, the research captures the socio-cultural dimensions of knowledge transfer in early human societies (Creswell, 2013).

The research relies on secondary sources, including archaeological reports, museum records, and academic literature from disciplines such as anthropology and education. Data are analyzed using thematic analysis as described by Braun and Clarke (2006), which allows for systematic coding and identification of patterns related to educational practices. Sources were selected based on relevance to prehistoric Sri Lankan settlements (30,000–4,000 BP), authenticity (peer-reviewed or government-issued records), and cross-disciplinary value. Credibility was maintained through triangulation with global findings, and reliability was enhanced by using thematic analysis.The absence of written records limits direct verification. However, triangulating data from multiple sources ensures credibility. Interpretations are cross-referenced with regional and global findings to enhance reliability and contextual accuracy.

Findings

This section presents the key findings of the study based on thematic analysis of archaeological and anthropological sources. The purpose was to understand how knowledge was transmitted among early humans in prehistoric Sri Lanka. The results are categorized under five main themes: oral traditions, practical training, symbolic communication, environmental knowledge, and social development. Each theme reflects how prehistoric humans shared and preserved essential knowledge across generations, ensuring the survival and continuity of their communities.

Oral Traditions as a Method of Knowledge Transmission

One major finding is that oral communication played a central role in knowledge sharing. In the absence of a written language, people used stories, songs, myths, and legends to pass on what they knew. These oral traditions were not only forms of entertainment but also carried lessons about hunting, weather, animals, plants, and community life. In the Sri Lankan context, it is likely that elders used storytelling to teach younger generations about dangerous animals, how to find food or water, and how to recognize changes in the seasons. These oral stories helped preserve shared experiences and allowed knowledge to be transferred across generations without writing. This finding highlights the power of memory and speech in building early education systems.

Learning Through Practical Training and Imitation

Another important mode of knowledge transmission was learning by doing. In prehistoric societies, children and younger members of the community learned by watching elders. They copied the way elders made tools, started fires, hunted animals, and built shelters. These skills were learned through practice and repetition. Archaeological evidence from sites like Belilena, Pahiyangala, and Kitulgala shows that the same techniques were used to make stone tools across many generations. This suggests a strong system of hands-on learning. These practical education methods were essential for survival and were passed on within family or community groups. This kind of learning also built relationships between the generations and reinforced shared knowledge.

Symbolic Communication and Artistic Expression

Art was another way that early humans communicated and shared knowledge. Without writing, they used symbols, drawings, and carvings to express ideas. These may not have told full stories, but they helped share important cultural messages and were likely used for teaching. In Sri Lanka, sites like Thanthirimale and Komarika Gallena contain small drawings and symbolic marks on cave walls. These are believed to be linked to rituals, social events, or hunting activities. Though we cannot always interpret them exactly, these artworks likely helped younger people understand

cultural practices and beliefs. This shows that even without words, people found creative ways to teach and remember what mattered to their group.

Environmental Knowledge and Adaptation

Another key theme is the deep knowledge early humans had about their natural surroundings. They needed to know about the plants, animals, seasons, and geography to survive. This environmental knowledge was not written down but learned through experience and shared orally. Elders likely taught children which plants could be used for medicine, where to find water, and how to track animals. Such information would have been passed on during daily tasks like foraging, hunting, and walking through the forest. This kind of knowledge helped communities stay safe and respond to changes in the environment. It also strengthened the bond between people and nature.

Education and Social Development

The final theme is how knowledge sharing supported social life. Although there were no schools, education happened every day through stories, work, and rituals. These learning methods helped people develop social skills, understand group rules, and learn how to cooperate with others. As prehistoric societies grew, this type of informal learning laid the foundation for more organized groups. People began to live and work together more closely, sharing not just survival knowledge but also values and traditions. This contributed to the development of community identity and helped build the early structure of society.

Conclusion

Education in prehistoric Sri Lanka was inherently integrated with survival, social order, and cultural transmission. Through oral traditions, practical demonstrations, symbolic art, and environmental adaptation, early humans developed sustainable and socially cohesive communities. These findings highlight the dynamic nature of prehistoric education, offering a foundational understanding for current discourses in educational anthropology and indigenous knowledge preservation. This study is limited by the interpretative nature of secondary archaeological data and the absence of written records, which restricts definitive conclusions. Future research could benefit from integrating ethnographic fieldwork with descendant indigenous communities to trace knowledge practices that may echo prehistoric traditions.

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Activity-Based Learning towards Sustainable Development Goals: A Critical Review

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Abstract

This critical review explores the role of Activity-Based Learning (ABL) in promoting Sustainable Development Goals (SDGs) through a systematic analysis of international and Sri Lankan literature. The study identifies that achieving SD requires not only policy and technological interventions but also active participation, awareness, and attitude change fostered through education. ABL—emphasizing experiential, student-centered, and problem-based approaches—effectively enhances learners' understanding of sustainability by connecting classroom learning with real-life contexts. Findings highlight that strong leadership, institutional support, well-trained teachers, and community collaboration are key enablers of ABL for SDGs. International examples, such as Egypt's Edu Camp and New Zealand's outdoor education, demonstrate the impact of active, contextualized learning. In the Sri Lankan context, integrating locally relevant sustainability issues within the curriculum and engaging students through interactive activities are vital. The review concludes that ABL fosters critical thinking, values, and behavioral change essential for building a sustainable society.

Keywords: Activity-based learning, sustainable development goals, environmental education, student-centered pedagogy

Introduction

At the dawn of the third millennium, an open economic system characterized by economic prosperity, industrialization, and population growth contributed to unprecedented global issues, including economic crises, environmental concerns, and social problems affecting our planet's environment (Anand, 2013). As a response in 2015, the UN has proposed the Sustainable Development Goals (SDGs) to provide a holistic and multidimensional view of Sustainable Development (SD), aligning with developing and developed countries. Many researchers and organizations have identified that SD cannot be achieved by simply relying on state intervention, legislation, or new technologies; it requires that people actively participate in decision-making, problem-solving, and sustainable change with better knowledge and attitude towards SD (Welskop, 2013; UNESCO, 2012). Therefore, it is important to prepare students to address critical environmental, social, and economic challenges arising globally at present by educating them in the basics of Sustainable Development (McGifford, 2010).

The extant literature reveals that the Sri Lankan government has taken two main strategies to reach SD since its inception in 1992. These include (1) implementation of the national action plan on Education for Peace and SD to make aware the principals, the teachers, the students, and the overall society about methods of teaching and learning SD, and (2) implementation of an island-wide campaign in the schools to raise awareness and promote SDGs among school children. However, many researchers have emphasized that the level of awareness, knowledge, and attitude towards the SDGs is not satisfactory, not only among school children but also in society. Furthermore, Jayasuriya (2000) has explained that school-based research requires a comprehensive understanding of the school environment, such as resource availability, community interaction, social conditions, and ordinary routine in schools and classrooms. This study aims to investigate the importance of Activity-Based Learning towards promoting SDGs and the attempts taken towards it in the Sri Lankan and International context as per the extant literature.

Research Objective

The main aim of this study is to investigate the importance of Activity-Based Learning towards promoting SDGs and the attempts taken towards it in the Sri Lankan and International context. Therefore, more specifically, the following research objectives guided this study:

1. Explore the importance of Activity-Based Learning towards promoting SDGs
2. Explore the attempts taken towards Activity-Based Learning in the Sri Lankan and International context

Research Questions

The following research questions have been built upon the research objectives.

1. What is the importance of Activity-Based Learning towards promoting SDGs?

2. What attempts have been made towards Activity-Based Learning in the Sri Lankan and International context in the school?

Research Method

A systematic qualitative literature review method was employed from existing studies, educational reports, textbooks, and documents. Initially, the articles were explored using keyword searches, and then the inclusion criteria were used for selecting relevant articles as primary sources. Each educational report, textbook, document, and paper was initially screened using its title, abstract, introduction, methodology, and conclusion to identify irrelevant publications and exclude them accordingly.

Findings

Importance of Activity-Based Learning towards Promoting SDGs

Foreign researchers have shown a continued interest in the importance of Activity-Based Learning towards promoting SDGs in schools for the past years. (Anyolo et al., 2018; Filho et al., 2018; Sewilam et al., 2014). They have emphasized that there are a number of factors within school, such as content of the curriculum, administrators, teachers, students, and physical resources, as well as outside school factors, such as the home environmental conditions, and occurrence of conflicts and disputes in society, that affect Activity Based Learning towards promoting SDGs. Filho, Pallant, Enete, Richter, and Brandli (2018); Down (2006) have implied that a curriculum that is richly adapted to local problems, general institutional commitment, government funding, well-teaching and learning materials, better performance assessment methods, well-trained staff, and teaching staff and time are the positive factors that affect Activity Based Learning towards promoting SDGs. Sewilam, McCormack, Mader, and Raouf (2014) have stated that Egypt initiated a project funded by the European Commission called Edu Camp (education for sustainable development beyond the campus), which aims to introduce key sustainable development principles into teaching and learning in the Egyptian public schools. Edu Camp emphasis the best way to implement SD activities in schools with challengers are as transforming into student-centered pedagogy (experiments, class discussions, debates, role plays and games) within the teacher development sessions, introducing the activities related to resource availability and Egyptian culture with local and national examples to addressed sustainability in a holistic manner to cover social and economic and environmental issues. Also, Alexandar and Poyyamoli (2014) show the importance of the active learning process (field investigations, learner-centered education, group projects, problem-based activities, and interactive classroom sessions) in the teaching learning process to promote Sustainable Development.

Attempts Taken Towards Activity-Based Learning in the Sri Lankan and International Context

Agirreazkuenaga (2018) has shown that key factors for successfully implementing education for sustainability programs include the involvement of the teaching staff, personal motivation, and the leadership of the coordinator, as well as the support of the school authorities (complementary focuses). Moreover, this study has explained the stability of the teaching personnel and their identification of the project towards sustainability as the ways that teaching staff contribute to successfully implementing education for sustainability programs in schools. Chinedu, Wan Mohamed, and Ajah (2018) conclusively emphasize the unique and significant role that teachers can play in contributing towards the transition to SD. Therefore, it was mentioned that teachers must be trained to develop understandings for SD, develop the pedagogies and competencies for teaching SD-related concepts, and reorient their teacher training programs to reflect SD principles. Alexandar and Poyyamoli (2014) show the importance of the active learning process (field investigations, learner-centered education, group projects, problem-based activities, and interactive classroom sessions) in teaching learning process changes in knowledge, skills, and attitudes related to enhancing ecological and environmental justice to achieve SD properly. As described by Eames, Cowie, and Bolstadu (2008), activity outside the classroom is an important aspect of schooling in New Zealand, and most students get outdoor experiences such as forest walks, water activities, and overnight camps as part of their school environmental education. Furthermore, they have explained that strong leadership, whole school support, availability of professional development, enthusiastic teachers, and strong links to environmental agencies are strengths for schools to promote Sustainable development among school children. In the Sri Lankan context, Vithanapathirana (2012) stated that Education is a prerequisite for providing all citizens with the key competencies necessary to achieve SD and explained the importance of developing a rich curriculum with locally relevant sustainability issues and opportunities in schools, at home, and in the wider community. Also, Kandangama (2018) has identified that engaging students in active, applied learning will increase their understanding of the content of the SDGs.

Conclusion

According to the above-mentioned literature, it is argued that strong leadership, whole school support, enthusiastic teachers, teachers' beliefs and attitudes, student-centered pedagogy, availability of physical resources, and strong links to the community are the strengths to implement Activity-Based Learning in the learning-teaching process of advanced-level students to promote SDGs. The literature evidences that ABL encourages changes in knowledge, attitudes, and behaviour to create a more sustainable society. Extant literature reveals that applying learning in a variety of real-life contexts, activities related to eco-schools, field investigations, learner-centered education, group projects, problem-based activities and interactive classroom sessions, outdoor experiences such as forest walks, water activities, overnight camps, experiments, class discussions, debates, role plays, games address sustainability in a holistic manner to cover social and economic and environmental issues. This paper discusses the need to empower school children with knowledge and attitudes towards SDGs via ABL, considering the available resources and literature precisely.

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Student-Centered Learning Strategies in the Teaching and Learning Process: Subject of Sinhala and Literature

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Abstract

The main objective of this research is to create an activity framework for developing student-centered learning and teaching skills related to Sinhala and literature. The aim of this paper is to examine the student-centered learning strategies (SCLS) that can be applied in the teaching and learning process of Sinhala and literature. To achieve this, a mixed methods research approach was used, and a sample of 99 teachers and 300 students was selected through proportional random sampling. Quantitative data were collected through a teacher and student questionnaire, and qualitative data were collected through a document study. Data analysis was conducted using both statistical and thematic analysis techniques. In the literature review, 7 learning strategies related to Sinhala teaching were identified. 52% of the teachers indicated that they did not use all seven strategies in the teaching and learning process. 39 activities were identified for implementing SCL, of which only 61% were used by teachers. Students confirmed that 66% of the activities mentioned by teachers were used in the classroom. Although 88% of teachers stated that they assess students and prepare appropriate activities, 13% of students stated that they never received feedback. 35 challenges were identified in implementing SCLS in the classroom. It can be concluded that there are various contradictions between teacher and student opinions and that there are still obstacles to implementing SCLS in Sri Lankan classrooms. It is suggested that a framework of activities with SCLS for teaching Sinhala language and literature should be developed and introduced, and continuous training should be provided to implement SCLS while minimizing obstacles.

***Keywords*:** Student-Centered Learning, Strategies, Teaching Learning Process, Language and Literature

Introduction

Many countries around the world have recognized the importance of transforming the traditional role of the teacher into a facilitator and implementing student-centered Learning strategies (SCLS) in the classroom. In the United States, educators guide students through collaborative and project-based learning approaches. Similarly, in the United Kingdom, teaching practices emphasize teamwork and the development of soft skills such as communication, critical thinking, collaboration, and creativity (Munna and Kalam, 2021). The above studies confirm that many education systems around the world actively integrate (SCLS) into their teaching processes.

In Sri Lanka, educational reforms from the Kannangara reforms up to 2017 have consistently emphasized promoting student-centered learning skills, positioning teachers as facilitators of learning (Ederamulla, 2015). However, studies by Seneviratne (2013) and Galgodage (2021) indicate that Sinhala language and literature teachers continue to rely heavily on textbook-oriented instruction, with limited use of strategies that foster higher-order thinking and social interaction. Further research by Kappetige (2014), Keerthiratne (2019), and Jayasinghe (2021) shows that many classrooms still reflect traditional, lecture-dominated practices. Collectively, these findings highlight that strategies aimed at promoting student-centered learning skills are either insufficiently implemented or largely ineffective in current educational practice.

Given the paucity of research addressing how student-centered education can be effectively implemented in the Sri Lankan context, the present study aims to identify relevant SCLS that can be integrated into the teaching and learning process and examine the challenges associated with

their implementation. As the research focuses specifically on the Sinhala subject, it provides valuable insights for teachers, students, educators, policymakers, and the wider education community.

Literature Review

Language directly affects the development of intelligence and various skills of any child. Language development also affects the development of children's intelligence, and language perception also develops (Piaget, 1995; Vygotsky, 1978). Developing language on such a theoretical background is very important for the progress of humanity. Many countries have paid special attention to language teaching, as Keerthiratne (2019) notes. Various methods are adopted to develop fourth language skills.

The report submitted by the Research and Development Division of the Department of Examinations states that the failure rate of the Sinhala subject in the 2023 (2024) GCE Ordinary Level Examination is 13.10%. According to the National Assessment Center (2015), conducted on the first language of Grade 4 students, the overall achievement in spelling and writing skills is low. Accordingly, it is clear that the Sinhala language and literature subject has become boring for students from an early age. Jayasinghe (2021) conducted a comparative study between China and Sri Lanka, says that China moved towards development with a new approach introduced to teaching the mother tongue. He also reveals that the methods used to teach the language in Sri Lankan classrooms are at a low level compared to those in China. Malkanti, (2020). Who conducted action research on grammar teaching, says that it is very easy to teach grammar to students through various activities, that poems and songs did not develop the desired interest in grammar in children, and that games and group activities increased interest. Thus, it is clear that even difficult subject matters are conducive to the development of interest in the subject and various language-related skills by adopting a very interesting way and various strategies.

Seneviratne (2013). who conducted research on teaching Sinhala subjects in secondary classrooms, says that "teachers who use only textbooks when teaching Sinhala subjects teach loudly and the classroom is just a lecture hall." Keppetigoda, (2014). The researcher who conducted research on how students internalize Sinhala subject skills states that teachers do not use methods that can help them internalize those skills. The above research reveals that most teachers do not use the Sinhala Language and Literature Teaching Tool SCLS in teaching Sinhala and Literature.

Research Methodology

This study employed a mixed-methods research design. A sample of 99 teachers and 300 students was selected using random sampling. Quantitative data were collected through a teacher questionnaire adapted (with permission) from Cain (2020). A student questionnaire was developed based on theoretical and empirical literature. Qualitative data were gathered through the review of 7 systematically selected empirical studies out of 24 and interviews with 10 school principals. The pilot test was conducted, and the revised equipment was approved by two experts. Data were analyzed using statistical techniques for quantitative data and thematic analysis for qualitative data.

Objective

Identifying student-centered learning strategies in the teaching and learning process

Findings

Based on the main research objective of the study, Identifying Student-Centered Learning Strategies, the analysis is based on qualitative data obtained through literature review and quantitative data obtained through teacher and student questionnaires.

Student - Centered Learning Strategies (SCLS)

With the aim of studying student-centered learning strategies that can be implemented in the Sinhala and Literature subject learning and teaching process, thematic analysis was followed based on a literature review, and data analysis related to the first objective was presented. Since it is necessary to gain a rough understanding of the Student-Centered Learning Concept (SCLC) before studying (SCLS), in the study of it, it was possible to identify 12 principles in (SCLC) through empirical literature, which are,

- Active Involvement
- Social Participation
- Meaningful Activities
- Relating New Information to Prior Knowledge
- Being Strategy
- Engaging in Self-Regulation and Being Reflective
- Restructuring Prior Knowledge
- Aiming Towards Understanding Rather Than Memorizing
- Helping Students Learn to Transfer
- Taking Time to Practice
- Developmental and Individual Differences
- Creating Motivated Learners)CONTESSA, 2021).

It was possible to identify 7 student-centered learning strategies currently used in the world. They are listed in Table 1.

Table 1

Student-centered learning strategies

Student - Centered Learning Strategies	How to present	Developing student-centered learning skills	Sources obtained
Flipped classroom	The teacher introduces the lesson. Students independently gather information, form groups, and present it in a way they choose.	Active learning and student autonomy	Lopez (2022)
Project-based learning	Engages in real-world problems and works on long-term projects	Critical thinking, Collaboration, and Creativity	Bell (2010)
Problem-based learning	Engages in self-learning by solving complex real-life problems with minimal direct instruction	Independent learning and critical thinking	Savery (2006)
Collaborative learning	Students work in groups to achieve learning goals	Communication, leadership skills	Laal & Ghodsi (2012)
Competency-Based Learning	Subject skills are mastered without regard to time or pace.	Skills are developed.	Carla (2018)
Experiential learning	Learns through practical experience	Independent learning and critical thinking	Kolb (1984)
Self-directed learning	Students take the initiative in identifying their learning needs, setting goals, and evaluating results.	Encourages the habit of lifelong learning.	Cottrell (1996)

52% of teachers stated that the above strategies are not used in the teaching and learning process. These strategies have been used in the teaching and learning process in many countries around the world and have successfully achieved educational goals. Dano (2014). states that the use of student-centered strategies has enhanced students' learning skills. These strategies are being implemented with the aim of providing an understanding of how they should be used in classrooms across Sri Lanka. To support the implementation of the above-mentioned SCLS, 39 activities for teaching and learning Sinhala and Literature were identified through a review of the literature. They are: Storytelling, Conversation, Collective discussion, Problem solving, Troubleshooting, Demonstration, Modelling, Exercise, Cases study, Didactic game, Cube method, Method of mosaic or reciprocal teaching, Conceptual map, Starburst, Clusters, Brainstorming, Philips **6–6**, exploration, Debates, Research, Simulations, Projects, Models, Role-playing, e-Learning, Field trips, Experiments, Cooperative learning, Brainstorming, Reflection, Step-by-step lesson plan Assignments, Experiential learning, Focused imagery, Jigsaw activities, Peer learning, The literature review identified 39 activities, of which 61% were found to be used by teachers in the classroom. Students confirmed that 66% of the activities mentioned by teachers were used in the classroom.

In the literature review, it was possible to identify eight misconceptions among teachers regarding the use of student-centered learning strategies. Namely, student-centered learning (SCL) requires more resources, is not suitable for teaching large groups, is detrimental to the teaching profession, has more work for students, and is problem-based learning. It is not suitable for all students. Students learn less subject matter through SCL (Dahanayake, 2025). Thus, it is evident that the different opinions and attitudes held by teachers regarding SCL have had a problematic impact on making student-centered learning a reality in Sri Lanka.

Activities that can be used to make student-centered learning strategies successful

Data were collected through teacher and student questionnaires on teachers' awareness of student-centered learning strategies, the activities under student-centered learning strategies used in the teaching-learning process, what they use in the classroom, and the challenges faced in implementing those activities.

75% of teachers stated that they "often" use SCL techniques in the classroom. 21% stated that they "occasionally" use SCL activities, and 4% stated that they "rarely" use various activities. This shows that 25% are somewhat reluctant to use SCL activities in the teaching and learning process. 54% of teachers revealed that they do not use any activities. There is a contradiction between the opinions of students and teachers. The opinions expressed by teachers and students regarding the use of SCL activities in the teaching and learning process are described in the following graph.

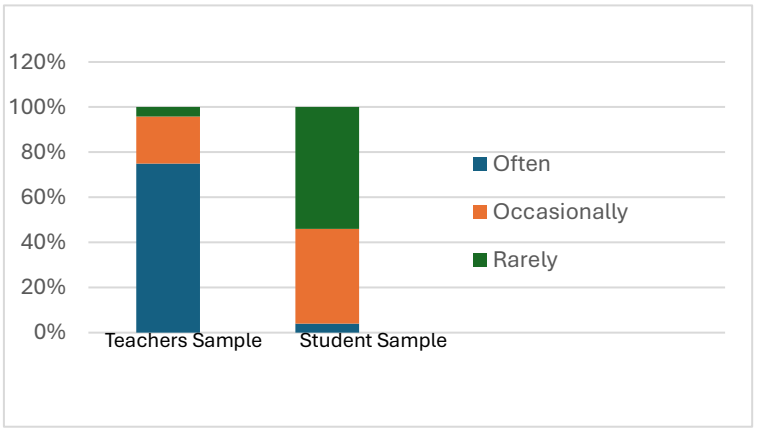

Figure 1. Use of student-centered learning activities

The above graph clearly shows that students and teachers have conflicting views on the use of student-centered learning activities in the teaching-learning process. 3% of teachers stated that using different activities is a hassle. 4% of teachers said that doing different activities is a waste of time. 88% of teachers said that it takes different efforts to lift each student from where they are. Although teachers stated that they use different activities to teach Sinhala subjects, 58% of students said that this is not the case. Principals confirmed that continuous assessment is not done in the classroom and that preparation for lessons is always minimal except during supervision. Accordingly, the reliability of the information provided by teachers seems to be low.

16% stated that the use of SCLS in the teaching and learning process is problematic. 16% stated that it is not problematic, and 64% stated that it is neutral. Accordingly, the use of SCLS in classrooms in Sri Lanka still appears to be problematic. 35 reasons for the problematic nature were revealed through the questionnaire. They are, Only talented students participate in student-centered learning activities, Weak students become more reluctant and talented students are not given opportunities, Students are reluctant to prepare in advance and preparation is minimal, Only preferring sedentary work, Difficulty in time management and insufficient time available, Difficulty in using student-centered learning methods for certain syllabus, Lack of facilities and equipment, Competitive education system, Lack of effort and interest among students, Having children of different intelligence levels, Students are reluctant to read and search for information, It is problematic whether students have grasped the subject matter correctly, Students are lazy to participate, Insufficient space in the classroom, Children's abilities are not revealed due to parental support, Difficulty in classroom management, Lack of technology Students not attending school, Lack of resources, This method is not sufficient to teach certain subjects, Measuring subject knowledge through exams, The teacher has to explain some subject matters in depth and direct students to it, The curriculum is too large, Student behavioral problems, Increased noise, Insufficient information related to the objectives, Minimal technical knowledge, Not every child gets the opportunity, Economic difficulties, Coverage of the syllabus, Insufficient space, Weaknesses in presentation, Variability of information received, Students' attention to external things, The influence of children's attitudes on activities**.**

The above study clearly shows that many problematic situations continue to emerge in the use of student-centered learning Strategies (SCLS) in classrooms in Sri Lanka. While all the students expressed their willingness to use various activities by the teacher in the teaching-learning process, they also stated that teachers do not use activities. However, the teachers stated that "students do not want to do activities and are not willing to do them." When asked how students prefer to implement the SCLS to acquire knowledge, the answers given by the students can be presented in the pie chart below.

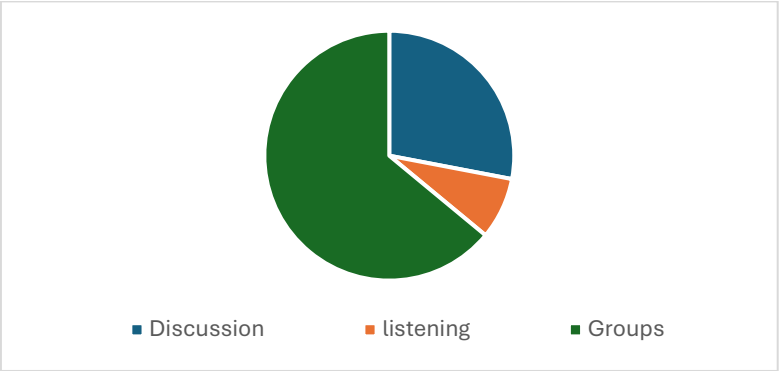

Figure 2. Ways students prefer to learn

According to the above graph, it is evident that 64% of the students expressed their willingness to engage in the learning and teaching process by forming groups with friends, 28%

expressed their willingness to learn through discussions, and 8% expressed their willingness to learn by listening to what the teacher says. No one expressed their willingness to self-study. %88 stated that they assess students and adjust their teaching and learning methods accordingly. %2 also stated that they do not do so. Although %52 of students said that they develop themselves by giving feedback, %13 stated that they have never received feedback. %9 of teachers stated that they do not have time to give feedback to students during the lesson. %15 of teachers stated that it is difficult to manage disruptions in the teaching and learning process in the classroom. %50 of teachers stated that "some children are unpleasant to see". In the student questionnaire, %28 of students said that teachers do not cooperate with them. Thus, it appears that there are problems in the teacher-student interaction as well.

Conclusions and Suggestions

The teacher and student questionnaire study revealed that there is a contradiction between the views of teachers and students. Although there is some difference in the views of teachers and students regarding the use of various learning strategies, student motivation, and friendly interaction with students, there is some agreement between the responses given by both samples regarding the discussion method and the provision of assessment at the end of the lesson. However, there is no clear confidence in most of these conclusions. There is also some contradiction between some of the facts revealed by the research literature and the data obtained through the questionnaire. The literature revealed that classrooms in Sri Lanka are no longer just lecture halls. Reliance on traditional teaching methods persists, with many teachers believing that students are not capable of engaging in self-directed learning. The teacher questionnaire revealed that many teachers use various learning activities and strategies in the classroom to make the teaching and learning process successful. Since principals and students confirmed that this was not the case, it can be concluded that teachers are still using the outdated traditional lecture method. It can be concluded that there are many problems in implementing student-centered learning strategies in classrooms in Sri Lanka.

Based on these findings, it is recommended that an activity framework for student-centered learning techniques specific to the Sinhala and Literature curriculum be developed, along with a practical module for its application. It is suggested that teachers should be continuously trained on the importance of using student-centered strategies and how to implement SCLS while minimizing disruption.

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An Investigation into the Educational Challenges of Children of Municipal Cleaning Workers in Urban and Semi-Urban Areas: A Study of the Kandy District in Sri Lanka

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Abstract

Education is a fundamental right, yet children from marginalized communities often struggle to access its full benefits. This study examines the educational challenges faced by children of municipal cleaning workers in urban and semi-urban areas of Kandy, Sri Lanka, with a focus on students in Grades 6 to 9. Despite Sri Lanka's policy of free education, these marginalized students face persistent barriers, including poor home environments, limited parental support, overcrowded classrooms, and social exclusion. Adopting a mixed-method approach, data were collected from 70 students, 15 teachers, and 4 principals across four schools using purposive sampling to ensure inclusion of children of municipal cleaning workers. Quantitative findings show that 80% of students lack a quiet place to study, 54.3% have insufficient learning materials, and 45.7% receive little or no academic support at home. Emotional stress and lack of motivation were reported by 67.1%, while 60% felt uncomfortable seeking help in class. Teachers observed that 93.3% of these students faced learning difficulties and often lacked basic resources. Principals noted that 75% of their schools were categorized as disadvantaged and lacked counseling or transportation support. Qualitative insights further revealed exposure to unsafe neighborhoods, low academic performance, and unclear future aspirations among students. Despite some school-level efforts, structured support systems and targeted teacher training remain limited. The study concludes with a call for systemic and school-based interventions, including inclusive teacher training, family engagement programs, psychosocial support, and improved resource allocation. These findings contribute to the discourse on educational equity and inform policy measures to support marginalized student populations in Sri Lanka.

Keywords: Educational inequality, marginalized students, parental support, inclusive education, Sri Lanka

Introduction

Education is widely recognized as a fundamental human right and a key driver of social and economic development. Sri Lanka, known for its high literacy rates and commitment to free education, has made significant strides in expanding access to schooling across the country (UNICEF, 2019). However, despite near-universal enrollment, educational inequalities persist, particularly among marginalized and socioeconomically disadvantaged groups (Sarma, Licht, & Kalugalagedera, 2018). One vulnerable group includes the children of municipal cleaning workers, particularly those residing in urban and semi-urban areas such as Kandy. These children often live in impoverished conditions characterized by overcrowded homes, limited parental support, exposure to unsafe environments, and insufficient academic resources. Although physically present in schools, their educational experiences and outcomes are severely compromised, reflecting a broader systemic failure to address the intersectional barriers they face (British Council, 2023).

This study is motivated by the urgent need to understand and address the multidimensional challenges affecting these children's education. Municipal cleaning workers constitute a low-income workforce whose children are often invisible in educational policy discussions. The pilot observations conducted in Kandy revealed that 10–15 students per classroom come from such backgrounds, yet their struggles remain largely unacknowledged in school support systems. This research aims to fill this critical gap by investigating the socio-economic, psychological, and institutional factors that hinder their academic achievement and participation.

Research Problem

Sri Lanka's free education policy ensures access but does not guarantee equity or quality for all students. Children from marginalized backgrounds, including those of municipal cleaning workers, face persistent educational disadvantages that limit their ability to benefit fully from schooling (CEPA, 2020). These disadvantages manifest as academic underachievement, social exclusion, behavioral issues, and low motivation. The problem is compounded by systemic neglect at the school level, such as overcrowded classrooms, lack of individualized attention, and insufficient teacher training to handle diverse needs (Thilanka, 2022). Furthermore, unsafe neighborhood conditions and minimal parental involvement exacerbate these challenges. Despite these realities, there is a lack of focused research and targeted interventions addressing the unique needs of this group. This study aims to investigate how home and school environments intersect to create barriers to meaningful learning and to identify practical strategies to enhance educational equity for these children.

Objectives

The main objective of this research is to investigate the educational challenges faced by children of municipal cleaning workers in urban and semi-urban areas of Kandy and to identify the factors that hinder their academic achievement and school participation.

Specific objectives include:

1. Examining the impact of socio-economic and home environments on students' learning.
2. Investigating classroom experiences and the availability of school support for these students.
3. Assessing the psychological and behavioral effects of their living conditions on school engagement.
4. Recommending practical strategies and policies to improve their educational opportunities.

Research Questions

1. What are the socio-economic conditions of children of municipal cleaning workers in Kandy?
2. How do these students experience their classroom environment?
3. What psychological impacts arise from their living conditions?
4. What strategies can be implemented to enhance their educational participation and success?

Literature Review

Bronfenbrenner's ecological systems theory explains how individual, family, school, and community environments interact to shape educational experiences (Caritas Sri Lanka, 2024; Thilanka, 2022). However, research specifically on children of municipal cleaning workers is limited despite their shared socio-economic hardships and occupational stigma. Community support is uneven and often gender-biased; Careemdeen (2022) notes that female students receive more aid than males, highlighting the need for targeted interventions. Isma and Junaidi (2018) emphasize that socio-economic hardship and family neglect push vulnerable children into informal labor, limiting formal education access—a challenge faced by children of cleaning workers. Community-based educational and moral support programs are recommended to address these gaps.

Educational inequality in Sri Lanka is strongly influenced by socio-economic status, geographic disparities, and institutional factors, despite high literacy and near-universal enrollment (Sarma et al., 2018; CEPA, 2020). Children from marginalized families, including municipal cleaning workers, face poverty, limited school resources, teacher shortages, and low parental support, which negatively affect attendance and learning outcomes (British Council, 2023; UNESCO, 2013). Unsafe living conditions further worsen these challenges.

Occupational stigma and hazardous working conditions faced by cleaning workers contribute to their families' socio-economic and psychological vulnerabilities, adversely affecting children's schooling (Ntsie, 2020; Thorat, 2021). Addressing these broader social and health issues is crucial for educational equity.

Within schools, evidence-based teacher collaboration and inclusive practices are vital for supporting disadvantaged students (Earl & Timperley, 2008). Walters (2019) emphasizes that combating caste-based stigma requires holistic social reforms alongside educational efforts. Overall, the literature shows that children of municipal cleaning workers face compounded barriers requiring integrated community engagement, inclusive policies, teacher training, and social reforms to promote educational equity.

Methodology

This study employs a mixed-methods research design combining quantitative and qualitative approaches to provide a comprehensive understanding of the challenges faced by the target group. The study involved 70 students from Grades 6 to 9, 15 teachers, and 4 principals from four selected schools in urban and semi-urban areas of Kandy. Purposive sampling was employed to select participants, as the study specifically targeted children of municipal cleaning workers, along with their teachers and principals, to ensure that the sample directly aligned with the research objectives. Quantitative data were collected through structured questionnaires administered to students and teachers, focusing on socio-economic conditions, classroom experiences, psychological aspects, and support needs. Semi-structured interviews with teachers and principals provided qualitative insights into institutional challenges and potential interventions. Classroom and community observations complemented the data by contextualizing students' learning environments. Quantitative data were analyzed using descriptive statistics in Microsoft Excel to identify patterns and prevalence of challenges. Qualitative data underwent thematic analysis to extract key themes related to educational barriers and support mechanisms.

Results and Discussion

The quantitative findings reveal significant socio-economic disadvantages among the children of municipal cleaning workers. Approximately 80% of students reported lacking a quiet place to study, and over half indicated insufficient access to learning materials. Parental academic support was minimal, with nearly 46% of students receiving little or no assistance at home. Many students (67%) experienced emotional stress or lacked motivation, while 60% felt uncomfortable seeking help in class. These findings align with the pilot study observations of overcrowded homes, exposure to unsafe neighborhoods, and limited parental involvement.

Classroom experiences were mixed; while some students enjoyed learning, many felt isolated or left out during group work. Teachers acknowledged that 93% of these students faced learning difficulties and often lacked necessary resources. However, only 40% of teachers felt adequately trained to support disadvantaged students, and many highlighted the challenge of overcrowded classrooms limiting individualized attention. Principals confirmed that 75% of the schools were categorized as disadvantaged or underserved, with limited counseling or transportation support available. They emphasized the need for government interventions, additional funding, and parent education programs to improve outcomes. Notably, only half of the schools offered special programs for underprivileged students, and teacher training on inclusive education was insufficient.

Qualitative data underscored the psychological toll on students, including low self-esteem, behavioral issues, and unclear future aspirations. Unsafe neighborhoods and a lack of academic support at home further compounded these challenges. Teachers and principals recommended peer mentoring, counseling services, career guidance, and enhanced family involvement as critical strategies to support these children. A deeper analysis of the findings reveals that the intersectionality of disadvantage—where poverty, occupational stigma, and institutional neglect overlap—intensifies the educational

barriers for these children. Many students reported missing school due to family responsibilities or illness, highlighting the need for flexible school policies and targeted welfare programs. The lack of digital access, as indicated by over 60% of students, also demonstrates the digital divide exacerbated by socio-economic inequality, particularly relevant in the context of post-pandemic blended learning environments.

Teacher responses further illuminate the systemic nature of the problem. While most teachers expressed a willingness to provide extra support, they cited limited resources, lack of specialized training, and high student-teacher ratios as major constraints. The absence of structured peer support or buddy systems, despite their proven efficacy in other contexts, was also noted as a missed opportunity for fostering inclusion and resilience. From an institutional perspective, principals pointed to bureaucratic hurdles and insufficient inter-sectoral coordination as barriers to implementing holistic support programs. The lack of counseling services and community partnerships was identified as a significant gap, especially given the high rates of emotional distress among students.

Policy Implications and Recommendations

The findings underscore the urgent need for multi-level interventions. At the policy level, there is a clear demand for increased government funding targeted at disadvantaged schools, with earmarked resources for counseling, nutritional support, and after-school programs. Teacher professional development should prioritize inclusive education and trauma-informed pedagogies, equipping educators to recognize and address the complex needs of marginalized students.

Schools should establish robust parent engagement initiatives, including home visits and workshops, to bridge the gap between home and school environments. Community-based organizations and NGOs can play a pivotal role in supplementing school-based efforts, particularly in providing mentorship, digital literacy, and psychosocial support. At the systemic level, the establishment of a district-level database to track the progress and needs of children from marginalized backgrounds would enable more responsive and data-driven interventions. Inter-agency collaboration between education, health, and social services is essential to address the root causes of educational disadvantage and promote holistic child development.

Anticipated Outcomes

This study aims to provide a nuanced understanding of the multifaceted educational challenges faced by children of municipal cleaning workers in Kandy. The findings are expected to inform policy and school-level interventions, highlighting the need for:

- Targeted teacher training programs on inclusive education and supporting disadvantaged students.
- School-based counseling and emotional support services.
- Parental involvement initiatives to foster home support for learning.
- Provision of academic resources and quiet study spaces.
- Community partnerships and government-supported programs to address socio-economic barriers.

The evidence generated will contribute to the discourse on educational equity in Sri Lanka and serve as a foundation for future research and interventions aimed at marginalized student populations.

Conclusion

Despite Sri Lanka's commendable progress in expanding access to education, significant inequalities persist among marginalized groups, particularly the children of municipal cleaning workers. This study highlights how socio-economic deprivation, unsafe living conditions, and systemic school-level neglect

intersect, hindering these students' academic participation and success. Addressing these challenges requires a holistic approach that integrates home, school, and community efforts. By providing evidence-based recommendations, this research seeks to bridge the gap between mere school attendance and meaningful learning, promoting inclusive education and social justice in Sri Lanka.

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Developing Peer Learning Strategies for Geography in Junior Secondary Classrooms: An Action Research Study

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Abstract

This action research study explored the effectiveness and feasibility of using structured peer learning strategies to enhance Geography teaching and learning at the junior secondary level in Sri Lanka. This research aims to move beyond traditional instructional methods to improve student engagement and conceptual understanding. Adopting a qualitative-dominant mixed-methods Action Research approach, the study involved a purposive sample of eight students and two teachers from a 1AB-type state boys' school in Colombo. Data were collected through iterative cycles using pre-tests, post-tests, classroom observations, and semi-structured teacher interviews. Findings revealed a notable and statistically significant improvement in student performance and engagement following the implementation of peer learning tasks, such as collaborative map-making and 3D modelling. Qualitative analysis confirmed that peer interaction fostered crucial 21st-century skills, including communication, critical thinking, and collaborative problem-solving. The study concludes that peer learning is a highly suitable and effective pedagogical approach for junior secondary Geography, offering tangible benefits in a Sri Lankan context. The findings emphasize the teacher's vital role in scaffolding these activities, providing a practical framework for implementation, and contributing valuable insights for educators and curriculum developers.

***Keywords*:** Practical skills gap, traditional methods, 21st-century competencies, low performance, geographical competencies

Introduction

A concerning issue in Sri Lankan junior secondary education is the notable disparity between students' performance on written examinations and their ability to execute practical geographical skills. While students often demonstrate competence in theoretical answers, their performance in essential practical tasks such as map drawing and model making is consistently low. This is critical because contemporary education, particularly in a dynamic subject like Geography, demands collaboration and practical competence, not just memorization. The continued reliance on traditional instructional methods that emphasize rote learning over hands-on application is often responsible for this performance gap. This pedagogical deficiency is a significant concern because the foundation for these crucial practical skills is laid during the junior secondary years. The core problem of this study is the significant gap between students' theoretical knowledge and their practical skills in junior secondary Geography in Sri Lanka. It is precisely to address this critical research gap that this action research study was undertaken.

Objectives

1. Analyse how peer learning enhances students' understanding of Geography in junior secondary classrooms.
2. Examine teachers' roles in facilitating peer learning in Geography for junior secondary classes.
3. Identify effective peer learning strategies for Geography.
4. Implement and evaluate the suitability of selected peer learning strategies through classroom interventions.

Literature Review

This study is firmly grounded in several key theoretical perspectives that collectively underscore the efficacy of collaborative learning. Constructivism posits that learners are active agents who construct knowledge by interacting with their environment. This is further developed by Lev Vygotsky's Social Constructivism, which stresses that this knowledge construction is fundamentally a social process. Vygotsky's concept of the Zone of Proximal Development (ZPD) is a cornerstone, positing that a student can achieve a higher level of learning when guided by a more knowledgeable peer. Peer learning, therefore, creates a powerful environment where students can scaffold each other's learning. The work of Johnson & Johnson on Cooperative Learning further informs this study, emphasizing the importance of structuring group work around positive interdependence and individual accountability.

Globally, the literature confirms the cognitive and socio-emotional benefits of peer learning across disciplines, with studies by Roseth et al. (2008) consistently showing that peer collaboration enhances academic achievement. However, a critical review reveals a significant limitation that creates a pressing research gap. While the general effectiveness of peer learning is well-established, there is a profound scarcity of subject-specific, empirical studies focused on the application of structured peer learning strategies for enhancing the unique geographical skills demanded by modern curricula, specifically spatial reasoning, map reading, model-making, and fieldwork.

This deficit is further amplified in the context of Sri Lankan junior secondary Geography. Much of the existing local educational research focuses on general pedagogical issues or other core subjects. The crucial research gap this study addresses is the lack of contextually relevant, evidence-based interventions that specifically test the feasibility and impact of structured peer learning to bridge the theoretical-to-practical skills gap in junior secondary Geography classrooms in Sri Lanka. This distinction explicitly highlights the study's novelty: by providing empirical data and an actionable action research framework for this specific context and subject, the study makes an original contribution that goes beyond simply confirming general theoretical benefits

Methodology

The research design for this study is a qualitative-dominant mixed-methods Action research design, which is particularly well-suited for classroom-based interventions. This cyclical research approach, famously articulated by Kemmis & McTaggart (1988) as a process of planning, acting, observing, and reflecting, allowed for the systematic investigation of a pedagogical problem and the iterative development and refinement of practical solutions. The flexibility of this design was ideal for developing a pedagogical approach tailored to the specific needs of the students and teachers.

The study's sample was strategically selected from a 1AB-type state boys' school in Colombo, Sri Lanka, using a purposive sampling method. The sample comprised eight junior secondary students and two experienced Geography teachers. The students were selected after reviewing their past Geography marks and their performance in preliminary pre-tests, which were designed to measure their current level of understanding before the intervention began. The two teachers were selected based on their experience and willingness to participate; one was a Grade 7 teacher from a Sinhala medium class, and the other was a Grade 8 teacher from an English medium class. This provided a total sample of 10 participants.

The data for this study were collected using three primary tools. The first involved a series of pre-tests, and subsequently, suitable post-test activities were designed based on a review of relevant literature. Secondly, a series of reflection activities was conducted and further developed throughout the intervention. Finally, at the conclusion of the intervention, the progress was evaluated through classroom observations and semi-structured interviews. These three data collection tools were used to ensure a comprehensive and well-rounded evaluation of the peer

learning strategies. Also, Data was collected through a multi-faceted approach using Pre-Tests and post-tests, Classroom observations, and semi-structured interviews to ensure triangulation and enhance the credibility and reliability of the findings.

- The study was conducted over three action research cycles, with a series of pre-tests and collaborative post-test activities for specific Geography lessons. For example, a Grade 7 lesson on "Monsoon Rainfall Pattern in Sri Lanka" culminated in a group chart-making task, while a Grade 8 lesson on "Making 3D Models for Topographic Features" involved groups creating physical 3D models from contour lines.
- A structured checklist and detailed field notes were used to systematically observe and document student interactions, verbal and non-verbal communication, engagement levels, and the application of geographical skills during peer tasks.
- In-depth interviews were conducted with the two participating teachers at the end of the intervention to gather rich qualitative data on their evolving perceptions, the specific challenges they faced, and the successes they observed in facilitating peer learning.

Quantitative data from pre-tests and post-tests were subjected to descriptive and comparative analysis to identify learning gains. Qualitative data from classroom observations and teacher interviews were rigorously analysed using a systematic thematic analysis process to identify recurring patterns, themes, and emergent insights.

Data Collection and Interpretation

The data analysis provided compelling and consistent evidence supporting the efficacy of peer learning in the target context, directly addressing each of the research objectives.

Enhancing Students' Understanding of Geography through Peer Learning

Quantitative findings from pre- and post-test scores demonstrated a notable and statistically significant improvement in student performance across all peer learning interventions. For instance, in the Grade 7 lesson on "The Relative and Absolute Location of Sri Lanka," the average post-test score was substantially higher than the pre-test score, indicating that the collaborative peer tasks led to a more profound conceptual understanding. Qualitatively, classroom observations consistently noted a heightened level of student engagement and motivation. Field notes described students who were previously passive or hesitant becoming active participants, eagerly discussing concepts with their peers, and taking clear ownership of their learning process. The collaborative tasks, such as creating 3D models and drawing contour lines, successfully transformed abstract geographical concepts into tangible, shared, and deeply understood experiences.

Teachers' Roles in Facilitating Peer Learning in Geography for Junior Secondary Classes

Teacher interviews highlighted their profound evolution from traditional instructors to active and strategic facilitators. Both teachers reported that the initial shift in classroom dynamics from a structured, quiet environment to a more active, and at times noisy, one was a key challenge. However, they quickly adapted by embracing their new, crucial roles, which included:

- **Structured Planning:** Carefully designing group tasks with clear, explicit instructions, pre-defined roles (e.g., researcher, scribe, presenter), and specific learning goals to ensure positive interdependence and individual accountability.
- **Proactive Monitoring and Targeted Guidance:** Circulating among groups to listen to discussions, ask probing questions, and provide targeted support or constructive feedback without dominating the conversation. This "guide on the side" approach was essential.
- **Reflective Practice:** Actively observing student interactions and making data-informed adjustments to their strategies in subsequent lessons is a core component of the action research model. The teachers' insights confirmed that effective facilitation, rather than a hands-off approach, is paramount to the success of peer learning.

Effective Peer Learning Strategies for Geography.

The study identified several peer learning strategies as particularly effective and suitable for the junior secondary Geography curriculum:

- **Collaborative Map-Making and Interpretation:** Group tasks involving drawing maps proved highly effective for developing spatial reasoning and understanding scale, as students had to physically work together to represent and interpret data.
- **3D Model Creation:** Building physical models of landforms from contour lines was found to be a particularly powerful intervention, significantly enhancing students' grasp of complex three-dimensional geographical concepts.
- **Peer Tutoring:** Pair-based activities, where a more proficient student assisted a peer, were found to be highly effective for reinforcing foundational knowledge and building confidence in both the tutor and the tutee.
- **Group Presentations:** These tasks not only improved students' communication skills but also required them to synthesize and articulate their collective understanding to a wider audience, solidifying their learning. The feasibility of these strategies was affirmed by the teachers, who found them easily integrated into the existing curriculum with minimal additional resource constraints, a critical factor for successful implementation in a public school setting.

Implementation and Evaluation of Peer Learning Strategies in the Classroom

The iterative nature of the action research cycles provided continuous and immediate feedback, allowing for the rapid refinement of strategies. The suitability of the peer learning model was confirmed not just by the quantitative gains in test scores, but also by the profound, observable change in classroom culture. The environment became more student-centered, dynamic, and conducive to a deeper, more enduring form of learning. This implementation successfully proved that with careful, strategic planning and active teacher facilitation, peer learning is a sustainable, impactful, and highly suitable pedagogical approach within the Sri Lankan context.

The data analysis provided compelling evidence supporting the efficacy of peer learning, demonstrating clear improvements in student performance and engagement. Quantitative findings from pre- and post-test scores demonstrated a notable and statistically significant improvement in student performance across all peer learning interventions.

For instance, in the Grade 7 lesson on "The Relative and Absolute Location of Sri Lanka," the average post-test score (95) increased by approximately 85.37% from the pre-test average of 51.25. This stark contrast provides strong evidence that peer learning facilitates a more comprehensive and accurate understanding of complex spatial concepts than individual effort. Qualitatively, classroom observations consistently noted a heightened level of student engagement and motivation; students who were previously passive became active participants, eagerly discussing concepts and taking clear ownership of their learning process. Teacher interviews further confirmed the effectiveness of the teachers' facilitating roles, highlighting the success of Structured Planning and Proactive Monitoring. The study confirmed the suitability of strategies like 3D Model Creation and Collaborative Map-Making, demonstrating feasibility within the Sri Lankan classroom context.

Discussion and Conclusion

The findings of this study provide strong and compelling evidence that structured peer learning is a powerful pedagogical tool for enhancing Geography education in junior secondary classrooms. The results align perfectly with established educational theories, particularly the social constructivist view that knowledge is best built through collaborative interaction. By engaging in tasks that require them to discuss, negotiate, and explain complex concepts to their peers, students

not only improved their academic performance but also developed essential 21st-century skills such as communication, collaboration, and critical thinking.

The study's contribution is twofold. First, it offers crucial empirical support for the adoption of peer learning in a specific subject and context, Sri Lankan junior secondary Geography, where such research is currently scarce. Second, it provides a practical, evidence-based strategic intervention for teachers and curriculum developers, demonstrating that a shift from passive, teacher-centred instruction to active, collaborative learning is not only desirable for improved student outcomes but also highly achievable.

In conclusion, this research confirms that peer learning is a highly suitable, effective, and feasible strategy for Geography education in junior secondary classrooms in Sri Lanka. It recommends that educational authorities and teacher training institutes incorporate these evidence-based strategies into their programs to empower teachers to facilitate dynamic and student-centered learning environments, ultimately fostering a new generation of critical thinkers and collaborative problem-solvers equipped for the challenges of the future.

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Development and Validation of a Resilience Skills Questionnaire for Primary School Teachers Based on Peace Education

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Abstract

This study aims to develop and validate a questionnaire to measure the Resilience Skills among primary school teachers. It is noticeable that Primary school teachers face mental challenges in the educational context, which makes it necessary to develop resilience skills to maintain personal well-being and professional effectiveness. This research integrates with Peace Education to identify the necessary Resilience Competencies for teachers. The tool was created to measure the knowledge about resilience, and its strengths and weaknesses. The main objectives of this study are to design an initial set of items for the research tool based on identified dimensions of resilience, establish the content validity of the tool through expert evaluation and feedback, and identify the key dimensions of resilience relevant to primary school teachers through expert consultation. The study follows a mixed research design. The researchers develop a questionnaire and validate the tool through content validity analysis. The researchers expect to obtain feedback from five senior academic experts from the questionnaire from Sri Lanka, and data analysis using a content validity index. In the first phase, relevant dimensions of teacher resilience are identified through an extensive literature review. Based on these findings, an initial pool of questions was created. The second phase involved the items using expert feedback and item analysis techniques. The Content validity analysis is used to establish validity, while Cronbach's alpha is used to determine reliability. The resulting tool demonstrated strong psychometric properties, including high internal consistency and content validity. This research is important to understand the resilience skills in primary school teachers and offers a foundation for future interventions and policymaking. Further, it aimed at enhancing teacher wellbeing and professional sustainability.

Keywords: Teacher resilience, peace education, questionnaire validation, primary school teachers

Introduction

In the 21st century, people in the world suffered from unexpected disasters, and Resilience became a very important topic. Resilience is the ability to adapt and build strength to face difficult situations. People can survive the most challenging ordeals, some even thrive, and yet, they may be unaware or unclear exactly how they got through the challenges they faced (Neenan, 2017). Primary school teachers face a multitude of challenges when they are teaching in the school. The main challenge of teachers in primary grades is to balance the syllabus and behavioral development of students, and the teaching profession requires the capacity to adapt, recover, and grow in the face of adversity. Resilience, the ability to bounce back from setbacks and maintain well-being under pressure, has therefore emerged as a critical competency for educators, particularly those working with small children at the primary level. In this regard, peace education offers a valuable foundation for fostering resilience and understanding. Rooted in principles of empathy, non-violence, cooperation, and conflict resolution, peace education promotes the development of social-emotional skills that closely align with core components of psychological resilience. Integrating peace education into the framework for assessing teacher resilience allows for a more holistic and values-driven approach. Therefore, teachers should develop their resilience skills to balance their stress.

Healthy resilience skills support effective and timely adjustment to demanding situations in the workplace. Existing tools are insufficient to develop and evaluate workplace interventions to

improve employees' resilience skills (Akbari et al., 2024). The aim of this study is the development and Validation of the Resilience Skills Questionnaire for primary school teachers. The resilience skills can be discussed under several subtopics, and this study selected four main skills, such as emotional, motivational, professional, and social. According to Susan Beltman and Hascher (2021), dimensions and aspects of teacher resilience are divided into four sub-dimensions, and the first dimension is Emotional, which describes not taking things personally, sense of humor, ability to bounce back, and emotion regulation (Hascher et al., 2021). The second one is Motivational self-belief, and it describes confidence, persistence and perseverance, having realistic expectations, being positive and optimistic. The third one is Profession, and it defines related teaching competence and skills, classroom management, facilitating effective learning, and being flexible and adaptable. The last one is Social, asking others for assistance, interpersonal skills, ability to take advice from others, and professional and personal support networks. The questionnaire was developed using these four sub-dimensions, and 20 questions were included.

Research problem

Most primary teachers are unable to balance their workload and mental stress. As a result of it, they are unable to control their anger, and it affects students. Therefore, teachers need to develop their resilience skills. To measure the level of resilience skills that teachers need, a questionnaire is used.

1. What are the dimensions that should be used in the resilience questionnaire?
2. Why do teachers need resilience skills?

Objectives

1. To identify the key resilience skills relevant to primary school teachers
2. To develop the questionnaire for measuring the resilience skills (emotional, motivational, professional, and social) of primary school teachers.
3. To validate the questionnaire through the expert review.

Review of literature

Resilience is necessary for primary school teachers as primary education is the most essential milestone of a student's academic life. Therefore, teachers face several mental challenges due to the heavy workload and their responsibilities. Resilience is broadly defined as the capacity to recover from adversity, adapt to change, and sustain personal and professional well-being (Gu & Day, 2007). There are many theories supporting resilience in this study, mainly the social cognitive theory. Rooted in Social Cognitive Theory, self-efficacy belief, which is another individual characteristic evaluated among positive psychology concepts, is one of the self-regulators individuals use to determine their own motivation and performance levels (Wood & Bandura, 1989).

There are many tools available to measure resilience skills. But to full fill the gap of the present research questionnaire, the four-sub dimensions of resilience skills should be developed through the four-sub dimensions of resilience skills. Furthermore, few existing tools are designed for primary school teachers, where the emotional, motivational, professional, and social aspects are distinct from those of primary school teachers.

Methodology

The research was conducted using a qualitative and quantitative approach. It was designed in two phases. The first phase developed the questionnaire and was validated by five research experts. According to the feedback of experts, the questionnaire was revised and validated by another three experts. In the second phase, the final instrument was administered using experts' suggestions. The population of this study is all primary school teachers in Sri Lanka, and the sample of the study is 32 teachers who hold a bachelor's degree in early childhood and Primary Education. The sample is

selected by using random sampling methods. In this study, researchers developed and validated resilience skill questionnaires. The questionnaire includes twenty questions, which were developed under the four sub-dimensions (emotional, motivational, professional, and social) and five questions for each.

Discussions

The questionnaire includes twenty questions using four dimensions: emotional, motivational, professional, and social. There are five questions included for each dimension. To validate the questionnaire, experts received the abstract, the questionnaire, and the feedback questionnaire. The feedback questionnaire includes five questions and one part for their verbal feedback. After getting their feedback, I again corrected the questionnaire and sent it for validation. All subject experts are PhD holders in the Faculty of Education at the Open University of Sri Lanka.

Results and findings

The content validity index was calculated using a panel of five subject experts and items on a five-point scale (1 = strongly agree, 2 = agree, 3 = undecided, 4 = strongly disagree, 5 = disagree). The item-level content validity index (I-CVI/Ave) was calculated for each item by taking the experts, and the value of (I-CVI) is 0.80, the (S-CVI/UA) is 0.7, indicating that the questionnaire is accepted by experts. Further experts suggested that the use of negatively worded items should be minimized or balanced with positively framed ones to reduce response bias.

According to their responses, the questionnaire was corrected and received feedback from three other experts on the subject. They explained that the research topic addresses an important area. However, to strengthen the conceptual clarity and coherence of the study, it is recommended to clearly define the term “Peace Education” within the context of this research. A well-articulated definition will help justify its integration into the framework for identifying resilience competencies.

Additionally, the professional domain (Section A) of the questionnaire would benefit from further refinement. At present, the items in this domain appear somewhat misaligned and conceptually scattered. Therefore, aligning the items under each domain, particularly the professional domain, with theoretically grounded aspects of teacher resilience will enhance the overall validity and focus of the questionnaire. The experts agreed with the corrections and approved the questionnaire.

Conclusion

The research aimed to develop and validate a resilience questionnaire to measure the resilience skills of primary school teachers. The review of literature carried out by teachers needs to improve their research skills. Because presently most students are suffering several types of difficulties, and they need mental protection from parents as well as teachers. Therefore, it should identify the key resilience skills relevant to primary school teachers and measure the level of resilience skills of these teachers. Hence, findings defined that developed questionnaires were suitable for measuring the resilience skills of primary school teachers.

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Teachers' Usage of Effective Positive Psychological Strategies in Addressing Psychosocial Issues of Secondary Students: A Review of Literature

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Abstract

The approach of positive psychological strategies has gained unprecedented recognition among educators, teachers, and scholars. Babara (2007) said that being an effective way to overcome psycho-social issues in students, positive psychological strategies have shown a reputable phase, especially in shaping the mental health and resilience of students. In the late 1990s, Martin E.P. Seligman was the first to introduce positive psychology to the world, emphasizing his work from pathology to strengths and human well-being. This is a literature review related to ongoing research, "Teachers' usage of effective positive psychological strategies in addressing psychosocial issues of secondary students". The work employs a secondary data analysis using a systematic review based on academic databases, including Google Scholar, ResearchGate, PsycINFO, and PubMed. Erikson's Psychological Development Theory (1968) posits that some students aged 12 to 18 years may fail to explore their values, identity, uniqueness, and future goals due to self-identity confusion, among other factors. He highlighted that the above negativities may occur with low self-esteem, identity crisis, emotional instability, and social isolation (Erikson, 1968). A study conducted in China by Zhao et al (2023), using a quantitative approach with 95545 students from grades 7 to 12, shows that even a mild level of bullying has increased the risk of depression, sleep disorders, and anxiety. According to Seligman (2011), the ultimate aim of the PERMA model, which he introduced with a focus on self-satisfaction, self-efficacy, positive thinking, fostering hope, optimism, and resilience, is to promote and enhance the psycho-social well-being of the whole society. A study conducted by Moore et al (2023) titled "Well-Being Interventions in Australian Secondary Schools" has shown that well-being interventions conducted in partnership with martial arts, friendship skills, and music have significantly improved resilience, self-efficacy, and self-satisfaction among students. The pivotal role of teachers plays a significant role in supporting secondary students, addressing psycho-social issues and emotional issues.

Keywords: Positive psychology, psycho-social issues, teachers' intervention

Introduction

Secondary students and psycho-social issues are interrelated aspects not only in the school climate but also in society. In light of the current societal context, it is very common that many adolescents (secondary students) face a variety of psycho-social issues ranging from very simple to very complex phases. Anxiety, academic stress, peer conflicts, low emotional well-being, and low self-esteem are the most commonly traced psycho-social issues, affecting their overall development and academic progress (UNESCO, 2021). Santrke (2018) posited that adolescence is very influential in building a balanced personality and building up identity among them. Therefore, the negative experiences or mindset based on psycho-social issues can cause long-lasting personality issues and mental health problems, which can negatively impact even into adulthood.

The vital role that is played by teachers as well-trained facilitators in the school settings is highly impactful in managing psycho-social and emotional issues. Teachers who have enough knowledge, skills, and attitudes for building teacher-student integration can cultivate positive psychological strategies such as optimism, resilience, well-being, fostering a growth mindset, gratitude expressions, and promoting emotional regulation, which can serve the betterment of students. Walter (2011) said that teacher-student interrelationship and effective classroom engagement are directly linked to the mental well-being of students.

Objectives of the review

The objectives of the literature review are based on three specific objectives.

1. To identify the psycho-social issues of secondary students.
2. To study the theoretical Framework in Positive Psychology.
3. To search for effective positive psychological strategies used by teachers.

Methodology

The study is carried out by implementing a secondary data analysis using a systematic review based on academic databases, including Google Scholar, ResearchGate, PsycINFO, and PubMed.

Literature review

The literature of the study employs three specific objectives of the study as mentioned above. There are three specific themes built based on the specific objectives of the study.

Understanding the psycho-social issues of secondary students

Jean Piaget (1972) contributed to the discipline and posited that adolescents begin to experience self-thoughts, abstract thinking, reasoning, moral dilemmas, and Socio-emotional distress. According to Piaget, adolescents aged 12 to 18 are at risk of personality development risk if they face psycho-social issues unaddressed. Establishing the Social Learning, Bandura (1977) indicated that adolescents may follow the malpractices by following family, peers, media, or other approaches. According to Bandura (1977), maladaptive behaviors can be shaped negatively or positively by modeling, observation, and reinforcement in the process of learning, and adolescents may be integrated into those maladaptive behaviors as learned responses. Another great contribution was made by Maslow (1943), establishing his theory of the hierarchy of human motivation. As Maslow highlighted, when basic needs such as belonging and esteem are not fulfilled, psychological issues arise in individuals. At the stage of adolescence, adolescents need to meet feelings of being accepted and mentally safe.

Theoretical Framework in Positive Psychology

PERMA Model

The PERMA model was developed by Martin Seligman, a well-known psychologist in the USA. His pioneering work has generated a model with five elements of psychological well-being that entail the positive aspects of human life. Self-enthusiasm, self-esteem, happiness, well-being, flourishing, and self-strengths are the appreciated components of the model. Seligman (2011) expressed that thriving individuals leading to the psycho-social well-being of the whole society is the utmost aim of this PERMA model. Rather than the clinical-based approach to address the contexts of psycho-social issues and Socio-emotional issues, PERMA plays a strong behavior–based way to address those complexities in the human mind and behavior. Each letter of the term PERMA represents certain factors in positive psychology as follows:

P - Positive emotion: including joyfulness, gratitude, and serenity, and experiencing happiness.

E - Engagement: being engaged in activities, occupied actively in an absorbed manner.

R - Relationships: positive interconnectedness with others in society

M - Meaning: serving something to a greater extent than oneself

A - Accomplishment: subjected to achievements and successes in life

(Seligman, 2011)

Broaden and Build Theory

Frederickson (2001) posited another important concept explaining that positive emotions of a person broaden positive self-regulated thoughts and actions, strengthening personal capacity, physical ability, intellectual capacity, and psychological resources. The following chart further clarifies how this theory flows:

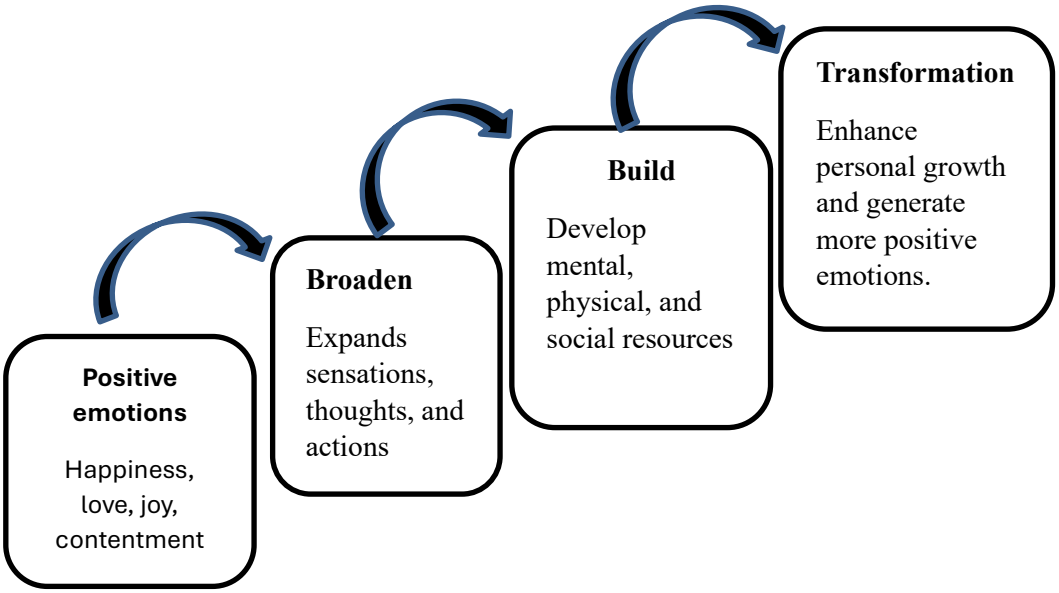

Figure 1. The broaden and build theory (Fredrickson, 2001)

Self-Determination Theory

In positive psychology, self-determination theory plays an incredible role as it is directly linked to the establishment of Martin Seligman's theory. Self-determination theory was first introduced by Deci and Ryan in 2000. The STD concept demands that when three psychological components are satisfied, human well-being is optimized successfully. STD, as an originally rooted theory in positive psychology, strengthens the whole ideology of emotional well-being (Deci & Ryan, 2000).

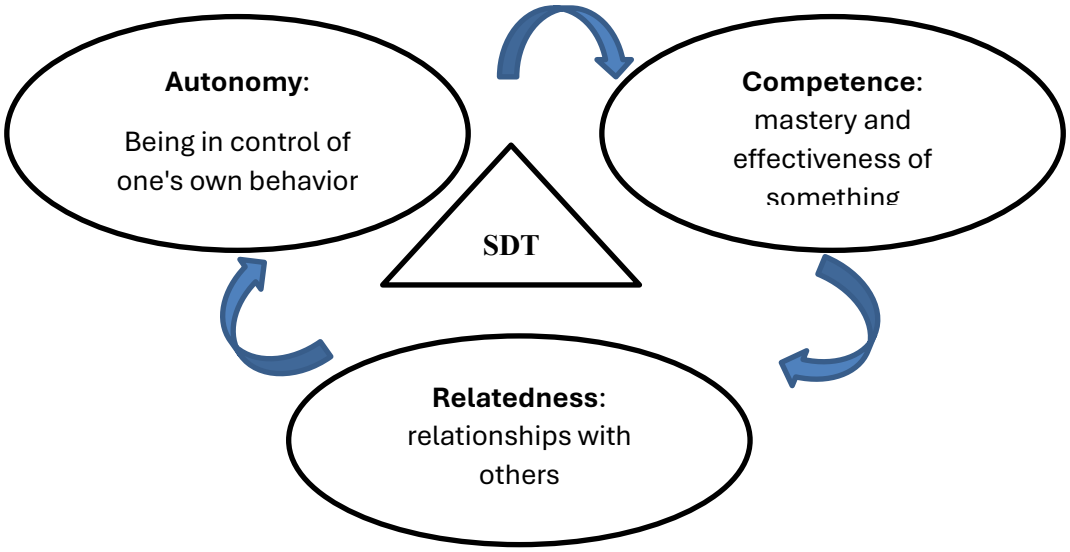

Figure 2. STD model (Deci & Ryan, 2000)

Flow theory

To expand the discipline of positive psychology, another theory was committed at its fullest strength in 1990. Csikszentmihalyi (1990) introduced this concept, clarifying that there is a flow of intense concentration and enthusiasm, also known as enjoyment, when engaging in activities according to the balanced state of challenge and skill level. When an individual is skilled and able to face new experiences or challenges, the person is self-controlled, focused, and relaxed in the scenario. But, if an individual who has fewer skills and capacity feels much boredom, depressed, stressed, and contented with higher challenges. The following chart expands the mechanism of the model of flow.

Positive psychological strategies used by teachers in addressing psycho-social issues

A study done in 2025 on "Well-Being Evermore for Teen" has revealed that interventions such as optimism, cultivating self-identity, and socio-emotional have performed a potential integration into the classroom setting effectively, including the progression of academic performance. The research was done following an action-based framework under a scoping review of 64 brief stand-alone strategies (Helliwell et al, 2025). Another study done in Africa in 2024 has found that approaches like social support, goal-oriented behavior, and hopefulness have shown a positive impact on academic progress and psycho-social well-being of students. The study was done following a scope review of 15 studies from 2007 to 2022. A mixed method was used to conduct the work titled "Positive Psych Constructs & Academic Success" (Naido & Guse, 2024). Wellappuli and others (2020) have shown that the social well-being of Sri Lankan students has been positively affected by a strong teacher-student relationship in the school climate. Vithana and others (2022) found that there is an extreme need for psychosocial interventions in the Sri Lankan general education context, based on adolescents.

In 2023, another study titled "Active Student Participation & School Interventions" reviewed that peer-led and teacher-supported school environment correlates with adult support and coping among students and teachers as well as students and the community. The work has been done by a systematic review based on socio-emotional well-being and behavior (Educational Psychology Review Team, 2023). A study on "Trauma-Informed Approaches in Education" done by Brunzell et al (2005) has uncovered that positive psychological strategies such as self-regulation practices, relationship building, and a self-efficacy approach have supported trauma-exposed students to reduce their adverse mental and behavioral circumstances with the intervention of teachers. The study was done following a systematic review of trauma-informed pedagogies under a qualitative method.

Conclusion of the literature review

The literature review of the study circulates over several key areas based on positive psychological strategies in addressing psycho-social issues of students. Basically, the pivotal role of teachers in supporting secondary students, addressing psycho-social issues and emotional issues, is very critical, aligned with the approaches emphasized by positive psychology. Students who are experiencing psycho-social issues such as depression, anxiety, peer pressure, self-regulation issues, and low self-esteem need to be effectively managed not only at home but also in the school climate. In the school climate, teachers are the most responsible caregivers to manage the well-being of secondary students. In the research world, there is a great demand for emphasizing how effective these PPSs are in addressing the psychosocial issues of students. There are many grounded principles promoting well-being, academic engagement, self-regulation, and resilience of secondary students in addressing various psycho-social and emotional problems.

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A Systematic Literature Review of School Self-Evaluation Frameworks Used in Various Countries to Identify Domains and Stakeholders

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Abstract

This systematic literature review explores frameworks for school self-evaluation (SSE) used in different countries to improve quality assurance in education. Recognizing that a strong quality assurance process improves efficiency and stakeholder satisfaction, the study highlights the need to update evaluation methodologies in line with global trends. The objectives of this study were to identify existing SSE frameworks used in various countries, analytically determine the core domains of focus, and identify key stakeholders involved in the evaluation process. The research began by identifying 25 international SSE framework documents and using the PRISMA 2020 guidelines for a systematic literature review, which removed duplicates in the Identification step. Following a screening process that removed non-English documents, and non-SSE frameworks and SSE frameworks from 12 countries—Bahrain, Hong Kong, India, Ireland, Malta, Scotland, South Africa, Tanzania, New Zealand, Australia, United States of America (USA), and Mauritius—were selected for analysis. The thematic analysis revealed seven domains essential to the design of an SSE model: teaching and learning; leadership and management; student outcomes and achievements; school ethos, climate, and culture; infrastructure and resources; stakeholder engagement and partnerships; and quality assurance and improvement processes. Furthermore, seven key stakeholder groups were identified as participating in the SSE process. Although participation varies by country, the most consistently involved stakeholders are school administrators, teachers, students, and parents. Some frameworks also included the participation of school boards, experts, and non-academic staff. I proposed that any new or revised SSE framework should include these seven domains and ensure the active participation of at least four stakeholder groups: school administrators, teachers, students, and parents, to foster a culture of continuous improvement and accountability within schools.

***Keywords*:** School self-evaluation frameworks, domains, stockholders

Introduction

Having a high-level quality assurance process helps an organization's products or services to continuously meet or exceed customer expectations. It also leads to increased efficiency, reduced waste, and greater productivity within the organization's processes. This helps build customer trust and loyalty, leading to increased customer satisfaction. Accordingly, quality assurance has now gained significant attention and has become an essential component of any product or service in any field, including the field of education. In education, quality assurance can be seen as a fundamental process that ensures schools provide high-quality learning experiences, promote continuous improvement, and meet regulatory standards.

Makiya et al. (2023) define School Quality Assurance as the continuous and comprehensive efforts to evaluate school inputs (teachers, students, facilities, and curriculum), monitor transformation processes (teaching and learning activities), and assess outputs (learning achievements). Medard & Mwila (2022) state that the recognition of quality assurance in education as an emerging policy began at the World Conference on Education for All, led by UNESCO in Jomtien, Thailand, in 1990. Following this, many countries around the world have focused on quality assurance processes in education. They have taken steps to introduce evaluation frameworks that include domains, criteria, and indicators tied to their national educational contexts, as well as various strategies to measure whether schools are duly fulfilling expected requirements.

According to Lyimo (2015), implementing quality assurance guidelines is the surest way to ensure the quality of products at any level of education, while Medard & Mwila (2022) state that school quality assurance is most effective worldwide where there are well-organized guidelines and the guidelines contain the scope and area of focus, along with aspects of school improvement. These quality assurance evaluation frameworks introduced by various countries are designed along two profiles: enabling the school to conduct a self-evaluation (School Self-Evaluation - SSE) and enabling an external party to evaluate the school (External Evaluation). SSE is a collective reflective process that provides an understanding of the current conditions within schools. It enables their staff to assess the schools' strengths and weaknesses to identify areas for improvement for sustainable development (Education Bureau, 2024). While both SSE and External Evaluation are uniquely essential for enhancing a school's quality, SSE is particularly important for creating a highly productive and efficient school system by managing the invested physical and human resources to a proper standard.

That is, SSE allows the school to identify its own strengths and weaknesses and to formulate improvement plans based on them. The accountability that arises from the school community (principal, teachers, students, parents) evaluating their own school provides the opportunity to constantly review their performance and make necessary changes. For that, it is essential to have a formal guide, i.e., an SSE framework, which provides a clear understanding of the factors to be considered in school self-evaluation and what specific advice to give. Various countries and organizations are using self-evaluation guidelines or frameworks to identify or measure the quality of schools, and these guidelines or frameworks contain different stages, themes, domains, and criteria. Kurum & Cinkir (2019) revealed four themes: SSE Participants, Content of SSE Model, Stages of SSE Model, and Data Collection Process of SSE Model that can be used in forming the SSE model.

The objective of this research is a comparative analysis of the first two of the above four themes: SSE Participants (stockholders) and the Content of the SSE Model. By examining the structural inclusion of these themes in established school self-evaluation frameworks across various countries, this study aims to delineate an empirically-grounded basis for the selection of participants and the construction of content for a proposed new SSE model.

Research Problem

Recognizing the importance of the concept of evaluation, the Ministry of Education's "How good is Our School?" Guide (2015) also states that it is necessary to update the evaluation methodology in line with new trends. That is, since the education sector is evolving every year with changes in technology, society, and the needs and expectations of children and consumers, the Guide on SSE Methodology for School Quality Assurance should also be updated.

When developing a new or improved framework for SSE for School Quality Assurance by a country, institution, or individual, one cannot act based on assumptions. To do so, it is essential to gain a deep understanding of the international policy frameworks, models, and best practices that are already being successfully implemented around the world. The most formal, transparent, and reliable method for gaining this understanding is to conduct a systematic literature review.

Objectives

1. To identify the SSE frameworks used in various countries.
2. To analytically identify the domains that require focus in SSE.
3. To analytically identify the stakeholders involved in SSE.

Research Method

Afriadi et al. (2021), citing Rethlefsen et al. (2021), a systematic review is an evaluation of evidence on clearly specified topics that uses systematic and explicit approaches to find, select, and critically appraise important, relevant research, and to collect and analyze data from the included research. Systematic reviews serve many critical roles. They can provide syntheses of the state of knowledge in a field, from which future research priorities can be identified; they can address questions that otherwise could not be answered by individual studies; they can identify problems in primary research that should be rectified in future studies; and they can generate or evaluate theories about how or why phenomena occur (Page et al., 2021).

Accordingly, a systematic literature review was conducted to study the frameworks used internationally for SSE. In this process, the steps were followed in Figure 1 for the selection and reporting of literature, in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 guideline.

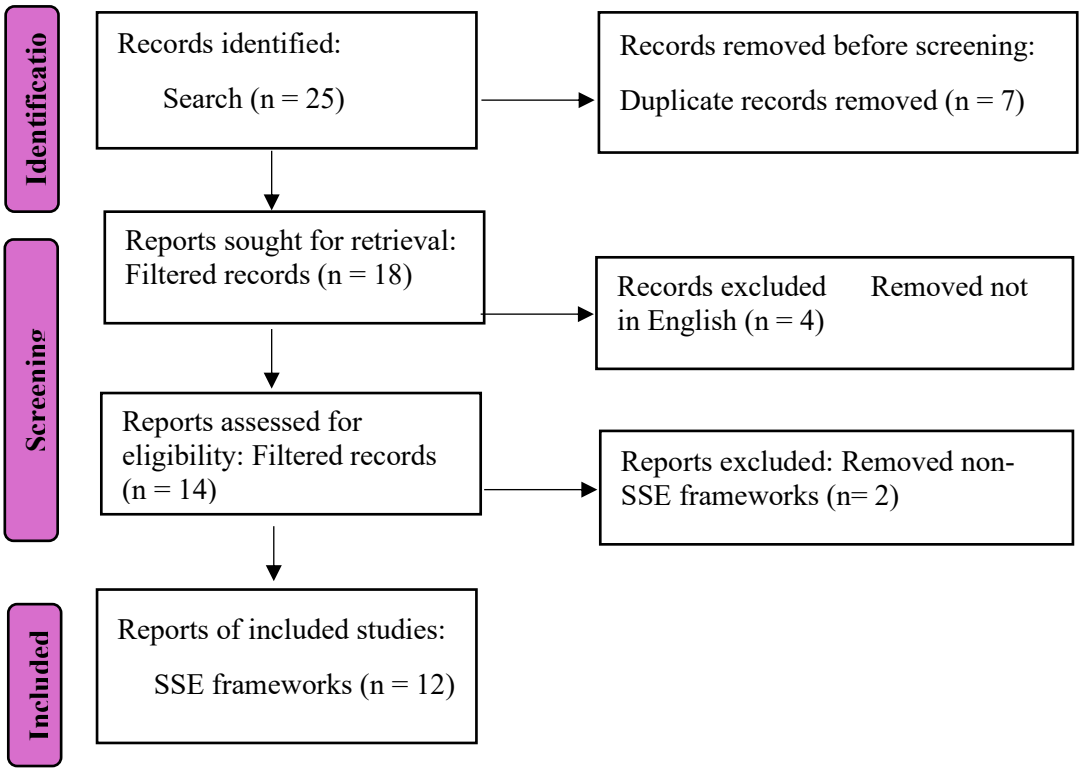

Figure 1. SSE Frameworks Selection Process

In the first step of identification, a search was conducted on Google for SSE frameworks in various countries, and 25 such documents were found. From these, 7 duplicate documents were removed. During the second step of screening, 4 non-English documents and 2 documents that were not SSE frameworks were also excluded. This resulted in the identification of 12 documents that were suitable for the systematic literature review and relevant to the objectives of this research.

Discussion

In accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 guideline, 12 SSE frameworks—suitable for the systematic literature review and relevant to the objectives of this research—were identified from the following countries: Bahrain, Hong Kong, India, Ireland, Malta, Scotland, South Africa, Tanzania, New Zealand, Australia, USA, and Mauritius. Following the model articulated by Kurum & Cinkir (2019), which posits four themes for the formulation of a school self-evaluation (SSE) framework, this investigation focuses on two: SSE Participants and Content or domains of the SSE Model. Through a comparative review

of how these themes are operationalized in various countries, the requisite participants and principal domains for a new SSE framework can be systematically identified as presented below.

Domains of SSE Frameworks

The content of SSE frameworks consists of domains identified by the Ministry of Education or relevant institutions, tailored to suit the context of each respective country. In this study, the identified literature was reviewed to create a more general and comprehensive content framework, and the domains that these countries focus on during SSE are shown in Table 1.

Table 1

Domains of SSE frameworks in various countries

Country	Domains of Various Countries
India (Central Board of Secondary Education, 2019)	Scholastic Processes Co-Scholastic Process Infrastructure Human Resources Inclusive Practices Management and Governance Leadership Beneficiary Satisfaction
Country	**Domains of Various Countries**
Mauritius (Quality Assurance and Inspection Division, 2019)	Student Attainment Teaching and Learning Leadership and Management School Ethos and Climate School Infrastructure
Ireland (Department of Education, Inspectorate, 2024)	Learning and Teaching Learner outcomes Learner experiences Teachers' individual practice Teachers' collective/collaborative practice Leadership and Management Leading learning and teaching Managing the organization Leading school development Developing leadership capacity
Tanzania (Ministry of Education, Science and Technology, 2017)	Learners' Achievement The quality of teaching for good learning and assessment The quality of the curriculum in meeting learners' needs The quality of leadership and management: leadership of learning, leadership of people. and resources The quality of the school environment and its impact on welfare, health, and safety Community engagement
USA (Cognia, 2025)	Culture of Learning Leadership for Learning Engagement of Learning Growth in Learning
Hong Kong (Education Bureau, Quality Assurance Division, 2024)	Management and Organization Learning and Teaching School Ethos and Student Support Student Performance

Country	Domains of Various Countries
Bahrain (Education & Training Quality Authority, 2019)	Quality of outcomes Quality of main processes Quality assurance of outcomes and processes
Malta (Directorate for Quality and Standards in Education, 2023a)	Leadership and Management Learning and Teaching Ethos
Scotland (Education Scotland, 2015)	Leadership and Management Learning Provision Successes and Achievements
New Zealand (Education Review Office, 2024)	Leadership Curriculum Teaching and learning
South Africa (Department of Basic Education, n.d.)	Quality of teaching and learning, and educator development. Curriculum provision and resources. Learner achievement. Basic functionality of the school. Leadership, management, and communication. Governance and relationships. School safety, security, and discipline. School infrastructure. Parents and community.
Australia (Australian Council for Educational Research, 2023)	Driving an explicit improvement agenda Analyzing and discussing data Promoting a culture of learning Targeting school resources Building an expert teaching team Leading systematic curriculum implementation Differentiating teaching and learning Implementing effective pedagogical practices Building school-community partnerships

As shown in Table 1, the SSE frameworks used in Bahrain, Hong Kong, India, Ireland, Malta, Scotland, South Africa, Tanzania, New Zealand, Australia, the USA, and Mauritius show similarities in the domains, and also some different domains exist. A thematic analysis was conducted to determine the domains that should be included in the SSE framework when developing a new or improved one.

Seven domains for developing an SSE framework were identified, as depicted in Figure 2. These include Teaching and Learning, Leadership and Management, Student Outcomes and Achievement, School Ethos, Climate, and Culture, Infrastructure and Resources, Stakeholder Engagement and Partnerships, and Quality Assurance and Improvement Processes.

Related stakeholders

In this study, the SSE frameworks that were subjected to a literature review revealed that there are various stakeholders depending on the structure of the country's education system; a thematic analysis was conducted to identify the stakeholders that are involved in the SSE process generally.

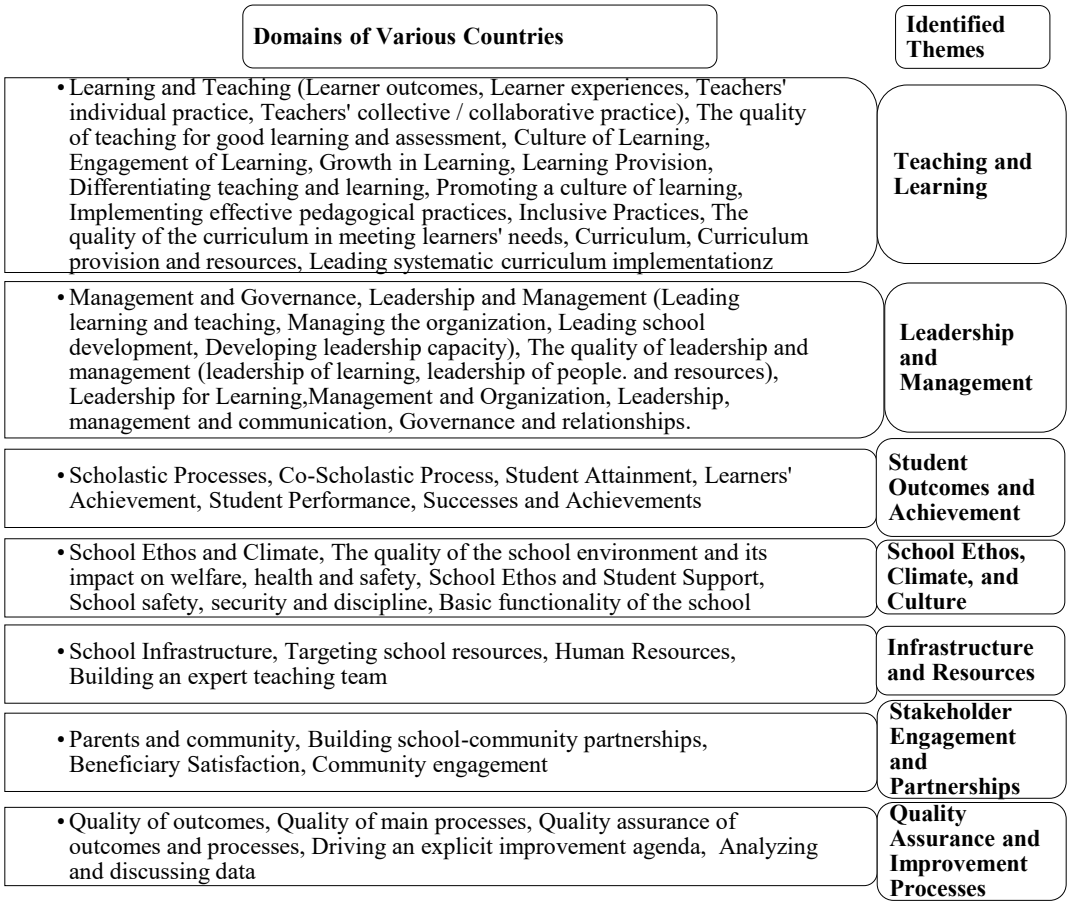

Figure 2. Thematic Analysis: Identification of Domains

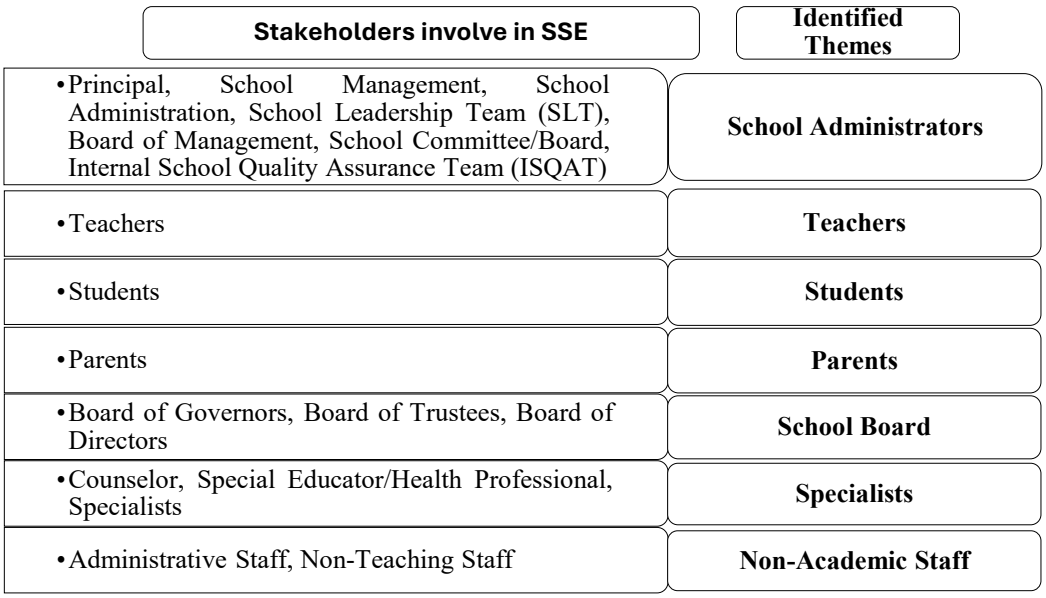

Figure 3. Thematic Analysis: Identification of Stakeholders

Seven stakeholders were identified as being involved in the SSE process, as shown in Figure 3. These are: School Administrators, Teachers, Students, Parents, the School Board, Specialists, and Non-Academic Staff. Of the twelve countries reviewed in the literature, South Africa and Mauritius did not specify the stakeholders in their SSE frameworks. In other countries, the stakeholders involved in the SSE process are listed in Table 2 according to the above themes.

Table 2
Stakeholders Involved in the SSE Process

Identified Stakeholders	India	Bahrain	Hong Kong	Ireland	Malta	Scotland	Tanzania	New Zealand	Australia	USA
School Administrators	√	√	√	√	√	√	√	√	√	√
Teachers	√	√	√	√	√	√	√	√	√	√
Students	√	√	√	√	√	√	√	√	√	√
Parents	√	√	√	√	√	√	√	√	√	√
School Board								√	√	
Specialists	√		√		√					
Non-Academic Staff	√					√	√			

As shown in Table 2, the SSE process in different countries is usually carried out with the participation of school administrators, teachers, students, and parents. In addition, in New Zealand and Australia, school boards also participate in the self-evaluation process. In India, Hong Kong, and Malta, Specialists also participate in the self-evaluation process; in India, Scotland, and Tanzania, non-academic staff also participate in the self-evaluation process.

Conclusion

This systematic literature review highlights seven domains that should be focused on in creating or developing SSE frameworks: Teaching and Learning; Leadership and Management; Student Outcomes and Achievement; School Ethos, Climate, and Culture; Infrastructure and Resources; Stakeholder Engagement and Partnerships; and Quality Assurance and Improvement Processes. It also highlights that four stakeholders, namely school administrators, teachers, students, and parents, should participate in the SSE process.

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The Impact of Self-Directed Learning (SDL) Technique on Empowering Adult Learners' Learning

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Abstract

This study investigated the influence of self-directed learning (SDL) techniques on the empowerment of adult learners within educational contexts. Recognizing the diversity of individual learning styles, the research underscores the importance of learner autonomy in adult education. SDL, characterized by learners' active engagement in setting goals, choosing appropriate learning strategies, and engaging in reflective practices, plays a pivotal role in enhancing adult learning outcomes. Drawing on the theoretical perspectives of Bosh (2017) and Knowles (1975), the study explored both the conceptual foundations and practical implications of SDL. The research was guided by two key objectives: (1) to theoretically examine the role of SDL in empowering adult learners, and (2) to assess the practical impact of SDL techniques on learner empowerment. Employing a thematic analysis within a qualitative research framework, data were synthesized from seven scholarly sources. The findings revealed that SDL techniques significantly contribute to the development of learner autonomy, intrinsic motivation, and reflective capacity, ultimately enhancing the empowerment of adult learners in diverse educational settings.

Keywords: Adult learner, Self-Directed Learning (SDL), self-directed learning technique, empowering

Introduction

The concept of self-directed learning (SDL) has garnered increasing attention in the field of education, particularly in the context of adult learning. Emerging in the twentieth century, SDL has evolved into a vital pedagogical framework that emphasizes learner autonomy, motivation, and reflective engagement. As global educational paradigms shift towards more learner-centered approaches, the relevance and necessity of SDL have become more pronounced in contemporary educational discourse. This is especially true in adult education, where learners often bring diverse experiences, goals, and learning preferences to their educational journeys. Knowles (1975), a foundational scholar in adult education, defines self-directed learning as an individual's capacity to initiate and manage their own learning processes, either independently or with external support. This process involves identifying personal learning needs, setting appropriate goals, selecting suitable learning strategies, and actively engaging in the evaluation and reflection of one's progress. SDL empowers learners to take ownership of their education, transforming them from passive recipients of information to active participants in knowledge construction.

The increasing integration of SDL principles into the educational systems of developed countries further highlights its value in the 21st century. According to Guiter (2014), SDL is now recognized as a critical component of lifelong learning and professional development, equipping individuals with the skills needed to adapt in a rapidly changing world. SDL fosters deeper personal engagement by allowing learners to tap into their intrinsic motivations and develop skills that extend beyond traditional classroom boundaries (Edmondson et al., 2012). As demonstrated above, it is evident that the implementation of self-regulated learning (SRL) techniques can significantly enhance the success of adult education by fostering learner empowerment. Self-regulated learning techniques empower adult learners by enabling them to take active control of their learning processes, including goal setting, self-monitoring, self-assessment, and the regulation of motivation and behavior. These techniques promote autonomy, critical reflection, and lifelong learning

competencies, which are essential for adult learners who often engage in education alongside professional and personal responsibilities.

To effectively empower adult learners through SRL, several key factors and qualities are required. These include intrinsic motivation, self-efficacy, metacognitive awareness, goal orientation, and the ability to manage time and resources efficiently. Additionally, supportive learning environments, access to appropriate learning resources, and facilitative instruction play a crucial role in nurturing self-regulated learning behaviors. In order to examine how SRL techniques contribute to the empowerment of adult learners and to identify the factors influencing their effectiveness, it is most appropriate to draw upon existing research in this field. A comprehensive review of empirical studies focusing on self-regulated learning will provide valuable insights into how these techniques can be applied more effectively within adult education contexts. Given this context, the current study aimed to explore the theoretical underpinnings and practical implications of SDL in adult education. It examined how SDL techniques empower adult learners by enhancing autonomy, promoting self-motivation, and encouraging reflective practices. By analyzing selected scholarly literature, the research sought to contribute to the growing body of knowledge on SDL and its role in advancing adult learning and development.

Research Gap

Although a substantial body of literature has explored self-directed learning (SDL) and self-regulated learning (SRL) within adult education, several critical gaps remain in understanding how these approaches specifically contribute to the empowerment of adult learners. Much of the existing research has focused on theoretical discussions or general applications of SDL and SRL, with limited attention given to how these techniques operate in diverse adult learning contexts, particularly in developing countries such as Sri Lanka. Furthermore, while scholars such as Knowles (1975) and Guiter (2014) emphasize the importance of learner autonomy and motivation, there is still a lack of empirical evidence explaining the specific factors and personal qualities that facilitate or hinder the effective implementation of SDL and SRL among adult learners.

Another notable gap lies in the integration of SDL and SRL frameworks. Despite their conceptual overlap, few studies have examined how self-regulated learning techniques can be systematically incorporated within self-directed learning environments to enhance learner empowerment and lifelong learning outcomes. Additionally, existing studies often overlook the contextual influences, such as institutional support, cultural expectations, and access to learning resources that shape adults' capacity for self-directed and self-regulated learning. There is a need for further investigation into how SRL techniques can be applied within the framework of SDL to empower adult learners more effectively. Addressing this gap will deepen the understanding of how adult learners can be supported to develop greater autonomy, motivation, and reflective engagement, thereby strengthening the theoretical and practical foundations of adult education in contemporary settings.

Objectives:

1. To theoretically examine the role of SDL in empowering adult learners, and
2. To assess the practical impact of SDL techniques on learner empowerment.

History of Self-Directed Learning

Although the practice of self-directed learning (SDL) can be traced back to ancient times, systematic investigation into this phenomenon began only in the mid-twentieth century, particularly within the field of adult education. Lindemann (1989) emphasized that adult learners possess a distinct need to regulate their own learning processes, reflecting their autonomy, experience, and self-direction. In 1971, Tough (building upon the work of Hall, 1961) developed an early model of adult learning, highlighting the structured and goal-oriented nature of adult learners' engagement

with knowledge. Through interviews with 66 adult learners, Tough discovered that individuals devoted more than 700 hours annually to self-directed learning projects, underscoring the depth of commitment adults bring to their learning pursuits. Knowles (1975) expanded on this foundation by introducing the concept of learning contracts, which formalize the learner's responsibility for planning, implementing, and evaluating their own learning. Knowles' work also established a clear connection between self-regulated learning and andragogy, the theory of adult learning, emphasizing that adults learn most effectively when they take ownership of their learning processes.

Self-directed learning is now recognized as an educational approach wherein learners take active responsibility for their learning goals, processes, and outcomes (Bosh, 2017). Self-directed learners independently determine their objectives, select appropriate learning resources, and continuously monitor their progress (Boyer et al., 2014). The process culminates in self-reflection, through which learners evaluate their performance and make necessary adjustments for improvement. Knowles (1975) noted that while self-directed learning emphasizes autonomy, it is often more effective when conducted collaboratively, involving interactions with teachers, mentors, peers, parents, or other knowledgeable individuals. Similarly, conceptualize learning as a continuous and interactive process, in which one dimension is guided by the educator, while the other is learner-directed through SDL (Loynes et al., 2008). This model shifts the focus from the teacher as the sole source of knowledge to the learner as an active constructor of understanding through discussion, dialogue, and reflection.

According to Knowles, SDL encompasses a systematic process where the learner identifies their learning needs, sets specific goals, determines suitable strategies and resources, and continuously evaluates their progress. It is this cyclical process of planning, acting, monitoring, and reflecting that distinguishes SDL from other related approaches such as self-directed learning (SDL), self-study, or self-paced learning. Although these methods share similarities in promoting learner autonomy, self-directed learning uniquely emphasizes metacognitive control, motivational regulation, and strategic action throughout the learning process. To provide a clear conceptual framework for applying SDL in educational practice, several instructional models have been developed.

Methodology

Research Approach

This study adopted a qualitative research approach to explore the impact of self-directed learning (SDL) techniques on the empowerment of adult learners. The qualitative approach was selected because it allows for an in-depth understanding of participants' experiences, perceptions, and behaviors within their natural learning contexts. Through qualitative inquiry, the study sought to capture the meanings that adult learners and educators assign to SDL practices and how these contribute to learner empowerment and autonomy. A thematic literature analysis design was employed in this study. This design is particularly suitable for identifying, analyzing, and interpreting recurring patterns or themes across qualitative data sources. Thematic analysis enables the researcher to move beyond merely describing the data to interpreting its deeper meanings in relation to existing theoretical frameworks of SDL and learner empowerment. To ensure a robust foundation for analysis, data were collected through a systematic review of seven peer-reviewed research papers published in reputable academic journals. The selected studies focused on self-directed learning within the context of adult education, professional development, or lifelong learning. Inclusion criteria required that each paper directly addressed the use, impact, or theoretical basis of SDL.

Data Analysis

Thematic analysis of the reviewed literature reveals several recurring patterns and insights into self-regulated learning (SRL)**,** self-directed learning (SDL)**,** and their significance in higher education,

professional development, and organizational learning**.** The analysis was conducted through a systematic review and interpretation of existing qualitative research, conceptual papers, and empirical studies. Through this process, the researcher identified dominant ideas, conceptual linkages, and contextual applications related to SRL and SDL, both globally and within the Sri Lankan educational landscape.

Thematic analysis of the reviewed literature reveals several recurring patterns and insights into self-regulated learning (SRL), self-directed learning (SDL), and their relevance to higher education, professional development, and organizational contexts in Sri Lanka and beyond. The key themes that emerged from the analysis are as follows.

Discussion

The study emphasized the importance of fostering a supportive work environment to enhance human resource development (HRD). Job satisfaction also emerged as a contributing factor in Abdul Harris's (2024) study to assess students' self-regulated learning (SRL) readiness in the context of online learning**.** The research focused on students enrolled in the Arabic Language Education Program at the Faculty of Islamic Theology, Muhammadiyah University of Malang. The aim was to examine the level of SRL readiness among these students when engaging with an online learning model.

The study adopted a qualitative research design and employed purposive sampling to select a sample of 66 students from a total population of 400. Data collection was carried out using a structured questionnaire distributed via Google Forms, based on the Google Self-Regulated Learning Scale. The collected data were analyzed using SPSS 7 software. The findings revealed a positive correlation between students' learning motivation and their self-regulated learning capabilities. Specifically, students who exhibited high levels of autonomous learning leadership demonstrated a strong capacity to manage their learning independently. In contrast, those with lower levels of responsibility tended to lack the self-confidence necessary to overcome challenges commonly associated with self-regulated learning. Overall, the study concluded that students in the Arabic Language Education Program possess the potential to succeed in self-directed online learning environments. However, to optimize their performance, they must strengthen their self-confidence and develop a greater sense of personal responsibility, particularly in confronting academic challenges and solving problems independently.

Bandara (2022) conducted a mixed-method study to investigate the state of self-directed learning (SDL) in higher education in Sri Lanka. The study employed both qualitative and quantitative methods and was based on data collected from 138 second-year undergraduate students from the Faculty of Arts at the University of Colombo, 28 university lecturers, and 3 policymakers from the Ministry of Education, the Ministry of Higher Education, and the University Grants Commission.

The primary objectives of the study were twofold:

1. To examine the policy procedures implemented by public universities in Sri Lanka to promote the Sri Lanka Qualifications Framework (SLQF), and
2. To identify the challenges in fostering self-directed learning in humanities and social sciences courses within these institutions.

The SLQF's emphasis on student-centered learning approaches grounded in self-directed and self-regulated learning principles, the study found a significant disconnect between policy and practice. One of the main obstacles identified was the large student population, which hindered the effective implementation of individualized and student-centered teaching strategies. Lecturers reportedly resorted to teacher-centered instructional methods, primarily due to time constraints and the prevailing examination-oriented culture. Although students expressed a willingness to engage

in self-directed learning, the absence of a supportive, student-centered learning environment severely limited their opportunities to do so.

Ultimately, the study concluded that while the SLQF promotes self-regulated learning, its practical realization in public universities remains constrained by systemic and institutional challenges. Adinda and Mohib (2020) conducted a study to investigate the instructional and teaching design approaches that support the development of self-regulated learning (SRL) skills among students in a blended learning context**.** The research specifically tested two hypotheses:

1. Lecturers who adopt student-centered teaching approaches are more likely to design their blended learning courses as student-centered learning environments; and
2. Student-centered teaching approaches, when aligned with student-centered blended learning designs, positively influence students' self-regulated learning.

A mixed-methods research design was employed to effectively capture the dynamics of SRL within blended learning environments. Data were collected through questionnaires and classroom observations, involving a sample of 18 lecturers and 294 undergraduate students. The findings partially confirmed the first hypothesis. While some lecturers who claimed to implement student-centered teaching approaches did incorporate such methods into their blended learning courses, this was not consistent across the board. In practice, many teaching approaches remained hybrid in nature, combining elements of both student-centered and teacher-centered methods. The second hypothesis was supported to a limited extent. The study found that student-centered blended learning environments contributed to the improvement of students' self-regulated learning; however, this effect was only observed in three out of seven students. This suggests that while student-centered environments may foster SRL, their effectiveness varies among learners.

The study highlighted the critical role of managing online interactions in enhancing SRL in blended learning settings. It was emphasized that active student participation both in online activities and face-to-face classroom settings is essential for the successful development of self-regulated learning skills. The authors recommended further research to more definitively establish the relationship between instructional design and SRL in blended learning environments. Pure and Ogi (2019) conducted a study to examine self-regulated learning (SRL) among nursing professionals in Sri Lanka**.** The study utilized Fisherman's Self-Regulated Learning Readiness Scale (SRLRS) as a structured self-report survey instrument to assess the participants' readiness for SRL. Data were gathered through a questionnaire administered to a convenience sample of 180 nursing graduates from government nursing colleges.

The study focused on four key learning-related factors:

1. Motivation for learning
2. Self-efficacy in English language proficiency
3. Job satisfaction
4. Perception of learning opportunities in the workplace

The findings indicated that self-efficacy in English language proficiency was the most influential factor associated with SRL readiness. Specifically, proficiency in English was found to be strongly linked to both learning motivation and self-efficacy, suggesting that language skills play a critical role in enabling self-regulated learning among nursing professionals. Promoting (Human Resource Development) HRD, implying that workplace conditions and employee contentment are integral to the development of SRL competencies. The authors recommended further research to explore additional variables that may impact HRD and self-regulated learning among healthcare professionals in Sri Lanka. Mathana and Goldolege (2023) conducted a quantitative study during the COVID-19 pandemic to investigate the relationship between student

collaboration, self-regulated learning (SRL) motivation, and online learning success in the context of Sri Lanka**.** While online learning has traditionally faced numerous challenges in developing countries such as Sri Lanka, the Covid-19 pandemic necessitated a shift toward digital education, prompting the need to understand how students adapt and succeed in this new environment.

The study employed an online survey method to collect data from a sample of 229 undergraduate students representing 15 state universities across Sri Lanka. Data analysis was carried out using correlation and multiple regression techniques to examine the interrelationships among the variables. The findings demonstrated that online learning success, self-regulated learning, and student collaboration were positively associated with one another. In particular, the results indicated that successful online learning requires a strong internal motivation for self-regulated learning. Moreover, SRL motivation emerged as a key predictor of academic success in distance learning contexts. A significant positive correlation was also found between self-regulated learning and student collaboration, suggesting that learners who are more self-regulated tend to engage more effectively in collaborative learning practices, further enhancing their academic outcomes. The study concluded that fostering self-regulated learning motivation is essential for improving both individual learning success and collaborative engagement in online educational environments.

Faten (2022) conducted a cross-sectional survey to assess the self-regulated learning (SRL) readiness of medical undergraduates at the Faculty of Medicine, Princess Nora University in Riyadh, Saudi Arabia**.** The study employed a convenience sampling method and targeted a total of 300 undergraduate medical students. However, only 96 students responded to the questionnaire, comprising 73 preclinical (first and second year) and 23 clinical (third and fourth year) students. The primary objective of the study was to evaluate the self-regulated learning capabilities of medical students by assessing their readiness for SRL. Data were collected using a questionnaire based on Fisher's Self-Directed Learning Readiness Scale (SDLRS), which measures three core dimensions:

1. Self-management
2. Desire for learning
3. Self-control

The participation of preclinical students was more feasible, while the involvement of clinical students, particularly those in their third, fourth, and final years, was limited due to their demanding clinical training schedules.

The study's findings highlighted the necessity of adopting a hybrid instructional model that integrates both self-regulated and teacher-centered learning approaches, particularly in clinical and institutional education settings. Moreover, the authors emphasized the importance of strengthening students' readiness for independent learning, which is critical for their success in both academic and professional medical contexts. Vithayaporn (2021) conducted a comprehensive study on The Integration of self-directed learning and employee competency in the 21st century. The researchers employed a multi-method approach comprising case studies, document analysis, and thematic literature analysis to gather and interpret data. The study systematically reviewed 50 peer-reviewed articles published in English and indexed in the Scopus database to underscore the critical importance of promoting self-directed learning (SDL) in the context of contemporary employee training.

The findings revealed that employees tend to adopt SDL as an effective mechanism for enhancing their professional competencies, particularly when organizational leadership actively supports and encourages SDL practices. It was further identified that the successful adoption of SDL within organizations is facilitated by cultivating a workplace environment that promotes

mutual learning, collaboration, and cross-cultural or international support. The study emphasized the need for implementing structured reward systems to incentivize and reinforce SDL behaviors among employees. SDL was also recognized as playing a pivotal role in developing employee competencies, especially by transferring the responsibility for learning and professional growth to the individual employee. This paradigm shift from externally driven to self-managed learning marks a significant transformation in how organizations approach workforce development in the 21st century.

Conclusion

This research paper examined the promotion and integration of self-directed and self-regulated learning (SDL/SRL) in diverse educational and organizational contexts, with particular attention to higher education and employee development. The thematic literature review revealed consistent evidence supporting the crucial role of SDL/SRL in enhancing learner autonomy, motivation, and performance in both academic and workplace environments. Studies across multiple contexts, including Sri Lankan higher education (Bandara, 2022; Mathana & Galdolege, 2023), online learning (Haris, 2024; Adinda & Mohib, 2020), nursing education (Pure & Ogi, 2019), and employee training (Vithayaporn et al., 2021), demonstrated that self-directed learning is significantly linked to increased competency, motivation, and engagement. A recurring finding is that successful SDL/SRL implementation requires more than individual readiness; it also depends on systemic support, such as student-centered instructional design, institutional policies, enabling environments, and leadership endorsement.

The literature underscored the influence of contextual factors such as language proficiency (Pure & Ogi, 2019), access to resources (Mathana & Goldolege, 2023), and policy-practice alignment (Bandara, 2022) on the effectiveness of SDL. The integration of structured reward systems and collaborative, supportive environments, particularly in workplace settings, was also highlighted as critical to fostering sustained SDL practices (Vithayaporn et al., 2021). In conclusion, promoting SDL/SRL required a multidimensional approach that balances learner autonomy with institutional support. For both educational institutions and organizations, empowering learners through effective instructional strategies, leadership support, and conducive learning environments is essential to developing 21st-century competencies. Future policy and practice must therefore aim to bridge the gap between theoretical commitment to SDL and its practical realization in curricula and workplace training programs.

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Exploring Self-Efficacy and Preparedness for AI-Integrated Pedagogy among Sinhala Medium Teachers following the Postgraduate Diploma in Education at Colombo University

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Abstract

This study explores the awareness, perceptions, and practices of teachers enrolled in the Postgraduate Diploma in Education (PGDE) program at the Faculty of Education, University of Colombo, in relation to the use of Artificial Intelligence (AI)-assisted teaching and learning tools. A qualitative research design was employed, involving a purposive sample of fifteen teachers. Data were collected through open-ended interviews and document analysis and were examined thematically using a three-tiered reading framework: literal, interpretive, and reflective. Findings reveal that while nearly all participants expressed a strong willingness to incorporate AI tools into their teaching practices, approximately three-quarters are already using such tools to varying extents. Teachers noted that AI-assisted lessons were more engaging and visually appealing, and many believed that the effective use of AI could help bridge the digital divide between urban and rural schools in Sri Lanka. However, challenges such as language limitations where English yields more accurate AI responses than Sinhala, and inconsistent internet connectivity, particularly in rural areas, were identified as significant barriers. The study highlights both the promise and the complexity of integrating AI into teacher education and recommends that future educational reforms focus on improving infrastructure, digital literacy, and inclusive language support to ensure equitable AI adoption across diverse educational contexts.

***Keywords*:** Artificial intelligence in education, teacher readiness, AI-assisted teaching tools

Introduction

Sri Lanka is determined to minimize the digital and linguistic divide among citizens and schools. The digital divide, the gap between those who have access to digital technologies and those who do not, remains a significant barrier to equitable education worldwide. While access to devices and the Internet is a critical factor, the effective use of technology in classrooms is equally important. Teacher agency, defined as the capacity of teachers to act purposefully and proactively in their teaching environments, combined with AI-assisted tools, can play a transformative role in reducing this divide. By empowering teachers to integrate AI technologies into their classrooms, are we able to create more inclusive, personalized, and effective learning experiences for all students, regardless of their socioeconomic background. Such questions will be vital in an era where AI has already started dominating all sectors of society. To what extent are Sri Lankan teachers using AI assisted teaching and learning? This is a timely and a pertinent question that needs to be investigated as it can contribute significantly to the overall teaching learning process. Thus, in this study, the teachers' preparedness for AI assisted teaching and learning in Sri Lankan secondary schools is to be investigated. In this instance, the study focused on graduate teachers following the postgraduate diploma in education at the faculty of education of the University of Colombo

Background to study

Importance of Teacher Agency

Teachers with strong agency are trained to tailor AI-assisted tools to meet the unique needs of their students. For example, AI can provide personalized learning paths for students who are struggling, ensuring that no one is left behind. By understanding the cultural and socioeconomic contexts of their students, teachers can use AI tools to create inclusive and relevant learning experiences. In under-resourced schools, teachers with agency can creatively integrate AI tools to supplement limited resources. For instance, AI-powered platforms can provide access to high-quality educational content, even in the absence of physical textbooks or well-equipped labs. One of the most common uses of AI for teaching is to use it for preparing lesson plans. Teachers can quickly find ideas, worksheets, and examples for lessons, create lesson plans or slides based on a topic or grade level and adjust lessons to fit different student levels.

Teachers can create quizzes and questions on a given topic and grade multiple-choice tests automatically and instantaneously. Furthermore, teachers can write messages or emails to parents quickly such as updates about a child's progress, summarize student results, turning test scores or notes into clear reports, and give ideas on how to help students who need extra support. Teachers can also use AI to automate administrative tasks, freeing up time to focus on individualized instruction and support for students. Thus, teachers can play a critical role in fostering digital literacy among students. By modeling the effective use of AI tools, they can help students develop the skills needed to navigate and succeed in a digital world. Teacher agency ensures that digital literacy is integrated into the curriculum in a meaningful way, rather than being treated as an add-on. AI tools, as mentioned above, can analyze student performance data to provide personalized recommendations and feedback.

Literature review

The integration of artificial intelligence (AI) into education is transforming teaching practice. This necessitates a reassessment of teacher preparedness for AI-assisted instruction. This literature review based on the present study synthesizes recent studies to assess educators' readiness, perceptions, and the challenges they face in adopting AI technologies in their teaching learning processes. The first well-documented use of AI-style instructional technology at the school level took place at Brentwood Elementary School in East Palo Alto, California, where children began using the IBM 1500 computer-assisted instruction system on October 27, 1966. (Suppes & Morningstar, 1969)

Recent research indicates a mixed level of preparedness among teachers regarding AI integration. A study by Granström and Oppi (2025) found that while approximately 53% of teachers have incorporated AI tools into their teaching, significant barriers remain, including gaps in readiness and limited perceived usefulness among non-users. Similarly, Guan and Gu (2025) reported that pre-service teachers often lack confidence in utilizing AI, highlighting the need for enhanced training program. Several factors influence teachers' adoption of AI. Ayanwale et al. (2022) identifies that behavioral intentions and readiness as key determinants in Nigerian in-service teachers who are willing to teach AI-related content. Additionally, age appears to play a role, with older teachers slightly more inclined to adopt AI tools, while teaching experience alone does not significantly affect adoption rates. Further, institutional support is also considered crucial for successful AI integration. Aljemely (2024) emphasizes that comprehensive training programs are essential to equip teachers with the necessary skills and attitudes toward AI. Furthermore, the U.S. Department of Education's 2023 report highlights the importance of ethical and equitable policies to guide AI use in education (U.S.Department of Education, 2023).

Despite the potential benefits, challenges persist. Teachers express concerns about AI's ability to support individualized instruction and the ethical implications of AI in the classroom (Churukoya & Brooker, 2023). Moreover, the need for human supervision remains paramount, as AI cannot replicate the empathy and contextual understanding that teachers provide. While AI offers promising avenues for enhancing education, teacher preparedness is pivotal for its effective implementation. Addressing gaps in readiness through targeted training, fostering positive perceptions, and ensuring strong institutional support are seen as essential steps toward integrating AI into teaching practices (Churukoya & Brooker, 2023).

While the general outlook on using AI by teachers appears as mentioned above, it is essential to explore the specific situation and current trends within the Sri Lankan context to explore the ri Lankan teachers' readiness for AI use. The current level of AI expertise among teachers is often deemed insufficient to deliver a standard AI curriculum, underscoring the immediate need for comprehensive, structured professional development (Rajapakse, Ariyarathna & Selvakan, 2024). According to Rajapakse et al., educators hold a positive view of AI's usefulness, primarily for its potential to enhance efficiency by automating routine tasks, such as providing data analytics on student performance and helping to streamline administrative processes (Perera et al., 2025; Ministry of Digital Economy, 2024). Considering the above observations, and as mentioned elsewhere in the article, a comprehensive professional training program can enhance the enthusiasm and creative skills of educators in incorporating AI tools into their teaching-learning process. Therefore, given this context, an investigation into the methods by which Sri Lankan graduate teachers presently undergoing professional training are developing their competence for AI-enhanced instruction is desired.

Methodology

This study adopted a qualitative research design to explore the extent to which teachers enrolled in the Postgraduate Diploma in Education (PGDE) programme at the Faculty of Education, University of Colombo, are aware of and utilize Artificial Intelligence (AI)-assisted teaching and learning tools in their professional practice. The selection of a qualitative methodology was deemed appropriate given the exploratory nature of the research, which aimed to understand personal experiences, beliefs, and contextual challenges surrounding the adoption of AI in Sri Lankan classrooms. A purposive sampling strategy was employed to select a sample of fifteen teachers currently following the PGDE program. These participants represent a diverse cross-section of educational practitioners from different school types and subject areas across Sri Lanka. Their engagement in the PGDE program, which integrates both theoretical foundations and reflective practice in education, made them an appropriate group for investigating the pedagogical practices, particularly in relation to technology-enhanced learning which incorporates the use of AI.

Data collection was carried out through two qualitative methods: (1) open-ended, semi-structured questions administered to participants, and (2) document analysis. The open-ended questions were designed to elicit rich, detailed responses regarding participants' awareness, attitudes, and usage of AI-assisted tools in the classroom. These tools generally include, but are not limited to, intelligent tutoring systems, automated feedback generators (assessment), content creation tools, the creation of lesson plans and student grading as mentioned elsewhere in the article. The questions also invited participants to reflect on any perceived benefits or limitations of these technologies within the context of Sri Lanka's education system.

In addition to the interviews, relevant documents were collected related to the adoption of AI in the teaching learning process. These included research articles, reports by the Ministry of Education and official statements issued to the press by the relevant authorities in Sri Lanka. The

inclusion of document analysis enabled to enhance the credibility of the study by corroborating interview data with official and research-based information.

Data Analysis

The analysis of qualitative data was conducted using thematic analysis, guided by a three-tiered reading framework: literal, interpretive, and reflective. This approach allowed for a comprehensive engagement with the data, facilitating the identification of both surface-level information and deeper contextual meanings. The literal reading phase focused on extracting explicit references to AI-assisted teaching and learning practices from the interviews and documents. This stage enabled the identification of common patterns and frequently mentioned tools or experiences among the participants. It became evident that while some teachers had encountered AI-related tools, their use remained largely superficial or experimental.

The interpretive reading involved a closer examination of how participants constructed meaning around their engagement with AI. This included interpreting their perceptions, beliefs, and professional values in relation to technological integration. For example, some teachers associated AI primarily with automation or surveillance, indicating a limited conceptual understanding. Others viewed it as a potential aid for differentiated instruction, especially in resource-constrained environments—a significant factor in the Sri Lankan school context.

Finally, the reflective reading phase allowed for critical engagement with the broader implications of the findings. The findings were situated within the larger discourse on digital transformation in education, highlighting systemic challenges such as unequal access to technology, limited training opportunities, and curriculum misalignment. Simultaneously, emergent practices and teacher-initiated innovations pointed to areas of promise and potential for further development. By using this layered approach to data analysis, the study was able to capture the complexities of AI adoption in the Sri Lankan educational landscape, offering grounded insights

Document Analysis

There are only a few research studies that have been conducted in the area of AI integration to education in Sri Lanka. Further, such research has focused on the use of AI by teachers in tertiary education. The following resents a literal and an interpretive reading of the overall findings of such studies.

One such study has examined how Artificial Intelligence (AI) can enhance personalized learning in Sri Lanka's higher education sector. The researchers found that AI-based learning tools significantly improved student engagement, motivation, and academic performance by enabling individualized feedback and adaptive learning experiences. The study showed that AI integrated technologies support diverse learning needs and promote sustainable educational practices. However, the authors also noted challenges such as limited institutional infrastructure, insufficient digital skills among educators, and the need for policy-level support to fully integrate AI into higher education (Ediriweera et al, 2024).

Another study has explored the use of AI tools by undergraduate students at the Sri Lanka Institute of Information Technology (SLIIT). Results showed that nearly all respondents (about 99%) used AI applications—particularly ChatGPT and similar platforms—for academic tasks such as research, writing, and summarizing information. Students viewed AI tools as time-saving and supportive of independent learning, though concerns were raised about academic integrity, excessive dependence, and the fair use of AI-generated content. The study concluded that AI is swiftly changing student learning habits in Sri Lanka's tertiary education sector, emphasizing the need for digital literacy guidelines and institutional frameworks to ensure responsible usage (Weerasinghe & Abeysinghe, 2024).

Yet another study has examined the readiness of public-school ICT teachers in Sri Lanka to teach Artificial Intelligence (AI), using the Self-Efficacy Theory as a framework. Findings revealed that while teachers appreciated the value of AI in modern education, many felt underprepared to deliver AI-related content due to limited training, experience, and confidence. The research identified key factors influencing teacher readiness, including access to professional development, institutional support, and prior exposure to technology integration. The authors emphasized that strengthening teacher self-efficacy through targeted training and policy support is critical for the successful implementation of AI education in Sri Lankan schools (Rajapakse et al., 2024).

Interview Analysis

After transcribing interviews, initial coding of the responses was done. After coding an effort was made to see different clusters of coding to find out different themes. Thereafter, the three-tier data reading mentioned above was used to analyzed and interpret the data.

The inevitability of the AI

All respondents agreed that neither teachers nor students neglect and bypass the use of AI in the teaching learning process today. They all agreed that they use AI to look for information to enhance their understanding of the topics they teach and navigate the Internet to make their lessons attractive which may otherwise look lackluster if traditional teaching continued. The following is the English translation of one of the respondents.

> "Traditional lessons are monotonous. Students use smartphones at home and they are better in using them because they were born into world of smartness. If we skip making use of the available resources, they tend to disrespect us. So, we try to use AI to get whatever possible to create interest in them despite poor facilities. Besides, we are motivated by the lectures of the program we are following where we are made to use AI to do much of our work"

An interpretive reading of this quote suggests that traditional lackluster lessons can no longer survive and unless teachers are prepared to change, they will be outsmarted by the students. Yet another factor that emerges here is that the use of AI assisted teaching on their program has kindled their interest to incorporate AI assisted teaching in their teaching process. However, the the respondent details of some 'poor facilities'. This brings us to the next underlying issue when using technology, namely the 'accesses'.

Infrastructure & access

One of the commonest yet most upsetting experiences is the lack of infrastructure and access to technology. Even when a school has reasonable resources access to Wi-Fi and the Internet can be distressing. The following another English translation of a quote (which all teachers endorsed) from one of the respondents amply explains their technology-based predicament.

> "Our school is very interested in using AI-based tools. But the biggest problem is the lack of reliable Internet. Sometimes, even the basic ICT lessons are disrupted".

The consistent reception of reliable Internet sources has evaded most of the students, particularly in remote areas. This factor is seen not only in developing countries but also in developed countries as well. The promised speed of the Internet connections are often denied by the service providers putting the subscribers in incapacitated situations (Wedikkarage, 2024). Thus, infrastructure and access are key to any successful use of AI assisted learning.

Improvisation of AI in classroom teaching

All respondents said that they personally use AI and guide students to use it to get examples at various difficulty levels for their questions. They said that their students are made to dig deep with AI to get detailed answers for their questions. Let's take the following English translation of yet another teacher.

> "We show them how to obtain simple answers from AI and then go deep if required. We also show them how AI can improve their understanding with a series of questions and provide them with personalized feedback"

This indicates that teachers in the sample with their rejuvenated enthusiasm as a result of the participation in the PGDE Program are making a significant contribution to use AI in their day today teaching process. However, they noted that when translating material from English to Sinhala, the Sinhala vocabulary is distorted and that the teachers should caution the students to ask for help where necessary. This cautioning allows for a nuanced observation where students grapple with English, particularly in rural schools.

Limited training

When asked about the training they have received about using AI in the teaching process, all stated their inadequate training to use it effectively. The next English translated quote summarizes their mixed feelings toward the use of AI in general.

> "Most of us haven't had hands-on sessions with AI software. We want to use it, but we need more guidance and practice. Training on AI was very limited. I worry that I might make mistakes or not teach it effectively. More structured training is essential"

The above data reveals that the respondents are generally motivated to incorporate AI into their classrooms but face significant barriers due to limited professional training. Interpretively, these responses suggest that teacher readiness is constrained by both skill gaps and the absence of structured support mechanisms. While motivation and positive attitudes toward AI are present, the data indicate that without targeted training programs, hands-on practice, and ongoing mentorship, the integration of AI into classrooms may remain superficial. The analysis suggests that teachers in Sri Lanka are motivated to adopt AI in classrooms but face challenges due to limited training, low confidence, and undefined implementation guidance.

Conclusion

The findings of this study indicate a strong and growing interest among Sri Lankan teachers in adopting AI-assisted teaching and learning tools. A significant portion of the sample is already experimenting with such tools and perceives clear benefits, particularly in terms of student engagement and lesson quality. However, challenges persist, most notably in language accessibility and infrastructural disparities between urban and rural schools. Teachers' reflections demonstrate an acute awareness of the possibilities and limitations of AI in the current educational landscape. While AI holds promise as a tool to bridge pedagogical gaps, its effective implementation requires concurrent investments in infrastructure, teacher training, and context-sensitive technological development, particularly with regard to local language support as AI is more eloquent in the English language. In the Sri Lankan context, where disparities in access and quality of education remain pressing issues, the integration of AI must be approached not only as a technological shift but as an equity-focused educational reform. Future policies and educational planning must therefore prioritize inclusive digital environments that empower all teachers regardless of location or language proficiency to meaningfully engage with AI in their classrooms. Therefore, both technical competence and self-efficacy must be supported to achieve meaningful and sustainable AI adoption in schools

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The Challenges Faced By Humanities Undergraduates in Developing Employability Skills in the University System of Sri Lanka: A Study Based on Literature

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Abstract

The employability challenges Sri Lankan Humanities Undergraduates (HU) face are multifaceted, primarily arising from a misalignment between educational outcomes and market expectations. In this context, the study investigates current initiatives for developing employability skills (ES) in Sri Lanka, identifies the challenges HU encounters in developing ES within the university system, and offers recommendations for policymakers, educators, and industry stakeholders to address these obstacles. Additionally, it examines relevant theories such as human and social capital, graduate identity, and experiential learning theories that relate to the challenges faced by HU in higher education and in cultivating ES to facilitate a seamless transition of graduates into the workforce. The research adopts an interpretivist paradigm, employs a qualitative approach, and is grounded in literature analysis. Purposive sampling was used to select existing documents, including university policies, academic literature, and government reports. Thematic analysis yielded three principal themes: first, that the curriculum is outdated and not aligned with industry needs; second, that career guidance services are under-resourced, with limited student access and insufficient emphasis placed upon them; and third, a lack of practical experience stemming from traditional teaching methods, teacher-directed learning environments, limited engagement with industry, and scarce internship opportunities. These challenges contribute to graduate unemployment and preparedness deficits concerning labor market demands. The findings carry substantial implications for policymakers, educators, and industry stakeholders, emphasizing the necessity of collaborative efforts, informed policy-making, and strategic interventions to enhance the employability prospects of HU in Sri Lanka. Further research is recommended to develop and evaluate interventions aimed at improving the ES of HU.

Keywords: Challenges/ Employability skills/Humanities Undergraduates/ Sri Lanka

Introduction

The professional domain has undergone significant transformations driven by globalization, technological advancements, and artificial intelligence, and requires a new realignment in preparing graduates for the labour market. (Bisschoff & Massyn, 2024) With the evolution of the global economy, employers are increasingly seeking graduates equipped with the skills and competencies to excel in the workplace, beyond mere intellectual and technical abilities (Binsaeed et al., 2017). However, the rising demands of the labour market within a technologically driven work environment starkly contrast with the increasing number of graduates who are inadequately prepared, thereby contributing to elevated unemployment rates, especially in developing countries (Chandrakumara, 2015) and is evident in Sri Lanka since 1959/60 and has evolved into a persistent socio-economic challenge over time (Kanagasingam, 2017).

The unemployment rate among graduates constitutes a substantial threat to the nation's economic development (Weerasekara, 2022). It compels them to accept substandard employment (Fernando & Silva, 2012) characterized by low remuneration, while awaiting better opportunities to be provided by the government. This situation results in youth unrest, depression (Jayathilake, 2020), violence, and anti-social behaviors (Ariyawansa, 2008).

Consequently, it is crucial to improve the work readiness of undergraduates. An enhanced higher education system possesses the potential to improve employability (Rajmohan &

Abeysekera, 2016). Nevertheless, the quality and relevance of education provided by state universities have been subjected to criticism (Rameez, 2019), primarily due to the discrepancy between the skills imparted and the requirements of the labour market (Ministry of Education, 2007, as cited in Wickramasinghe, 2018).

Research Problem

Humanities Undergraduates (HU) in Sri Lanka, in particular, have not developed the employability skills (ES) required by the labour market (NEC, 2022; Silva, 2022; Banda & Dharmadasa, 2022; Majid & Banu, 2024). "Humanities Education (HuE) has neglected the development of the skills" (Perera, 2022). The study is based on two main rationales. Firstly, the study becomes relevant as it can increase employment among HU. The majority of university entrants in the Arts stream, and the high unemployment rate among Arts graduates (ADB & International Labour Organization, 2017; Amarathunga et al., 2022) have been identified as a 'socially and politically sensitive issue' (Weerasekara, 2022). Secondly, the study can enhance the quality of HuE. The predominant perception among the public, educators, and employers is that university education is failing to produce employable graduates and is largely attributed to the perceived lack of relevance and quality in the degrees, particularly pronounced within the domains of Humanities and Social Sciences (HSS) (Ariyawansa, 2008; Kanagasingam, 2017).

Objectives

Accordingly, the objectives of the study are to:

1. Investigate the current initiatives of ES development in Sri Lanka.
2. Identify the challenges faced by HU in developing ES.
3. Provide recommendations for policymakers, educators, and industry stakeholders to address the challenges faced by HU.

Literature Review

Employability Skills

The subject of 'ES' is widely acknowledged, and its significance for undergraduates has been underscored globally (Ahmad et al., 2020; Karunarathne & Ariyawansa, 2022). According to Yorke (2006), ES refer to the skills, knowledge, and attributes that enable individuals to secure and maintain employment and adapt to changing job market requirements. According to the Tracer Study of Graduates, skills such as proficiency in the English language, communication abilities, presentation skills, and leadership qualities are vital for securing employment in the labour market (UGC, 2018).

Theories

Human capital theory suggests that education and training are investments in human capital, which can lead to improved productivity and career prospects (Becker, 1993). In the context of HU, human capital theory can guide the development of specific skills that are highly valued in the job market – English language proficiency (ELP), critical thinking, and communication skills, adapting to the demands of the modern workforce.

Social capital theory suggests that social connections and networks can provide individuals with access to resources and opportunities (Bourdieu, 1986). This can be applied to HU, where social networks and academia-industry linkages may play a significant role in securing employment. Graduate identity theory suggests that graduates' identities are shaped by their experiences and interactions with others (Hinchliffe & Jolly, 2011). This can be used to explore how HU develop their professional identities. Experiential learning theory emphasizes hands-on experiences in developing skills and knowledge (Kolb, 1984). By integrating experiential learning

opportunities - projects, community engagement, and internships- humanities programs can better prepare students for the workforce.

Employability Skills Development

Career counseling and guidance programmes were instituted in Sri Lankan universities during the late 1990s. Universities have promoted the integration of skills training within undergraduate programs to mitigate the disconnect between university education and the labour market, particularly in the HSS (Silva, 2022). The University Grants Commission (UGC) also established career guidance initiatives through Circular No. 819 of 2003 and Circular No. 934 of 2010. Nonetheless, the UGC Standing Committee on Career Guidance and Counseling, tasked with further developing these programs, has remained inactive for many years (NEC, 2022).

The Sri Lankan government organized three World Bank-funded projects: Improving Relevance and Quality of Undergraduate Education (IRQUE) (ADB, 2016), Higher Education for the Twenty-First Century (HETC) (World Bank, 2017), and Accelerating Higher Education Expansion and Development (AHEAD) to promote entrepreneurial and ES in Higher Education to produce globally employable graduates. (Munasinghe, 2021)

Challenges in Developing Employability Skills

The curriculum being irrelevant is a major issue in developing ES. 'Arts graduates in Sri Lanka are mostly affected since their degree is not job-oriented' (Jayamanne & Ramanayake, 2017). The pedagogy-based teaching methods utilized in national universities, particularly in the HSS (World Bank, 2009, as cited in Bandara, 2018), within a Teacher-Directed Learning environment (Bandara, 2018), impede the acquisition of professional skills that graduates require for their career advancement. The degree programmes within arts disciplines have not undergone revisions, and there are limited opportunities for enhancement in ELP, information technology, and soft skills (Majid & Banu, 2024) and this has caused deficiencies in ELP for employability among Arts graduates (Fernando & Silva, 2012; ADB, 2016; Neranjani, 2018; UGC, 2018; Wijesekara & Nahallage, 2023).

Many students lack access to career guidance services as the Career Development Centers are under-resourced, limiting students' access to career guidance and counseling (Perera, 2024). The Faculties of Arts and HSS have accorded minimal importance to establishing and operating effective career guidance and counseling services. Meanwhile, the programmes offered by the Faculties of Arts, HSS were not industry-specific, which also posed a barrier to organizing internship programmes. (NEC, 2022)

Implications for Policy and Practice

To develop ES, HuE could focus on curriculum reforms that incorporate practical skills and industry-relevant content. Industry engagement is another important aspect. Students are to be provided with appropriate guidance to have work experience as part of their learning program or gained through part-time work. (Pool & Sewell, 2007) Career development learning is significant, and according to the DOTS model (Law & Watts, 1977), it should incorporate activities that can enhance students' interest, abilities, and presentation skills.

Research Bases of the Study

According to Karunarathne and Ariyawansa (2022), university curricula should incorporate opportunities for soft skills development, and it is feasible with skilled lecturers and the provision of necessary infrastructural facilities. Majid and Banu's (2024) study reveals that students believe the syllabus needs revision to meet job market demands, university support for skill development is insufficient, and their courses do not provide the necessary IT and English skills, and all students agree that internship training is beneficial for job acquisition.

The study by Amarathunga et al. (2022) reveals that extracurricular activities, ELP, social media interactions, and internship training positively correlated with graduate ES, and the strongest positive correlation was with university-industry linkages. The study by Jayamanne & Ramanayake (2017) findings reveal that enhancing ELP and job market awareness for Arts graduates is crucial. Gunarathne and Jayasinghe's (2021) study findings also reveal that graduates from the Arts stream who engaged in professional courses during their academic studies demonstrated improved job prospects, in contrast to those who did not seek any further qualifications.

Methodology

This study adopts an interpretivist research paradigm, suitable for analyzing texts and documents to gain insights into stakeholders (Bryman & Bell, 2015), and it allows for an in-depth exploration of the challenges faced by HU. A qualitative research approach was employed to explore themes and meanings in the existing documents (Creswell & Creswell, 2018). A literature document analysis design, involving the systematic analysis of texts, reports, policies, and other documents to identify patterns and themes (Bowen, 2009), is used to analyze existing documents related to the challenges faced by HU in developing employability skills.

Purposive sampling was employed to select existing documents that are relevant to the research questions, HuE, and ES in Sri Lanka. The sample consists of documents related to five government reports, 21 local studies, and four academic documents based on theories selected for the study. Based on the inclusion criteria, the documents selected were relevant to graduate employability in Sri Lanka and were publicly available or accessible through university libraries or online databases. Saturation, where document analysis continues until no new themes or insights emerge (Glaser & Strauss, 2012), was used in deciding the sample size.

The documents employed thematic analysis to identify, analyze, and interpret patterns and themes (Braun & Clarke, 2006). Initially, three primary codes were generated based on the three research objectives. Subsequently, twenty descriptive codes were created through the analysis of concepts and ideas presented in the literature. Finally, these twenty descriptive codes were organized into three overarching themes and examined in relation to the research objectives.

Findings

The study revealed three key findings. First, it showed that the humanities curriculum in state universities is not industry-specific and has not been updated to meet industry needs, making the curriculum irrelevant (Theme 1). Second, it found that universities have limited career guidance services (Theme 2), with insufficient resources, limited student access, and minimal emphasis on such services. Third, it uncovered that universities lack opportunities for practical experience (Theme 3). Traditional teaching methods, being largely theoretical and teacher-led, along with limited industry engagement and internship opportunities, hinder students' hands-on learning (Table 1).

Table 1

Summary of the Codebook

Research Objectives	Primary Codes (3)	Descriptive Codes (20)	Themes (3)
Investigate the current initiatives of employability skills development in Sri Lanka	Initiatives	Career Council and Guidance (CCG) Integration of skills in undergraduate programmes UGC initiatives IRQUE HETC AHEAD	**Theme 1** Irrelevant Curriculum of Humanities in meeting industry needs
Identify the challenges faced by Humanities undergraduates in developing employability skills.	Challenges	Inappropriate curriculum Traditional teaching Teacher-Directed Learning Courses unrevised Lack of opportunities for ELP Lack of access to CCG Degrees are not industry-specific	**Theme 2** Universities have limited career guidance. **Theme 3** Universities lack opportunities for practical experience.
Provide recommendations for policymakers, educators, and industry stakeholders to address the challenges faced by Humanities undergraduates.	Recommendations	Curriculum reforms Industry engagement Career development learning Educational and training (Human capital) Social networks (Social capital) Professional identity (Graduate identity) Experiential learning	

Conclusion

The study highlights the challenges faced by HU in developing ES in the university system of Sri Lanka. The findings suggest that the curriculum, teaching methods, language barriers, career guidance, experiential learning, and industry partnerships are some of the significant issues to be addressed to equip HU with the skills and knowledge required to succeed in the modern workforce. The findings have important implications for policy and practice in Sri Lankan universities. Policymakers should reform policies to enable universities to offer opportunities for practical skills development and industry-relevant education. Curricula need to be restructured to better align with industry requirements, and universities should provide adequate career guidance and counseling services. Building stronger links between academia and industry is essential for giving students practical training and employment opportunities. Ultimately, the study underscores the need for collaborative efforts, policy reforms, and strategic interventions to improve the employability

prospects of students in Sri Lankan universities. Further research is recommended in developing and evaluating interventions to improve the ES of HU.

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A Study on the Impact of Technology Devices Use on the Psychosocial Problems of School Children

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Abstract

The increasing dependence on modern technological devices, driven by periodic social changes and the COVID-19 pandemic, has become a contemporary issue in society, exerting various impacts on the social, behavioural, physical, and psychological health of school students from different economic and social backgrounds. Due to the scarcity of studies on the psychological and social problems arising from the use of technological devices among school students in the local context, this research aims to explore the psychological and social issues faced by school students as a result of their use of technological devices, thereby filling the existing research gap. It is expected to study the impacts on behavioural, social, physical, and psychological health issues resulting from the use of technological devices. This study employed a mixed-methodology approach that integrates quantitative and qualitative methods, following a descriptive sequential design. During the implementation of the study, it was expected to select a representative sample of 2 schools from the Kuliyapitiya education zone in the Kurunegala district in North-Western Province, proportionally according to strata through simple random sampling. In this process, a sample of 60 students from grades 8 and 9 selected through purposive sampling, and quantitative data collected by providing questionnaires to them. Qualitative data gathered through focus group discussions with students. The quantitative data were analyzed using descriptive statistics in the form of percentages. The qualitative data were analysed through the thematic analysis method. This study concluded that the use of technological devices causes psycho social problems in school students. This study recommends an understanding to researchers and community about psycho-social issues arising from school students' use of technological devices within local context, contributing new knowledge to research field, and implementing a mental counseling program through human resource contributions.

Keywords: School Students, Technological Devices, Physical and Psychological Health Issues, Behavioral Issues, Social Issues

Introduction

Since ancient times, various primary sources have been used to provide information, and communication occurred through media such as newspapers, radio, and television as society evolved systematically. According to Senadhira and Hewapathirana (2010), every form of mass media, including television, cinema, radio, newspapers, and theatre, exerts influence on individuals from a young age and serves as a socialising agent.

Before the emergence of modern international communication tools, the telephone was crucial for obtaining instant news and information from major media such as newspapers, radio, and television.

Madhuwanthi (2018) and Shalika (2017) indicate that the mobile phone, originally designed with the primary goal of voice communication and short message exchange, has now evolved into a multifunctional device that enables a range of tasks. Eranda (2002) notes that the Internet has become a giant in information technology today, surpassing radio and television. Nishanthi (2017) states that, along with globalisation, countries around the world are interconnected through communication technologies, and devices like mobile phones, computers, and televisions are capable of enhancing students' lives.

Smart mobile phones, computers, laptops, tablets, iPads, and similar technological devices have become indispensable tools for individuals across various social strata, from rural to urban, facilitating their ability to meet complex social and economic needs, as well as aiding in all tasks in personal life through social innovation.

The introduction of these technological devices in the school education sector began with the onset of the COVID-19 pandemic, along with the start of online learning and teaching methodologies.

For the first time on March 12, 2020, many countries, including Sri Lanka, implemented measures to close educational institutions such as schools and universities in response to the COVID-19 pandemic to minimise interactions among students and thereby protect lives by preventing the spread of the virus. During the COVID-19 pandemic, it was noted that students followed online educational activities from home using mobile phones, and both students and teachers had to adapt to learning and teaching methodologies utilising technological devices, highlighting that the enhancement of skills related to handling such devices is a modern necessity.

As the world advances towards information technology, it is mentioned by Jinaseena (2014) that there has arisen a need to incorporate information technology tools into education, and the student body and the teaching content have increasingly diverged from traditional, simple learning methods and tools, necessitating that teachers have access to technical equipment for teaching.

While these technological devices are being used for educational purposes, their misuse has created a strong discourse among the community at present. Yadav et al. (2021) state that children who are in the new young age group show a greater tendency to misuse these devices.

The increasing reliance on technological devices has become a contemporary social issue being highlighted in the media, causing problematic conditions for students' educational achievement, in addition to affecting their physical and mental health, behavior, economic status, and social interactions.

Research Gap

Although research has been conducted on the psychosocial issues related to the use of technological devices by students in foreign countries and university students in Sri Lanka, due to the scarcity of research literature on the psychosocial problems caused by the use of technological devices among school students in the local context, this study is expected to contribute new knowledge to the field of education by completing the research objectives.

Research Problem

The immersion in the use of modern technological devices due to both temporal social innovation and the onset of the COVID-19 pandemic has become a contemporary issue in society, exerting various impacts on the social, behavioral, physical, and psychological health fields of school students representing different economic and social levels.

Research Objectives

01. To study the psychosocial issues faced by school students through the use of technological devices.

1:1: To examine how the use of technological devices affects physical and psychological issues.

1:2: To explore how the use of technological devices contributes to social issues.

1:3: To investigate how the use of technological devices influences behavioral issues.

Literature Review

The impact of technological tool usage by school children during the implementation of education processes through online methods, due to contemporary social innovations and the COVID-19 pandemic, has been shown by various researchers in their studies to have adverse effects on their personal habits as well as their social, physical, and mental health.

At present, there is a tendency for students to be influenced towards substance abuse through improper influences created via social networks and websites accessed using technological devices.

According to the revelation presented by Yoo, Cho & Cha (2014), Strom (2021) mentions that the influences on problematic substance misuse are technology and the internet.

The National Authority on Narcotics Control, Research Division (2022) indicates that young people aged 19-26 are being directed towards the use of methamphetamine, and that social media and websites are being used for activities such as usage methods, facilitating purchases, engaging relevant individuals, sharing videos and pictures related to methamphetamine, and sales. Similarly, based on a revelation by Gerald Block and other scientists (2008) that more than half of internet users are addicted to substances such as drugs, tobacco, and alcohol, Ratnayake (2014) notes this phenomenon.

Various researchers have shown that the use of technological devices among adolescents can lead to suicidal thoughts, which is a disturbing situation observed in the modern world.

Senarathe and Rathnayake (2020) reported that the number of children in the new youth age who attempted to harm their lives due to electronic technology (mobile phones and the internet) is 5 (17%), and that 27% of these cases are attributed to poor examination results under education-related factors.

According to the revelation shown by Yoo, Cho & Cha (2014), Strom (2021) states that spending prolonged periods of time on the Internet induces suicidal thoughts. Similarly, based on the revelation presented by Weinstein (2010), Achab et al. (2011), Griffiths et al. (2012), Alzarea & Patil (2015), and Keles et al. (2020), Yang, Yip, Lee, Zhang & Wong (2021) indicate that suicidal thoughts arise due to smartphone addiction.

Various studies have examined parents' attitudes toward their children's use of mobile phones, the influence they exert on their children, and the nature of the relationship between parents and children. Udayangani (2017) and Rajapaksha (2018) indicate that the use of smartphones is influenced by whether parents are aware or unaware. Shanti (2015) noted that only a small number of students used phones in emergencies or to interact with their parents, and that the household members of male students were unaware of their excessive mobile phone use. Waleboda (2013), Manchanayake et al. (2022), Prabodhani and Ranasinghe (2018), and Thilakarathna (2017) note that smartphone use has reduced the time spent interacting with family members.

Ratnayake (2014), based on a study conducted by American researcher Nie (2001), shows that the social relationships of people who spend a lot of time on the internet have somewhat deteriorated, that those who are reluctant to maintain relationships spend more time online, and that excessive use of the internet leads to reduced social interactions. Dhananjana (2015) indicates that parents show minimal attention to their children's use of mobile phones without self-control, and Shathri (2020) notes that 94% of students said their parents scold them when they use electronic devices (computers, phones, iPads), while 6% said their parents do not pay attention when they use technology.

Various studies have shown that students who engage with social media and websites while using technological devices are exposed to behavioral deviations, which pose a threat to their well-

being and lifestyle. Yang, Yip, Lee, Zhang & Wong (2021) noted that during the COVID-19 pandemic, the use of digital technology acted as a 'double-edged sword' for mental, social well-being, and behavioral health. Kumari (2018) mentioned that the internet, as an electronic medium, has a substantial impact on children's discipline within the current school system, thereby exerting specific influences on students' behavioral pat

Nilupuli (2014) mentions electronic media such as mobile phones and computers, which exert strong influence on the current society's children, causing them to go astray and exposing them to the risk of abuse and moral degradation. The study shows that children are spending time engrossed in computer use alone. The rise in contemporary social crimes is due to social media platforms like Facebook. 99% of school children use smartphones, which leads them to exposure to abuse, watching obscene videos, and sharing them with friends. According to observations noted by Scarpllini et al. (2021), Strom (2021) states that 69.1% exhibit impatience, 33.3% show aggression, and 34.2% exhibit anxiety. Furthermore, Indrachapa and colleagues (2018) point out that discussions on the influence of the Internet on school children's sexual behaviors have emerged.

Studies have shown that excessive use of technological devices can affect sleep and is a significant contributor to various health problems. Accordingly, multiple researchers have shown the impacts on students' physical and mental health and how it affects their well-being.

Identifying a relationship between the use of electronic devices and sleep habits, Jayasekara and Jeevanthi (2020) note in their study that the use of electronic devices influences the reduction of sleep hours. Among the electronic devices considered, the use of computers, smartphones, television, radio, and tablets affects the amount of sleep. Additionally, falling asleep during morning lectures due to drowsiness impacts academic performance. Young people often do not get the minimum number of hours of sleep required per day, resulting in less than 4 hours of sleep, and as a consequence, students are at risk of developing sleep-related conditions, such as insomnia.

Strom (2021) demonstrates through his study that, due to the COVID-19 pandemic, students who are overexposed to technology through extended screen time, beyond the recommended duration for the devices on which they are tested, experience negative impacts on their physical health, mental health, and overall learning process. According to the research findings presented by researchers Chia, Chia & Tan (2000), Doruk, Mustafaoglu & Gul (2023) note that headaches are more commonly reported among smartphone users. When daily talk time exceeds 60 minutes, it has also contributed to the increase in headaches.

According to the research findings presented by Falkenberg, Johansen & Thorud (2020) and Ichhpujani, Singh, Foulsham, Thakur & Lamba (2019), Doruk, Mustafaoglu & Gul (2023) note that prolonged use of mobile phones causes eye strain, blurred vision, and diplopia. Waleboda (2013) states that spending long hours in front of computers and focusing on social web networks can not only lead to mental disorders but also create the potential for visual impairment.

According to Sewwandi and colleagues (2018), during a period of approximately two weeks in Sri Lanka, when social media was unavailable due to a blackout, four individuals experienced high levels of psychological stress, and 37 individuals experienced moderate stress. A study conducted by Lei, Ismail, Mohammad & Yusoff (2020) showed that addiction to smartphones negatively affects the mental and physical health of university medical students in Malaysia. The study indicates a positive correlation between smartphone addiction and the occurrence of mental health and neurological disorders, demonstrating that it leads to psychological distress, anxiety, stress, and neurological diseases.

Based on research findings, Rathnayake (2014) suggests that the Internet has led to young men and women remaining confined to a single location. Furthermore, if the bedroom has facilities for Internet use, this confinement tends to increase. As a result, young people may be susceptible to spinal diseases, depression, diabetes, various types of cancer, high blood pressure,

kidney disorders, and many other physical illnesses, as highlighted in the research findings cited by Rathnayake (2014).

The impact of over-reliance on technological devices on long-term physical and mental health problems has been demonstrated in the studies of various researchers mentioned above. Such physical and mental issues pose the risk of turning the affected individuals into chronic or permanent patients.

While technological devices make it possible to access updated knowledge worldwide, it is clear from the above findings that current students spend time being absorbed in these devices and often engage in various activities outside the educational process. Although technological devices play a significant role in education, it is understood that missing out on opportunities to use them effectively for productive tasks is a loss. According to the literary findings mentioned above, the social, behavioural, physical, and mental health impacts arising from excessive engagement with technological devices can cause psychosocial problems among students, as research findings indicate. Accordingly, through the proposed study, the use of technological devices by school students can provide insight into the psychosocial problems they experience, as revealed by the above findings.

Research Methodology

A mixed-methods research approach was used for this study, as it combines both quantitative and qualitative research methods.

An explanatory sequential design was employed in this study, as qualitative data were collected through focus group discussions to corroborate and interpret the quantitative data gathered using questionnaires, in a manner consistent with the research objectives.

Here, quantitative data collected using questionnaires were analysed in percentage terms, and qualitative data collected through focus group discussions were analysed thematically.

In conducting this study, the research was conducted with due regard to ethics as follows:

After discussing this study with the principals of schools 1 AB and 1 C, I took steps to obtain their written permission, introduced the survey to the 60 students identified through purposive sampling, and received their signatures on a consent form. The study was conducted in accordance with research ethics, ensuring that the students were not influenced during data collection and that their responses were acknowledged and appreciated.

Sample

Grade 8 and 9 students belonging to the 13 – 14 years old age group, who are more inclined to use technological devices, were selected for the study sample from two schools, 1 AB and 1 C, representing the Kuliyapitiya Education Zone in the Kurunegala district of the Northwestern province. Considering the difficulty in obtaining precise numbers or names when identifying students who use technology devices the most, 60 students were selected for this study through purposive sampling.

Findings related to the pilot test conducted

In the North-Western Province, in the Kurunegala District, within the Kuliyapitiya Education Zone, a survey was conducted using a questionnaire to understand the nature of technology device usage among students at a 1AB urban school and a 1C rural school, as well as the psychological and social issues faced by students who utilise technology devices. By consulting with teachers of grades 8 and 9 and selecting 60 students from those schools through purposive sampling, this survey was conducted.

Interpretation based on data

The data reported by school students regarding the physical, psychological, social and behavioural problems caused using technological devices in relation to the research objectives are as follows:

It was revealed that 68.33% of male students have a strong usage of technological devices, including the time spent using them and social media usage, compared to 36.66% of female students.

Physical problems associated with the use of technological devices include headache in 38.33%, difficulty staying awake in 26.66%, lack of need to eat or do not feel hunger in 18.33%, memory impairment in 21.66%, eye pain in 20%, neck pain in 20%, blurred vision in 13.33%, joint pain in hands and shoulders in 11.66% and back pain in 3.33% as reported.

During the use of technological devices, 76.66% of users experience happiness, 48.33% experience frustration, 25% do not feel the need to detach from the device, 25% feel curiosity, 23.33% feel emotional pain, 15% feel emotions such as anger or disagreement towards others, 10% feel loneliness, and 5% feel sadness, indicating the psychological issues experienced by students.

It was reported that students experienced social problems, such as 20% having reduced connections with friends when not using technological devices, 18.33% feeling isolated and lonely from society, and 11.66% having arguments with their parents during conversations.

Even when using technological devices or not using them, behavioural issues observed among students include interpersonal problems with parents at 28.33%, lack of interest in learning at 15%, difficulty in concentrating at 13.33%, restlessness at 8.33%, thoughts of harming their body at 6.66%, and thoughts of committing suicide at 3.33%.

As mentioned above, it was concluded from the responses above that the use of technological devices, regardless of gender, and the use of technological devices without using them, cause psychosocial problems in school students.

Potential Contribution and Implications

This study can provide support to attract the attention of authorities in the public and private sectors to implement educational innovations that effectively manage technological devices as an educational component. Additionally, it is recommended that this study serve as a guide for efforts to contribute to the academic sector by directing attention to obtaining the assistance of psychological counsellors for students involved in various health issues.

Conclusion

This study aims to identify conditions that may lead to substance abuse among school students who are influenced by technological devices, along with behavioral issues such as attempts to harm themselves, social problems like family and societal relationship breakdowns, and physical and psychological challenges. With the attention of authorities from both the public and private sectors on this timely issue, which has led to strong social discourse within the community, this study recommends the implementation of psychological counselling programs for school students to manage these problematic situations.

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Assessment Literacy in Sri Lankan Mathematics Education: Bridging Theory and Practice

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Abstract

Assessment Literacy (AL) is increasingly recognized as a fundamental part of effective teaching; however, its integration into subject-specific professional practices remains limited, especially within Sri Lanka's secondary mathematics education. This literature review critically examines the current state of AL among Combined Mathematics teachers in Sri Lanka, arguing that a significant gap exists between global theoretical ideas and local classroom practice. Organized into four analytical phases, the review starts with an abductive analysis of international discourse, showing a growing focus on AL but a noticeable lack of context-specific research in Sri Lanka. It then defines key concepts—such as formative and summative assessment—and emphasizes their importance for teaching. A critique of established measurement tools, including the Teacher Assessment Literacy Questionnaire (TALQ) and the Assessment Literacy Inventory (ALI), follows, pointing out their limited reliability and misalignment with the needs of in-service Sri Lankan teachers. Lastly, the review identifies best practices for enhancing AL and calls for subject-specific professional development. The findings reveal a critical gap: existing tools do not adequately address the curriculum demands and cognitive complexity of Combined Mathematics instruction. In response, the study suggests developing a localized, hybrid assessment framework that combines quantitative and qualitative measures, along with a contextually grounded approach. This instructional manual is tailored to the national syllabus. These tools are positioned as essential for improving teacher efficacy, aligning assessment practices with competency-based curricular goals, and informing educational policy. Ultimately, the study contributes to the advancement of Assessment Literacy by offering actionable, context-sensitive interventions that support improved mathematics teaching and learning in Sri Lanka.

***Keywords*:** Assessment literacy, teacher professional development, formative assessment, contextualized pedagogy, teacher efficacy

Introduction

In contemporary education, Assessment Literacy (AL) has emerged as a vital professional competency, closely linked to effective teaching, equitable student outcomes, and reflective instructional practice. Defined as the ability to design, select, implement, interpret, and respond to assessments in ways that support student learning, AL is no longer viewed as a peripheral skill but as a central pillar of pedagogical expertise (Popham, 2009; DeLuca & Christopher, et al., 2015). Scholars have emphasized that AL enables teachers to move beyond using assessment merely as a grading tool toward leveraging it as a formative process to guide instruction, differentiate learning, and foster student agency (Stiggins & Richard, 2002; Black & Wiliam, 1998; Xu & Brown, 2016).

Despite its global prominence, AL remains critically under-theorized and under-practiced in the Sri Lankan educational context. This is especially clear in secondary mathematics education, where teaching continues to rely heavily on summative, exam-focused methods that prioritize content coverage over understanding concepts (NEC, 2014; World Bank, 2011). In this environment, assessment is mainly used for selection and certification rather than for formative feedback or improving instruction. As a result, the potential of assessment to act as a tool for learning to promote metacognition, error analysis, and deep mathematical thinking remains largely unexploited.

This issue becomes even more pressing in the context of Combined Mathematics, a compulsory subject in the G.C.E. Advanced Level Physical Science stream. The curriculum for Combined Mathematics integrates complex cognitive domains such as mathematical modelling, proof, justification, and problem-solving, which require nuanced assessment strategies beyond traditional written tests (NIE, 2017). However, research and policy reports consistently indicate that most mathematics teachers in Sri Lanka receive minimal training in the design and implementation of formative assessments (NEC, 2014; Arunathilaka, 2022). Many rely on inherited practices shaped by past exam papers, with little room or confidence to explore alternative methods.

This paper argues that there is a fundamental disconnect between international AL frameworks and the lived realities of Sri Lankan Combined Mathematics classrooms. While global models of AL provide valuable theoretical foundations, they often lack sensitivity to the curricular structures, resource constraints, linguistic diversity, and assessment cultures found in Sri Lanka. As a result, teachers are left without accessible, subject-specific tools or training programs to support assessment practices aligned with the national competency-based curriculum. Thus, AL remains an abstract policy ideal rather than a lived professional norm.

In light of this gap, this study contends that existing AL frameworks and measurement instruments are insufficiently responsive to the pedagogical and curricular demands of Combined Mathematics education in Sri Lanka. It further asserts that promoting meaningful AL development requires a shift toward contextually grounded, subject-specific resources that support teachers in translating assessment theory into effective practice. The following review examines this issue through a systematic analysis of international and local literature, ultimately proposing a hybrid, context-sensitive framework and instructional manual tailored to the realities of Combined Mathematics instruction in Sri Lanka.

Objectives and Research Questions

To address this issue, the literature review set out to:

1. Examine the theoretical foundations and evolving definitions of Assessment Literacy.
2. Evaluate the relevance and applicability of globally developed AL measurement tools such as the TALQ and ALI for Sri Lankan contexts.
3. Identify critical gaps in local AL research, practice, and teacher education.
4. Propose a culturally relevant, subject-specific approach to developing and supporting AL in Combined Mathematics.

The central research question guiding this review is: How can Assessment Literacy be measured and promoted effectively among in-service Combined Mathematics teachers in Sri Lanka, given their unique curricular and instructional contexts?

Sub-questions include:

1. How is AL conceptualized globally, and how do these definitions align with Sri Lanka's education system?
2. What are the limitations of current AL measurement tools in capturing the assessment needs of mathematics teachers?
3. What context-appropriate strategies could enhance AL development within the Sri Lankan curriculum framework?

Literature Review

A systematic review of existing literature was conducted in four interrelated phases to explore the theoretical foundations, practical tools, and implementation challenges of Assessment Literacy

(AL), particularly as they relate to mathematics education in Sri Lanka. Each phase was guided by the objective of identifying how global perspectives on AL align or fail to align with the specific needs and realities of Combined Mathematics teachers operating within a high-stakes, exam-oriented system.

The first phase focused on the international discourse surrounding AL and the emergence of the "assessment-literate teacher" as a key figure in educational reform. Through an abductive thematic analysis of literature from major databases, this review confirmed that there has been significant scholarly attention on formative assessment, professional reflection, and the role of teacher judgment in improving student learning (Stiggins &vRichard 2002; Black & Wiliam, 1998; Xu & Brown, 2016). These contributions emphasize that AL extends beyond technical test construction to encompass instructional decision-making and feedback processes that promote student agency and deeper engagement. However, a critical signpost in this phase is the near absence of Sri Lankan research that directly engages with these global discourses, especially in relation to mathematics education. This gap points to a significant weakness in local academic inquiry and educational policy dialogue, suggesting that AL remains under-prioritized in both teacher education and curriculum development (NEC, 2014).

The second phase examined theoretical conceptions of AL, revealing a shift in focus from assessment as a measurement tool to a more integrated, reflective aspect of teaching. Scholars like Popham (2009) and DeLuca et al. (2015) argue that effective assessment is inseparable from teaching practice and must be tailored to specific classroom contexts. In mathematics, this tailoring requires teachers to assess not only procedural fluency but also conceptual understanding, justification of reasoning, and mathematical modelling. These complex cognitive targets, however, are often overshadowed by the dominance of summative assessments in Sri Lanka's education system, where assessment still primarily serves the function of ranking and selection (World Bank, 2011). Thus, while global models advocate for assessment as a formative and responsive practice, the local culture of assessment remains largely misaligned with these ideals.

The third phase critically analyzed the most widely used instruments for measuring teacher AL, particularly the Teacher Assessment Literacy Questionnaire (TALQ) and the Assessment Literacy Inventory (ALI). Developed within Western education systems, these tools are grounded in psychometric principles and based on standards established by organizations such as the AFT, NEA, and NCME. While their internal structures and purposes are theoretically sound, empirical studies have revealed limitations in reliability and contextual validity, especially when used with in-service teachers in culturally diverse or resource-constrained environments (Mertler, 2003; Alkharusi, 2011). This presents a crucial limitation: current tools not only fail to measure higher-order assessment competencies specific to mathematics but also overlook the socio-pedagogical realities of teachers working within systems like Sri Lanka's, where instructional autonomy is constrained and formative assessment practices are rarely institutionalized.

The fourth and final phase focused on reviewing international best practices for promoting Assessment Literacy through professional development. Successful strategies include the use of context-specific instructional manuals, ongoing in-service training linked directly to classroom practice, and hybrid models of assessment that incorporate both quantitative (e.g., tests, surveys) and qualitative (e.g., reflection, peer observation) data (DeLuca et al., 2015; Wang & Hongxi, 2022). These interventions have been shown to support teachers not only in developing technical competence but also in forming professional identities as reflective, assessment-literate practitioners. Importantly, these studies emphasize that AL cannot be developed through short-term workshops or isolated coursework; it must be embedded in teachers' daily routines and closely tied to their subject-specific pedagogical goals.

The literature underscores a major gap between international AL theory and its local application in the Sri Lankan mathematics education context. Existing tools and practices are ill-

suited to measure or promote the types of assessment capabilities required by Combined Mathematics teachers. Therefore, this review highlights the urgent need for a localized, subject-specific approach, one that integrates theoretical insights with culturally responsive, classroom-embedded practices to promote meaningful assessment literacy in Sri Lanka.

Methodology

To critically examine how Assessment Literacy (AL) is conceptualized, measured, and applied in the context of secondary mathematics education, this study adopted a qualitative systematic literature review approach, guided by an interpretivist paradigm and abductive reasoning. The interpretivist lens was particularly appropriate as it enabled the exploration of how AL is constructed across different cultural and pedagogical contexts, emphasizing meaning-making rather than generalization (Cohen, Manion & Morrison, 2018). This approach was selected to generate an in-depth understanding of the conceptual, empirical, and contextual dimensions of AL, especially as they relate to the under-researched domain of Sri Lankan mathematics education.

The review process was designed to be comprehensive and systematic. A total of 40 peer-reviewed articles, book chapters, policy reports, and conceptual papers were purposefully selected based on their relevance to teacher Assessment Literacy, assessment theory, mathematics pedagogy, and professional development. The search was conducted across three major academic databases: ERIC, Google Scholar, and ResearchGate, ensuring both breadth and depth of coverage. The selected literature spanned a publication window from 2000 to 2024, allowing the study to trace the evolution of AL theory while incorporating the most recent developments in global educational discourse.

The inclusion criteria were carefully defined to ensure that only literature addressing the intersection of assessment and instructional practice was retained. Specifically, studies were included if they explored (a) definitions and theoretical models of AL, (b) tools and instruments used to measure AL, (c) subject-specific applications, especially in mathematics, and (d) strategies used in teacher education to promote AL development. Literature irrelevant to school-based practice or that focused solely on student testing outcomes without teacher engagement was excluded to maintain focus and analytical coherence.

Data were analyzed thematically across four core dimensions identified through the preliminary reading of the literature:

- Terminology and Discourse – exploring how the concept of AL and "assessment-literate teachers" are framed in different educational contexts.
- Conceptual Models – reviewing theoretical frameworks and typologies that define the components and levels of AL.
- Measurement Tools – evaluating the design, reliability, and contextual suitability of widely used instruments such as TALQ and ALI.
- Strategies for Improvement – identifying professional development models and teaching resources that have been successful in enhancing AL among teachers.

A key strength of this methodology lies in its capacity to synthesize diverse bodies of literature while foregrounding the contextual nuances of the Sri Lankan education system. The abductive logic of inquiry enabled the integration of global theoretical insights with emerging local needs, generating a recontextualized understanding of AL that is both theoretically robust and practically relevant. Through this method, the study not only maps the landscape of Assessment Literacy research but also identifies strategic entry points for developing subject-specific, culturally responsive interventions in Sri Lanka's Combined Mathematics education.

Results and Discussion

The findings of this review make evident that Combined Mathematics teachers in Sri Lanka face substantial challenges in implementing assessment practices that are both formative in nature and aligned with the cognitive demands of their subject. Despite a growing global consensus on the value of Assessment Literacy (AL) in enhancing instructional quality (Stiggins & Richard, 2002; Popham, 2009), the Sri Lankan educational context demonstrates limited progress in translating AL principles into mathematics classrooms. A key issue emerging from the literature is that most professional development programs in Sri Lanka focus predominantly on general pedagogical strategies, with limited attention to subject-specific, classroom-based assessment practices (NEC, 2014). As a result, many teachers continue to rely on high-stakes, summative assessments that prioritize rote memorization and procedural fluency over conceptual understanding and mathematical reasoning.

Crucially, this review identifies a significant misalignment between existing AL measurement tools and the practical realities of mathematics instruction in Sri Lanka. Instruments such as the Teacher Assessment Literacy Questionnaire (TALQ) and the Assessment Literacy Inventory (ALI), although theoretically robust and widely cited in international research, are shown to lack the curricular specificity and contextual adaptability necessary for use with in-service mathematics teachers (Mertler, 2003; Alkharusi, 2011). These tools fail to capture critical competencies such as logical reasoning, mathematical modelling, and the justification of solutions skills that are central to the Combined Mathematics syllabus (Ahmadi, Ghaffary & Shafaghi, 2021). Furthermore, their reliance on decontextualized multiple-choice items limits their ability to assess teachers' reflective capacity or their ability to align assessments with student learning trajectories. This finding signals a pressing need for measurement approaches that are both culturally relevant and pedagogically nuanced.

Another key argument emerging from the review is the gap between teachers' theoretical understanding of assessment and their practical application in classrooms. Several studies highlight that while teachers may acknowledge the value of formative assessment, they often lack the training, institutional support, and subject-specific resources required to integrate these strategies effectively (Suurtamm et al., 2016; Box et al., 2015). This disconnect results in what Xu and Brown (2016) describe as “fragmented assessment literacy,” where knowledge of assessment theory exists in isolation from actual instructional practice. In the Sri Lankan context, this fragmentation is further exacerbated by curriculum overload, time constraints, and an exam-driven school culture that discourages innovation in assessment.

In response to these limitations, this study argues for the development of a hybrid, context-sensitive framework for both measuring and promoting AL among Combined Mathematics teachers in Sri Lanka. Such a framework must move beyond standardized instruments and incorporate tools that reflect the cognitive complexity of mathematical thinking and the realities of the local classroom environment. It should include both quantitative elements, such as self-assessment checklists or short diagnostic tests, and qualitative components such as classroom-based reflection prompts, student feedback logs, and teacher learning journals. Importantly, this framework should be anchored in the national curriculum and align with competency-based goals articulated by the National Institute of Education (NIE, 2017).

To operationalize this framework, the study proposes the creation of a teacher instructional manual specifically designed for the Combined Mathematics curriculum. This manual would serve as both a pedagogical guide and a professional learning tool, equipping teachers with resources to assess conceptual understanding, provide formative feedback, and reflect on their own assessment practices. It would offer templates for constructing diagnostic tasks, strategies for interpreting student responses, and models for integrating assessment data into instructional planning. By embedding theory into practice, such a manual could foster teachers’ confidence, competence, and

autonomy in assessment, thereby enabling them to become active agents of instructional improvement.

In summary, the findings emphasize that improving AL among Sri Lankan mathematics teachers requires a shift from imported, generic solutions to locally tailored, subject-specific interventions. This shift not only addresses the cognitive demands of the subject but also acknowledges the institutional, cultural, and linguistic contexts in which assessment takes place. By promoting a more integrated and reflective approach to assessment, the proposed framework and manual offer a path toward more meaningful professional development and ultimately more effective mathematics instruction.

Conclusion

In light of the evidence presented, this study concludes that while Assessment Literacy (AL) is internationally recognized as a cornerstone of effective teaching and learning, its conceptual and practical application within the Sri Lankan educational landscape remains significantly underdeveloped, particularly in the context of secondary mathematics education. Global frameworks and tools, though theoretically robust, often fail to account for the unique curricular structures, linguistic diversity, pedagogical traditions, and resource constraints that characterize Sri Lankan classrooms. As such, continued reliance on imported AL measurement instruments and generic professional development models undermines the potential for meaningful, sustainable improvements in classroom assessment practices.

This review has argued that promoting AL in Sri Lanka necessitates a paradigm shift, one that reframes AL not merely as a set of abstract competencies, but as a subject-specific, contextually responsive professional skillset. In the domain of Combined Mathematics, where assessment must capture complex cognitive processes, such as modelling, problem-solving, and justification, it is particularly urgent that teachers are supported with tools and resources that reflect these intellectual demands. Moreover, in an educational system that continues to prioritize summative assessment and high-stakes examinations, embedding formative assessment practices into everyday teaching remains both a conceptual and operational challenge.

To address these challenges, the study proposes two key contributions: (1) the development of a hybrid, context-sensitive framework for assessing AL, and (2) the design of a subject-specific instructional manual tailored to the Combined Mathematics curriculum. The hybrid framework incorporates both quantitative and qualitative indicators, enabling a more holistic evaluation of teachers' assessment capacities. The instructional manual, grounded in both international best practices and local curriculum requirements, serves not only as a teaching aid but as a vehicle for continuous professional learning. Together, these tools aim to bridge the persistent gap between assessment theory and classroom practice, and between national policy aspirations and teacher realities.

Ultimately, the promotion of Assessment Literacy through localized, research-informed, and curriculum-aligned interventions offers a promising pathway for improving mathematics education in Sri Lanka. By strengthening teachers' confidence, competence, and autonomy in designing and interpreting assessments, such efforts can enhance instructional quality, support student learning, and promote greater equity within the education system. Furthermore, the framework presented in this study may be adapted for other low- and middle-income countries facing similar challenges, thereby contributing to the broader international discourse on culturally responsive and discipline-specific approaches to teacher development in assessment.

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Enhancing Mathematics Teacher Self-Efficacy through Professional Development: A Systematic Review

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Abstract

This extended abstract outlines a systematic review investigating professional development (PD) models aimed at enhancing self-efficacy among mathematics teachers. Recognizing the pivotal role of teacher self-efficacy (TSE) in instructional effectiveness and student outcomes, this review addresses a critical gap in understanding how PD can foster this crucial motivational characteristic. Drawing from Albert Bandura's social cognitive theory, which posits self-efficacy as a belief in one's capability to succeed at a task, the review is guided by three objectives. Firstly, it systematically identifies and categorizes the key characteristics and design elements of PD models explicitly implemented to enhance mathematics teacher self-efficacy, as reported in the empirical literature. Secondly, the review critically evaluates the reported effectiveness and impact of these identified PD models on improving mathematics teacher self-efficacy, utilizing rigorous appraisal criteria for empirical studies. Finally, the synthesis aims to define actionable best practices and essential components for designing and implementing PD programs that effectively foster and sustain high levels of self-efficacy among mathematics teachers. Initial findings suggest that PD incorporating authentic mastery experiences, vicarious learning, verbal persuasion, and sustained, job-embedded support, particularly coaching, are most effective. Such interventions contribute to robust, task-specific self-efficacy, ultimately influencing improved instructional practices, pedagogical innovation, and enhanced student motivation and achievement in mathematics.

Keywords: Mathematics teacher self-efficacy, professional development models

Introduction

Mathematics education is foundational for student success, with teacher effectiveness being a central determinant of student achievement (Hendricks et al., 2024; Avalos, 2011; Darling-Hammond et al., 2017; Ali et al., 2022). Teacher self-efficacy (TSE), defined as a teacher's conviction in their capability to influence student learning and manage the environment effectively (Tschannen-Moran & Woolfolk Hoy, 2001), is a critical motivational characteristic. High TSE correlates with openness to new methods, better planning, persistence, and problem-solving, leading to improved student motivation and achievement (Tschannen-Moran & Woolfolk Hoy, 2001). In mathematics, TSE is distinct from mathematical knowledge, focusing on confidence in teaching mathematics effectively (Grigaliuniene & Lehtinen, 2025).

Professional development (PD) is a primary mechanism for teacher growth (Avalos, 2011). This systematic review aims to synthesize empirical evidence on PD models specifically designed to enhance mathematics teacher self-efficacy, providing an evidence-based foundation for effective future interventions.

While teacher self-efficacy (TSE) is crucial for effective mathematics instruction and student achievement, a clear understanding is lacking in the research regarding how professional development (PD) models specifically enhance this confidence among mathematics teachers. Despite the extensive use of PD, there's insufficient empirical evidence on the precise design elements and features, such as content focus, active learning, or coaching that genuinely foster and sustain high levels of mathematics teacher self-efficacy. This gap impedes the development of targeted and impactful PD programs, thereby potentially limiting teachers' instructional effectiveness and, consequently, student attainment in mathematics.

Research Objectives

This systematic review is guided by the following objectives,

1. To systematically identify and categorize the key characteristics and design elements of professional development models explicitly implemented to enhance mathematics teacher self-efficacy, as reported in the empirical literature.
2. To critically evaluate the reported effectiveness and impact of these identified professional development models on improving mathematics teacher self-efficacy, utilizing rigorous appraisal criteria for empirical studies.
3. To synthesize the evidence to define actionable best practices and essential components for designing and implementing professional development programs that effectively foster and sustain high levels of self-efficacy among mathematics teachers.

Literature Review

Self-efficacy, from Bandura's (1977, 1993, 1997) social cognitive theory, is an individual's judgment of their capability to perform a task successfully (Tschannen-Moran & Woolfolk Hoy, 2001). It influences choices, effort, and persistence. Self-efficacy stems from four main sources (Bandura, 1977, 1993, 1997; Joyce & Showers, 1982; Tschannen-Moran & Woolfolk Hoy, 2009),

1. Mastery Experiences: Direct successful performance is the most powerful source (Bandura, 1993, 1997).
2. Vicarious Experiences: Observing others succeed increases confidence (Bandura, 1997; Joyce & Showers, 1988).
3. Verbal Persuasion: Encouragement from credible others bolsters belief (Bandura, 1997; Joyce & Showers, 1988; Stein & Wang, 1988).
4. Physiological States: Interpreting emotional/physical states as capability indicators (Bandura, 1997). Less pressured PD fosters positive states (Corcoran, 2006; Ingvarson et al., 2005; Ross & Bruce, 2007; Swackhamer et al., 2009; Watson, 2006).

In teaching, self-efficacy is cyclical; successful task accomplishment reinforces beliefs, influencing future performance (Tschannen-Moran & Woolfolk Hoy, 2001). PD must prioritize authentic mastery experiences, scaffolded by modeling and feedback, to genuinely enhance self-efficacy (Joyce & Showers, 1982; Tschannen-Moran & Woolfolk Hoy, 2009).

According to Grigaliuniene & Lehtinen (2025), teachers' self-efficacy is multi-dimensional, including confidence in Knowledge, Recognition (identifying misconceptions), and Methods. Early-career teachers (up to 1 year of experience) often report lower overall self-efficacy, particularly in "Recognition" and "Methods," while "Knowledge" self-efficacy shows no significant differences across career stages (Grigaliuniene & Lehtinen, 2025). A non-monotonic relationship exists, with potential decline for teachers with over 30 years of experience (Grigaliuniene & Lehtinen, 2025).

Professional development (PD) is structured learning aimed at improving teachers' knowledge and skills (Ali et al., 2022). It is an ongoing process encompassing formal and informal learning experiences that enhance staff knowledge and skills, ultimately improving student well-being (Avalos, 2011). PD is "more than training," including workshops, seminars, monitoring, reflection, and observation (Richards & Farrell, 2005).

Methodology

This systematic review employs a rigorous, transparent, and reproducible methodology, adhering to Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines

(Page et al., 2021). This design comprehensively identifies, evaluates, and synthesizes empirical studies on PD models for enhancing mathematics teacher self-efficacy.

A comprehensive search was conducted across academic databases, including ERIC, PsycInfo, Scopus, ScienceDirect, and JSTOR. Keywords included "mathematics teachers," "self-efficacy," "teacher self-efficacy," "professional development," "teacher training," and synonyms.

Inclusion Criteria: Empirical studies focusing on PD interventions explicitly measuring or discussing mathematics teacher self-efficacy as an outcome. Studies available in English, with no date restrictions, were considered.

Exclusion Criteria: Conceptual papers, theoretical reviews, or opinion pieces without empirical data. Studies focusing solely on general teacher self-efficacy without specific relevance to mathematics teaching. Studies with unclear PD models or those not focusing on teachers as direct recipients.

Quantitative and qualitative synthesis was used. This involved categorizing PD models by design elements (Darling-Hammond et al., 2017) and their alignment with Bandura's self-efficacy sources (Bandura, 1977, 1993, 1997; Joyce & Showers, 1982, 1988; Stein & Wang, 1988; Tschannen-Moran & Woolfolk Hoy, 2009), and critically evaluating reported effectiveness, including mediating or moderating factors. The systematic review process involved a comprehensive search and rigorous screening to identify relevant empirical studies. Only 4 studies were considered for qualitative synthesis due to strict inclusion criteria and a lack of relevant literature.

Results and Discussion

Key Characteristics and Design Elements of Professional Development Models

Effective PD models for mathematics teacher self-efficacy are content-focused, incorporate active learning, support collaboration, use models and modeling, provide coaching and expert support, offer feedback and reflection, and are of sustained duration (Darling-Hammond et al., 2017). These elements directly incorporate Bandura's sources of self-efficacy: active learning and sustained duration foster mastery experiences (Tschannen-Moran & Woolfolk Hoy, 2009); modeling and collaboration provide vicarious experiences (Darling-Hammond et al., 2017; Joyce & Showers, 1988); coaching and feedback offer verbal persuasion (Darling-Hammond et al., 2017; Tschannen-Moran & Woolfolk Hoy, 2009; Joyce & Showers, 1988); and a supportive environment contributes to positive physiological states (Corcoran, 2006; Ingvarson et al., 2005; Ross & Bruce, 2007; Swackhamer et al., 2009; Watson, 2006).

Effectiveness and Impact on Mathematics Teacher Self-Efficacy

PD generally increases teacher self-efficacy (Ingvarson et al., 2005; Ross & Bruce, 2007; Swackhamer et al., 2009; Watson, 2006), but effectiveness depends on design. PD with incremental efficacy-relevant input, especially coaching, shows significant gains and improved implementation (Tschannen-Moran & Woolfolk Hoy, 2009). Some studies show a weak direct impact of general PD (e.g., R-squared = 005), highlighting the need for quality design (Ali et al, 2022). An "efficacy dip" can occur without adequate support (Tschannen-Moran & Woolfolk Hoy, 2009). Impact varies by teacher characteristics: early-career teachers show lower self-efficacy in "Recognition" and "Methods" (Grigaliuniene & Lehtinen, 2025), requiring tailored PD. A potential decline for very experienced teachers suggests adaptive PD needs (Grigaliuniene & Lehtinen, 2025).

Table 1

Summary of Included Studies on Professional Development and Mathematics Teacher Self-Efficacy

Study (Author, Year)	Design	Participants	PD Model/Intervention Focus	Key Self-Efficacy Findings
Sources of self-efficacy: Four professional development formats and their relationship to self-efficacy and implementation of a new teaching strategy Tschannen-Moran & Woolfolk Hoy (2009)	Quasi-experimental quantitative	93 primary (K–2) and resource teachers	Four additive PD formats (Information; +Modeling; +Practice; +Coaching) on a new reading strategy.	Coaching significantly increased self-efficacy for reading instruction and implementation. Self-efficacy development is complex; exposure without support can cause a "dip." Authentic mastery and individualized support are crucial.
Enhancing mathematics teacher professional learning through a contextualized professional development program Lee and Vongkulluksn (2022)	Mixed method approach to analyze changes in teachers' perceived knowledge, beliefs, and self-reported instructional practices	Three groups of teachers	investigated the impact of a year-long, contextualized professional development (PD) program on mathematics teachers' perceived knowledge, beliefs about teaching and learning mathematics, and self-reported instructional practices	The PD program was associated with changes in teachers' self-efficacy, epistemological beliefs, and math pedagogical knowledge.
Impact of Professional Development on Self-Efficacy of Mathematics Teachers Ali, M., Tahir, T., & Ishfaq, U. (2022)	Quantitative (survey, correlation, regression)	378 mathematics teachers (secondary level)	General in-service training aimed at improving knowledge and abilities.	Weak direct impact of PD on self-efficacy (R-squared =.005), suggesting other factors (experience, education) may be more influential. Emphasizes the importance of goal-setting, stress management, and adaptability.
An Investigation of High School Preservice Teachers' Self-Efficacy in Teaching Mathematics Hendricks, Winston & Olawale, Babawande Emmanuel & Saddiq, Khalid. (2024)	Quantitative (survey)	63 final-year high school preservice mathematics instructors	Not an explicit PD model; study of existing self-efficacy levels. Recommendations for PD.	Preservice teachers showed relatively high overall self-efficacy. Female preservice teachers reported notably higher average self-efficacy. Recommends targeted PD, mentorship, growth mindset culture, self-reflection, and access to resources.
Mathematics teachers' career length and teaching self-efficacy Grigaliuniene & Lehtinen (2025)	Quantitative (survey, factor analysis, ANOVA)	222 Lithuanian pre-service and in-service mathematics teachers	Not an explicit PD model; investigated self-efficacy across career stages.	Identified three dimensions of math teaching self-efficacy: Knowledge, Recognition, and Methods. Early-career teachers had lower overall self-efficacy, especially in Recognition and Methods. Self-efficacy generally increases with experience but may decline after 30+ years.

Conclusions

Effective PD models are content-focused, incorporate active learning, foster collaboration, use modeling, provide coaching and expert support, offer feedback and reflection, and are of sustained duration (Darling-Hammond et al., 2017). These features align with Bandura's self-efficacy sources, particularly by facilitating mastery experiences (Tschannen-Moran & Woolfolk Hoy, 2009). PD effectiveness is nuanced, varying with design quality and teacher career stage, necessitating tailored interventions and addressing multi-dimensional self-efficacy (Grigaliuniene & Lehtinen, 2025).

Based on these conclusions, the following actionable recommendations are proposed for designing and implementing professional development programs aimed at effectively fostering and sustaining high levels of self-efficacy among mathematics teachers:

Design PD programs emphasizing hands-on practice and guided application of new strategies in authentic classroom settings (Joyce & Showers, 1982; Tschannen-Moran & Woolfolk Hoy, 2009). Integrate Coaching and Mentorship: Establish robust coaching and mentorship programs, especially for early-career teachers, to provide individualized expert support (Hendricks et al, 2024; Darling-Hammond et al., 2017). Promote job-embedded collaboration among mathematics teachers through professional learning communities (Darling-Hammond et al., 2017).

Ensure Sustained and Differentiated Engagement. Move towards long-term, ongoing professional learning, differentiating content based on teachers' career stages and specific self-efficacy needs (Grigaliuniene & Lehtinen, 2025; Darling-Hammond et al., 2017; Ingvarson et al., 2005; Ross & Bruce, 2007; Swackhamer et al., 2009; Watson, 2006). Integrate structured opportunities for teachers to critically reflect on their teaching practices and adjust strategies (Darling-Hammond et al., 2017). Cultivate a Growth Mindset Culture: Promote the belief that teaching skills can be developed through effort, encouraging experimentation and framing challenges as growth opportunities (Hendricks et al, 2024). Measure and Evaluate Impact on Self-Efficacy: Implement rigorous evaluation frameworks for PD programs, including valid measures of mathematics teacher self-efficacy (Ali et al, 2023; Tschannen-Moran & Woolfolk Hoy, 2009).

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Perception of geography subject teachers and students towards 4C skills Development (Based on G.C.E. (A/L) Students Gampola Education Zone)

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Abstract

The study was carried out with the aim of finding out the perception of the development of 4C skills of Geography subject Teachers and Students. In an increasingly interconnected and competitive world, the development of 21st-century skills-Critical thinking, Creativity, Collaboration, and Communication (4Cs) has become essential for academic success and lifelong learning. Geography education, with its interdisciplinary nature and emphasis on spatial thinking, offers a unique platform for fostering these skills among students. However, the perceptions of both teachers and students regarding the integration and effectiveness of 4C skills development within the geography curriculum remain underexplored. Understanding these perceptions is crucial for designing target instructional strategies and improving pedagogical approaches to better prepare students for the demands of the modern world. The study adopted a mixed-methods research approach as it involved the collection and analysis of both quantitative and qualitative data. The population of this study was teaching the geography subject in 15 upper secondary schools, 123 students, and 15 geography teachers in the Gampola education zone. A self-developed structure questionnaire as a primary data collection tool was administered to teachers and students to collect data, and data was collected through interviews with the teachers. The collected data were analyzed quantitatively using statistical tables and charts through Excel, and qualitatively using thematic analysis. As a result of the study, it was found that the geography subject develops the 4Cs of the students, and prepares students for the future world of work, and to overcome challenges. As a result of the teachers' comments, it was concluded that there is difficulty in developing 4Cs simultaneously and that developing 4Cs requires appropriate advice and guidance.

Keywords: Perception, 4C skills, Development, towards

Introduction

In the contemporary educational landscape, the development of 4C skills, critical thinking, creativity, Collaboration, and Communication has become essential for preparing students to meet the challenges of the 21st century. These skills are particularly vital in geography education, where understanding complex spatial phenomena, environmental issues, and cultural contexts requires analytical and communicative competencies. In the rapidly evolving landscape of education, the emphasis on developing 21st-century skills has become paramount to prepare learners for the complexities of the modern world. Among these essential skills are Critical Thinking, Creativity, Collaboration, and Communication, collectively known as the 4Cs. These skills are recognized as fundamental to fostering lifelong learning, problem solving, and adaptive thinking (Partnership for 21st century skills, 2019). These skills are integral to promoting active engagement, problem-solving, and innovation across various disciplines, including geography (Trilling & Fade, 2009).

Geography, as a dynamic and interdisciplinary subject, offers unique opportunities to cultivate these skills through real-world problem analysis, spatial reasoning, and collaborative inquiry. However, the extent to which geography education effectively promotes the development of the 4Cs remains underexplored, particularly from the perspectives of both teachers and students. In recent years, the importance of developing 21st-century skills, namely critical thinking, creativity, collaboration, and communication, has become a central focus in education worldwide (Partnership for 21st-century skills, 2019). Geography education, with its emphasis on experiential and inquiry-

based learning, offers a unique platform for fostering these skills through fieldwork activities. Field-based learning allows students to directly engage with a world environment and analytical skills while promoting active participation (Kozak, 2019). Research indicates that integrating field work into geography curricula enhances students 'critical thinking by requiring them to analyze geographical phenomena firsthand (Johnson et al., 2018).

Additionally, collaborative field activities foster teamwork and communication, essential skills for effective problem solving and societal participation (Lee & Chen, 2017). Additionally, designing investigations and exploring divers' environments stimulates students' creativity in geographical inquiry (Turner & Smith, 2020). Understanding these perceptions is vital because teachers' instructional strategies and beliefs significantly influence the opportunities they create for skill development (Liu et al., 2019). Conversely, students' perceptions of their motivation, engagement, and confidence in applying these skills in real-world contexts (Davis & James, 2020). Therefore, investigating both teachers' and students' perceptions can reveal the current state of 4C skill integration in geography education and identify areas for improvement.

Traditionally, geography instruction focused on memorization of facts and spatial understanding. However, contemporary pedagogical approaches emphasize active learning strategies that promote higher-order thinking and collaborative problem solving. Integrating 4C skills into geography lessons not only enhances students' cognitive abilities but also prepares them to analyze complex global issues, work collaboratively across diverse perspectives, and communicate effectively. This research aims to explore these perceptions comprehensively, focusing on how geography teaching practices facilitate 4C skill development and how students perceive their growth in these skills. The findings are expected to inform curriculum design, pedagogical strategies, and professional development initiatives that aim to enhance the effectiveness of geography education in cultivating essential 21st-century skills. Based Given the above-mentioned importance, the study was carried out based on schools teaching the geography subject in 1AB and 1C schools in the Gampola education zone.

Literature Review

Recent studies highlight the increasing emphasis on 4C skills (Critical thinking, Creativity, Collaboration, and Communication) as essential in 21st-century education. In the context of geography education, teachers recognize the importance of cultivating these skills to promote deeper understanding (Smith, 2020).

Teachers' perceptions of 4C skills in the geography subject

Indicate that geography teachers generally recognize the importance of fostering 4C skills within their practices. Teachers perceive critical thinking as essential for analyzing spatial design activities that explicitly promote these skills due to curriculum constraints and assessment limitations (Smith & Johnson, 2018). Found that teachers value collaborative projects but often lack sufficient training or resources to facilitate effective group work, which impacts their perception of the feasibility of integrating collaboration in lessons (Brown, 2019). The way geography is taught impacts students' perception and skill acquisition (Chen, 2017). Found that inquiry-based and technology-integrated teaching methods improve students' perception of geography as an active and engaging subject, consequently enhancing their 4C skills. The perception that geography fosters creativity and critical analysis motivates students to pursue higher-order thinking tasks (Williams & Nguyen, 2019). Found that many teachers perceive 4C skill integration as time-consuming and requiring additional resources. Moreover, some teachers express uncertainty about how to assess these skills appropriately within geography Curricula (Alvarez& Ramirez, 2020). Research indicates that geography teachers value the importance of integrating 4C skills into their teaching (Lee & Chord, 2021).

Students' perceptions of 4C skills in Geography

Students' perceptions reveal a generally positive attitude toward developing 4C skills, viewing them as valuable for real- word problem- solving (Kim & Park, 2022). Students report that activities such as group projects and inquiry-based tasks enhance their communication and collaboration abilities (Wang et al., 2020). Students generally view activities aimed at developing 4C skills as enhancing and applicable to real-life contexts (Garcia & Lee, 2021). Report that students appreciated collaborative projects and inquiry-based tasks, perceiving these as more meaningful than traditional lectures. Nonetheless, some students experience difficulty adapting to open-ended tasks that require higher-order thinking, especially when they lack confidence or prior experience (Zhao & Wang, 2022). When teachers employ interactive and student-centered approaches, students tend to have more positive perceptions of their skill development and engagement (Rahman et al, 2020).

Implications and Future Direction

Overall, both teachers and students acknowledge the importance of 4C skills; however, practical implementation faces obstacles rooted in curriculum design, assessment systems, and resource availability. Addressing these challenges through targeted professional development curriculum reform and the adoption of student-centered pedagogies can foster more positive perceptions and effective skill development.

Objectives

1. To find out the perception of the development of 4C skills of Geography subject Teachers and Students.
2. To find out the concepts related to the 4C competence of teacher eaching geography subjects.
3. Making recommendations for developing 4C skills among geography subject teachers and students.

Methodology

Perceptions of Geography subject Teachers and Students towards 4C skills development. On the topic of generalization of the information obtained from 1AB and 1C Schools in the Gampola Education zone. This study utilized a mixed-method approach, combining qualitative and quantitative data to address the research objectives. There are 16 senior upper secondary 16 in the Gampola education zone. The population of this study was teachers of the geography subject in 15 upper secondary schools. Based on purposive sampling, 15 schools teaching the geography subject and 123 students were selected as the study sample. The total number of students studying geography in the senior upper secondary class is 180. 123 samples were selected based on purposive sampling as per Craggy Morgan's table. 123 study samples should be selected out of 180 samples. A questionnaire and interview were used as primary data collection methods in this study. A self-develope d structured Likert scale as a data collection instrument was used to systematically collect basic information and specific questions related to the study. A questionnaire was administered and collected, and data were collected through interviews with the teachers. The questionnaire for the students consisted of 6 general information questions and 20 study related questions prepared and presented based on 4 topics, and the questionnaire for the teachers consisted of 7 general information questions and 20 study related questions prepared and presented based on 4 topics, and qualitative data were collected by asking and discussing 5 self- prepared questions' collected data were analyzed using quantitatively using staticall tables and charts through excel, and qualitatively data from open questions and interviews were using thematic analyzed.

Findings

This study presents an analysis of data collected through Questionnaires administered to geography teachers and students studying geography at 1AB and 1C schools in Gampola Education Zone, Kandy district, focusing on their perceptions towards the development of 4C skills.

Importance of 4C skills in the geography subject

Questionnaire part -2: This table shows the analysis of students' opinions regarding the importance of 4C skills in Geography.

Table 1

Importance of 4C skills in the geography subject

Item	Percentage				
Critical thinking is important in geography	27%	47%	20%	2%	4%
Critical thinking is important in geography.	14%	60%	20%	6%	0%
Creative thinking helps to further understand geographical concepts.	34%	39%	22%	3%	2%
While working collaboratively with students in Class.	25%	50%	20%	3%	1%
Communication skills help to clearly express Geography learning.	14%	58%	21%	5%	2%

Based on this, it can be understood that the 4C skills- creativity, critical thinking, communication skills, and collaboration are supported by 96% of respondents, while 6% do not agree. Therefore, it can be concluded that the 4C skills are important in the subject of geography as reflected in students' responses.

Comment on opportunities to develop 4C skills in the geography subject

Questionnaire part -2: This table shows the analysis of students' opinions regarding the Comment on opportunities to develop 4C skills in the geography subject.

Table 2

Comment on opportunities to develop 4C skills in the geography subject

Questions	strongly agree	agree	medium	disagree	strongly disagree
Gives an opportunity to consider things Critically.	20%	43%	26%	9%	2%
Encourages creative methods in solving problems in geography.	24%	52%	18%	6%	0%
Group projects help improve Collaboration Skills.	24%	45%	25%	4%	2%
We develop communication skills by Participating in discussions in Geography.	16%	37%	41%	5%	1%
The geography teacher integrates activities to Develop 4C skills among students.	27%	58%	13%	2%	0%

Based on this, it can be concluded that 94% agree that the subject provides opportunities to critically evaluate topics, encourages creativity to solve problems, helps improve teamwork skills, and develops communication skills through the integration of teacher activities to enhance the 4Cs skills among students. Only 6% disagree with this. Therefore, it can be inferred that Geography as a subject offers opportunities to develop the 4C skills.

Personal confidence and skill application

Questionnaire part -2: This table shows the analysis of students' opinions regarding the Personal confidence and skill application.

Table 3

Personal confidence and skill application

Questions	strongly agree	agree	medium	disagree	strongly disagree
I believe in using critical thinking in analyzing geographic data	29%	41%	25%	3%	2%
I want to create new ideas related to geography.	28%	54%	15%	3%	0%
Feel comfortable working with others to Complete geography tasks.	22%	48%	25%	2%	3%
I'm good at explaining geographic information to others.	19%	33%	37%	9%	2%
I think 4C can help in developing real Geographical problems.	20%	62%	14%	3%	1%

Based on this, it can be understood that 96% of respondents agree that using critical thinking in data analysis fosters confidence, encourages the development of new geographical ideas, provides comfort in collaborative tasks, and helps in solving geographical problems through the development of 4C skills. Additionally, 87% agree that I am skilled at explaining geographical information to others. Therefore, the survey indicates a strong belief among students in the application of 4C skills, as reflected in their responses.

Challenges and recommendations

Questionnaire part -2: - this table shows the analysis of students' opinions regarding the Challenges and recommendations

Tables 4

Challenges and recommendations

Questions	strongly agree	agree	medium	disagree	strongly disagree
It is difficult to develop 4C skills simultaneously in a Geography class.	21%	43%	20%	11%	5%
Creative skills should include speaking in geography Class.	19%	63%	14%	3%	2%
Teamwork sometimes affects collaboration skills.	21%	35%	22%	16%	6%
Further guidance should be given on how to help Improve communication skills.	26%	55%	16%	2%	1%
Overall, I think that basic education is best for Developing 4C skills.	37%	46%	13%	4%	0%

Based on the responses, 83% of students agree that it is difficult to develop all 4Cs simultaneously in geography lessons. Additionally, 95% of students believe that creative skills should be further integrated. Into geography classes. About 77% of students feel that group activities sometimes hinder cooperation, and 99% of students indicate that guidance is needed to improve communication skills. Therefore, based on the students' responses, it can be concluded that developing the 4C skills in geography education is the best approach.

Importance of 4C Competencies in Geography Education

Questionnaire part -2: This chart shows the analysis of teachers' opinions regarding the Importance of 4C Competencies in geography Education.

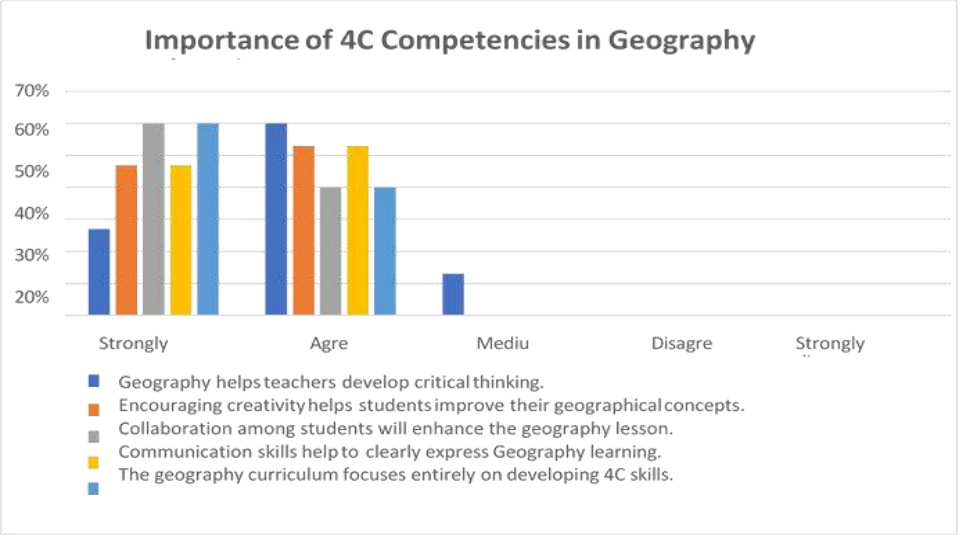

Figure 1. Importance of 4C Competencies in Geography Education

Based on the response of the teachers, it can be known that 100% of the teachers agreed that 4C skills improve among students when 4C skills are incorporated in geography education.

Responses received from teachers through the interview

The 4Cs of 21st-century skills are important for everyone in today's world. These skills are developed among the students while providing group activities. There are challenges, like although it can be achieved to some extent by incorporating it into the geography curriculum, the continuous absence of students to attend private classes, and the education systems giving emphasis only to the examination, and insufficient resources. Students' skills are known through group work, debate, and exhibition. Some gave their answers that the current geography curriculum is not suitable for developing 4Cs, and some thought it was suitable.

Conclusion

The study reveals a generally positive perception among both geography teachers and students regarding the significance of developing 4C skills critical thinking, creativity, communication, and collaboration in geography education. Teachers recognize the importance of these skills in promoting deeper understanding and real-world application of geographical concepts. Similarly, students acknowledge that integrating 4C skills enhances engagement and better prepares them for future academic and career challenges.

However, the findings also indicate certain challenges, such as limited resources, insufficient professional training for teachers, and reliance on traditional teaching methods that hinder the effective integration of 4C skills. Moreover, some students perceive 4C skill

development as supplementary rather than integral to geography learning, underscoring the need for more explicit pedagogical emphasis and strategic instructional practices.

Suggestions

The study proposes several strategies to enhance the integration of 4C skills—critical thinking, creativity, communication, and collaboration—in geography education. Professional development programs should be implemented to train geography teachers in innovative pedagogical approaches that effectively foster these skills. The use of technology is equally important; incorporating digital tools and resources can facilitate interactive and collaborative learning experiences that stimulate critical thinking and creativity. Educators are encouraged to design geography lessons that explicitly integrate 4C activities, adopt inquiry-based and project-based learning methods, and align assessments to evaluate both content knowledge and 4C competencies. Continuous professional development through workshops and training sessions can further strengthen teachers' capacity to embed these skills in classroom practice.

Students, on their part, should actively engage in group discussions, debates, and problem-solving activities to enhance their 4C skills. Reflective practices such as self and peer evaluations can help them monitor progress, while participation in extracurricular activities like geography clubs and community projects provides real-world opportunities to apply these skills. For future research, it is recommended to explore the impact of specific teaching strategies on 4C development, examine students' perceptions across different educational levels, and study the relationship between 4C skills and academic performance in geography.

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List of Short Abstracts

Developing students' creative skills through the primary First language curriculum: Challenges faced by teachers

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Abstract

Creativity is an essential learning skill in the 21st century, significantly contributing to the intellectual, emotional, and social growth of students. Research indicates that nurturing creative skills throughout primary school establishes a solid basis for addressing future challenges. Language is acknowledged as crucial for the acquisition of creative skills, so it is imperative to prioritise their development within the primary First language (L1) curriculum. Despite the necessity for schools to emphasis creativity development in primary education, numerous research studies indicate that this objective is frequently not met in Sri Lankan primary schools. The main purpose of this study is to investigate the obstacles encountered by educators in developing students' creative skills during the primary L1 learning and teaching process. In this qualitative study, four schools were selected to represent each school type (1AB, 1C, Type 2, and Type 3) from Piliyandala Education Zone. Twelve teachers were purposively selected as participants. Three teachers were selected from each school: one teacher from each key stage of primary education. Data was gathered through classroom observations and interviews and analysed thematically. Findings revealed three major categories of challenges: (1) systemic constraints (exam-oriented culture, curriculum rigidity, limited instructional time), (2) pedagogical gaps (insufficient professional training, limited awareness of innovative methods, reliance on conventional assessment), and (3) resource-related limitations (shortage of materials, inadequate classroom environments). These factors collectively hindered the promotion of creativity in primary L1 classrooms. The study recommended strengthening teacher professional development programmes with an emphasis on creative pedagogy, revisiting curriculum policies to allow greater flexibility for creativity, and enhancing school-level resource provision. Furthermore, it proposed the development of a structured activity framework to meaningfully integrate creative skill development into the primary L1 teaching–learning process, thereby addressing a key educational need identified in the contemporary context.

Keywords: Creative skills, First language (L1), primary education, teacher challenges

Teachers' Transformational Mentoring Practices for Students' Academic Development in Sri Lankan Schools

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Abstract

This research examines the role and the impact of teacher-led mentoring on students' academic development in Sri Lankan schools. Most global education systems now focus on personal support, setting goals together, and building relationships as primary ways of motivating and helping students; however, the Sri Lankan situation differs from others, and there has still been limited understanding of the application of these methods in Sri Lanka. The qualitative research methodology was employed, and thus, 20 experienced teachers who were involved in mentoring were selected through purposive sampling and interviewed semi-structuredly to gather in-depth and comprehensive data about their experiences and challenges. The thematic data analysis identified three main components of effective transformational mentoring, which are precisely the practices of individualized goal-setting, fostering student autonomy, and strengthening the teacher-student relationship. It was possible to trace through practice how teachers applying these practices inadvertently and directly contributed to the improvement of students' self-esteem, motivation, and resilience in dealing with academic difficulties. The research unveiled significant systemic barriers that hinder wide acceptance. Challenges, such as mentoring not being recognized as a formal role, inadequate funding, and restrictive curricula, represent significant challenges for institutionalizing effective mentoring processes. The results indicate that teacher-led mentoring must be supported by policy intervention at different levels to bring about the desired change in practice. Among the measures that can gradually transform the quality of education in Sri Lanka through creating a supportive and nurturing learning environment are the formalization of the mentor role with the provision of training, the continued allocation of resources, and the provision of flexibility in the curriculum.

Keywords*:* Transformational Mentoring, Academic Development, Teachers, Students, Sri Lanka

The Impact of Principals' Distributed Leadership Practices on Teacher Effectiveness in Private Schools in Sri Lanka

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Abstract

This study investigates the impact of principals' distributed leadership (DL) practices on teacher effectiveness in Sri Lankan private schools. In the contemporary education landscape, there is a global imperative to move beyond the heroic leader model toward more collaborative and shared leadership structures to improve student outcomes. As traditional top-down leadership models lose relevance in fostering collaborative and innovative school environments, distributed leadership emerges as a promising alternative. Despite its global prominence, its application and effectiveness in Sri Lankan private schools—often characterized by long-standing strong hierarchies, high power distance, and limited teacher autonomy—remain underexplored. This lack of empirical evidence highlights a critical gap in understanding how leadership can be optimally restructured within the specific cultural and institutional context of Sri Lanka. Guided by Spillane's Distributed Leadership Theory, which frames leadership as a practice spread across leaders, followers, and their situation, and Stronge's Teacher Effectiveness Framework, this study adopts a sequential explanatory mixed-methods design. Quantitative data will be collected from a large sample of approximately 200 teachers in eight private schools using a stratified random sampling approach and validated tools: the Teacher Effectiveness Measure–Sri Lanka (TEM-SL) and the Distributed Leadership Inventory–Sri Lanka (DLI-SL). The reliability of these instruments will be meticulously established for the current sample during the pilot phase to ensure data trustworthiness. The subsequent qualitative phase will involve eight principals and sixteen key teachers through in-depth methods, including case studies, semi-structured interviews, focus groups, and document analysis to enrich and explain the quantitative findings. The findings are expected to reveal the prevalence and nature of DL practices and their perceived influence on teacher performance. Ultimately, the study aims to offer a refined, context-specific model for leadership development and policy formulation in private school education, demonstrating how distributed practices can successfully foster more effective, empowered, and collaborative teaching communities in Sri Lanka.

Keywords: Distributed leadership, teacher effectiveness, private schools, Sri Lanka, educational leadership

Secondary School Science Teachers' Perceptions and Experiences of Professional Development Programme Efficacy in the Sri Lankan Educational Context

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Abstract

This study examined the perceptions of secondary school science teachers in Sri Lanka regarding professional development programmes, with a particular focus on School-Based Professional Teacher Development (SBPTD). Using a quantitative survey design, data were collected from 78 teachers through a structured Google Forms questionnaire. The instrument explored teachers' views on the availability, accessibility, and effectiveness of professional development opportunities. Findings revealed that most science teachers actively participated in programmes organized by the Ministry of Education, Provincial Departments, and Zonal Education Offices, indicating strong institutional engagement. Teachers generally perceived in-service training as useful for improving instructional skills and addressing classroom challenges, though opinions varied on the adequacy and accessibility of such opportunities. While most respondents valued SBPTD as an effective approach to professional growth, they also highlighted the need for more consistent implementation and greater opportunities for collaboration and peer learning. The study concludes that Sri Lankan science teachers demonstrate high engagement in professional development activities but would benefit from more structured, continuous, and collaborative frameworks that promote sustained professional learning and improved science teaching outcomes.

Keywords: Professional Development Programmes, SBPTD, Science teachers, Perceptions

Factors Affecting Academic Stress in Pre-service Teachers

(The study is based on the National Colleges of Education - Literature-Based view)

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Abstract

Academic stress is a prevalent psychological concern among students, including pre-service teachers. This stress adversely affects the mental health, academic performance, and overall well-being of teacher trainees of National Colleges of Education in Sri Lanka, too. Out of the published 49 articles from the year 2008 to 2024, the factors affecting academic stress, under four themes as psychological, sociological, instructional, physical, and personal have been identified. Psychological contributors include exam anxiety, fear of failure, emotional instability, low motivation, poor coping and time management skills, and mental health conditions such as depression and anxiety. Sociological stressors encompass parental and teacher expectations, peer competition, lack of social support, family dysfunction, financial hardships, and social isolation. Additionally, academic demands such as heavy workloads, examination pressure, classroom management challenges, performance assessments, and traditional teaching methods further intensify stress. The lack of adequate learning materials and infrastructure compounds these issues. Cultural expectations around the teaching profession as prestigious and demanding also amplify internalized pressures. Furthermore, limited access to mental health resources and effective coping strategies worsens the problem. This literature-based review underscores the urgency of implementing targeted interventions such as stress management programs, counseling services, and curriculum reform to alleviate academic stress. Addressing these factors is essential for enhancing the academic experience and psychological well-being of future teachers in Sri Lanka.

Keywords: Academic stress, pre-service teachers, contributing factors, mental health

An innovative approach to developing the 21st Century Skills of the Junior Students in Sri Lanka

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Abstract

The study examines a more innovative and practical method of introducing the 21st-century skills among junior school children in Sri Lanka, given that the world has focused its attention on such proficiencies as critical thinking, collaboration, communication, creativity, and digital literacy. Even though the crucial importance of these skills has been recognized within the framework of the National Education Policy of Sri Lanka (NEPF), a large gap exists between policies and practices in the classrooms. The research attempts to fill this gap through an investigation of the current curricular opportunities, reveal some of the systemic and institutional barriers, develop a context-specific model of skill building, and test its viability in a set of schools. A qualitative approach is used, which combines the research into the documentation, interviews, and a pilot test at six schools of the Colombo North education zone. The sampling consists of 98 students, 10 teachers, and five administrators, which will provide a view of the ground realities of the teaching and learning process. Educational theory, including Constructivism, Experiential Learning, and Sociocultural Theory, influences the research both in terms of the design of the model and evaluation. Results show that obsolete pedagogy, overall lack of teacher preparation, lack of sufficient technology infrastructure, as well as test culture on the one hand impede the development of 21st century skills. The proposed model promotes the concept of the integrative curriculum design, professional development of the teachers, and activity-based instruction, as presented in the world schemes and the OECD Learning Compass or the P21 Framework. The findings indicate that a locally based but internationally knowledgeable model is viable and helpful in enhancing student participation and attainment of skills. Policy guidelines are given to education authorities to facilitate long-term and sustainable change.

***Keywords*:** 21st-century skills, National Education Policy Framework, curriculum innovation, educational reform, Sri Lanka, skill development model

Effectiveness of Game-based Learning in Teaching Mathematical Concepts to Students in the Primary Key Stage 1

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Abstract

Mathematics is a scientific discipline that enhances cognitive development, logical thinking, and reasoning, which assist in solving everyday problems by applying concepts to real-world situations. It is a mandatory part of the school curriculum from primary school onwards. Although the importance of mathematics is recognised, it is often regarded as a difficult subject. Therefore, learning experiences at the elementary level should be carefully designed to foster a positive attitude towards concepts. Active engagement in learning encourages young learners to pursue their explorative and inquisitive nature. A Game-based approach is a child-centred pedagogy that promotes learning through engagement in guided play. A study by the researcher based on an experimental design to investigate the effectiveness of this method in mathematics education was conducted for students in primary Key Stage 1, following the local curriculum. The study involved 66 students: 33 in the control group and 33 in the experimental group. Four areas were identified as areas to be addressed from the results of the previous summative assessments. They were number concepts, invariance, shapes and space, and linear measurements. Each mathematical concept was taught weekly by beginning with a pre-test to check their prior knowledge and a post-test conducted at the end of the intervention. Concepts for the control group were introduced by the existing methods, while the Game-based approach was implemented on the experimental group. The games included traditional games such as hopscotch for sequence of numbers, digital games such as 'Abc mouse' and 'number train', and games created by the researcher, such as 'hop to the shape' for shape identification, 'make your shape with the same number' for the concept of invariance, etc. An observational checklist was maintained to evaluate the engagement of both groups, and the retention ability was measured through a summative assessment. Preliminary findings reported a higher percentage of accuracy of the experimental group in number concepts and invariance, but for the concept of length and shapes, it was less significant. Nevertheless, Game-based Learning created an environment that enhances knowledge, facilitates problem-solving, and provides a sense of achievement, which motivated young learners. It also provided opportunities for collaboration, self-expression, and embracing both challenges and failure.

Keywords: Game-Based Learning, mathematics, primary key stage one, effectiveness

Social Trends in International School Choice

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Abstract

In an increasingly globalized world, international schools have emerged as influential institutions within national education landscapes, reflecting shifting socio-cultural and economic dynamics. This literature review explores key social trends in international school choice by analyzing scholarly work published between 2010 and 2024. The review investigates how factors such as parental expectations, cultural values, economic conditions, and broader societal transformations shape decisions around international schooling. The findings reveal a steady increase in demand for international schools over the past decade. Originally established to serve expatriate communities, these schools have since expanded to accommodate both local and international students, often becoming prestigious alternatives within national education systems. A key observation across the literature is that parental motivations extend beyond access to international curricula or English-medium instruction. Instead, choices are increasingly driven by aspirations for global citizenship, social mobility, and future access to higher education abroad—particularly in developing countries where English-medium education is perceived as a vehicle for upward social advancement. The review further explores emerging themes such as curricular diversity (e.g., International Baccalaureate, British, and American systems), teacher identity and mobility, governance structures, and the formation of hybrid cultural identities within international school environments. While these schools may facilitate intercultural understanding, concerns have also been raised about cultural homogenization and neo-colonial influences. The work of scholars such as Bunuel (2019) and Hayden & Thompson (2013) underscores how international schools contribute to the negotiation of global and local identities, often framed within the discourse of "globalization." Overall, the review highlights a growing need for context-sensitive research to better understand how international education models align with national policies, societal expectations, and evolving socio-economic conditions.

***Keywords**:* International schools, Social trends, School choice, Globalization

The Role of Teachers in Promoting Students' Moral Values in Secondary Schools

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Abstract

This study explores the contributions of teachers in enhancing the moral values of secondary school students. It focuses on examining the moral values attainment of students through the teaching and learning activities of secondary school teachers. Teachers play a significant role in improving students' moral values, and therefore, research in this area is deemed necessary. This study is based on the research problem that systematic programs are not implemented among teachers within the school's internal structure to improve the moral values of secondary school students. The main objective of this study is to examine the role of teachers in the approaches and practices used to improve the moral values of secondary school students and to put forward recommendations for improvement. The study is based on the following objectives: identifying teachers' level of interest in improving students' moral values, identifying teachers' management skills in improving moral values among students, identifying teachers' professional input in improving students' moral values, and identifying teachers' involvement in co-curricular activities in improving students' moral values. A descriptive survey method and a mixed-methods approach are used to analyze the situation. In the Batticaloa district, 45 secondary schools from among 85 schools belonging to type 1AB, 1C, and Type II in the Kalkudah education zone, 45 principals, eight in service advisors serving in the specified zone, and three divisional education officers; 126 teachers out of 1216 teaching in the junior, senior, and intermediate sections have been selected on a proportional stratified random sample basis. Data were collected from teachers using questionnaires, interviews, and observation, interviews with principals, in-service advisors, and divisional education officers, focus group discussions with parents, and document analysis. The data were then analyzed using descriptive statistical approaches such as percentages, standard deviations, and means, and presented through tables and graphs. Inferential statistical approaches, including t-tests, ANOVA, correlation, regression, and thematic analysis, were also employed for interpretation. The results of the analysis reveal a significant positive correlation between the teachers' teaching-learning process and the improvement of students' moral values, which is also evident through the literature review. The findings also indicate that many teachers show less interest in enhancing students' moral values in schools, leading to the creation of complex student groups within the school structure that enter society. To prevent this, proposals are put forward suggesting that systematic projects should be strengthened to improve moral values among students within the school structure and in the provision of professional development for teachers.

***Keywords**:* Students, Moral values, Teacher, Teaching-learning

Effectiveness of Professional Skills Utilization of National Diploma in Education (NDT) Teachers' Performance: A Systematic Review of literature

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Abstract

This study examined the effectiveness of how professional skills acquired through the National Diploma in Teaching (NDT) are applied by teachers in Sri Lankan schools. The study aimed to address the following research questions: (1) What are the key professional skills embedded in the NDT Course? (2) To what extent are these skills utilized effectively in classroom teaching? (3) What factors influence the application of these skills in school settings? Drawing on a comprehensive review of national and international literature, this study synthesizes policy directives and empirical evidence pertaining to pre-service teacher training in Sri Lanka. Using a systematic literature review (SLR) design, relevant empirical and policy-based studies published between 2010 and 2024 were retrieved from Google Scholar and ERIC databases. The search process used combinations of the keywords National Diploma in Teaching, Pre-Service Teacher Education, teacher professional skills, and teacher effectiveness in Sri Lanka. From an initial set of 20 records, 12 studies met the inclusion criteria based on methodological rigor, contextual relevance, and focus on professional practice. A thematic analysis was conducted to synthesize the evidence across studies. Findings indicate that NDT-trained teachers possess a strong conceptual understanding of pedagogical, interpersonal, and technological skills; however, the extent of their practical application is moderate and context-dependent. Effective use of professional skills is most evident in schools that provide supportive leadership, mentoring, and continuous professional development. Conversely, poor institutional support, excessive workloads, and limited feedback mechanisms constrained skill integration. The review further highlights that the interconnected use of pedagogical design, classroom management, and reflective practice contributes more strongly to instructional quality than isolated competencies. The study concludes that assessing teacher effectiveness requires a structured and context-specific framework that captures how NDT teachers translate their professional training into practice. Such an evaluative model could strengthen teacher education policy, improve ongoing professional development, and enhance instructional quality across Sri Lanka's school system.

***Keywords**:* National Diploma in Teaching, professional skills, Effectiveness

The Readiness and Awareness of Students in the National College of Education to Use E-Learning Resources

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Abstract

The preparedness of pre-service teachers to use digital technologies is essential for effectively incorporating technology into modern educational environments. Many research findings show that teachers are often inadequately prepared to integrate technology into their practices. These technological skills are essential as students at the National College of Education (NCoE) are also those who will be directly involved in the future education system. This study investigated the readiness and awareness of students of NCoE regarding the use of e-learning resources and utilized the laptop, smart board, web search, and multimedia. The research employed a qualitative method with a convenience sample of twenty-one students from the Wayamba NCoE. Data was gathered through classroom observations and interviews, and was analyzed thematically. The primary goal was to assess their familiarity, confidence, and attitudes towards incorporating digital tools and resources into their future teaching practices. The analysis revealed a range of information on awareness and readiness among the participants. Eight students demonstrated active participation and technical competence, while others demonstrated limited familiarity and confidence in using e-learning resources effectively. Key factors influencing readiness and awareness included prior exposure to digital technologies, ease of use, perceived usefulness of use, and institutional support. This research highlights the need for targeted training and institutional support to enhance students' readiness and awareness. The findings further reveal that the need for subject-specific training is more useful to increase their competencies.

***Keywords**:* Student in the National College of Education, E-learning resources

The Influence of Mobile Phone Addiction on Academic Performance Among Teenagers

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Abstract

The rapid growth of digital communication has led to increased dependence on mobile phones among adolescents, raising concerns about their impact on learning and mental well-being. This study investigates the effects of mobile phone addiction on academic performance, cognitive functioning, and interpersonal relationships among teenagers in the Katugastota Education Zone, Sri Lanka. A descriptive correlational research design was employed within a quantitative framework, and standardized Likert-scale questionnaires were administered to 73 Grade 10 students. Descriptive and correlation analyses were conducted to identify behavioral and academic patterns. Results showed that 46.5% of students engaged primarily in non-academic mobile activities such as gaming and viewing sexual content, while 79% used their phones for more than one hour per day. A weak negative correlation ($r = -0.124$, $p > 0.05$) was observed between mobile engagement and academic performance. Excessive use was associated with reduced concentration, increased aggression, and sleep disturbances, leading to diminished cognitive abilities such as memory and reasoning. These findings emphasize that although mobile phones can serve as an effective learning tool when properly managed and supervised, unregulated usage may contribute to declining educational outcomes and behavioral issues. This study suggests implementing digital literacy education, parental guidance, and time-management strategies to mitigate addiction patterns and promote healthier academic development among adolescents.

Keywords: Academic performance, adolescents, behavioral impact, digital literacy, mobile phone addiction

The Role of Extra-Curricular Engagement in Pre-Service Teacher Competency Development: A Critical Review of the Literature

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Abstract

The development of a competent and adaptable teaching workforce is vital for educational advancement, and teacher education institutions increasingly recognize the value of experiential learning beyond formal coursework. This critical review examines studies published between 2010 and 2024 across databases including ERIC, Scopus, and Google Scholar, focusing on how extra-curricular engagement contributes to the professional competency development of pre-service teachers. Twenty-eight peer-reviewed articles were selected based on relevance to teacher education, reported outcomes, and methodological rigor. Drawing on research from diverse educational contexts, this review synthesizes evidence on how participation in student-led organizations, community service, performing arts, sports, and cultural activities supports the growth of key professional skills. The review acknowledges that many countries have successfully integrated co-curricular engagement into teacher education programs as a means of strengthening the quality of future educators. The analysis identifies consistent evidence that structured extra-curricular participation, such as student organizations, community outreach, and creative or athletic programs, enhances key competencies, including leadership, collaboration, communication, and reflective practice. However, findings also reveal methodological limitations across studies, including small sample sizes, self-reported measures, and contextual variability. Conflicting results were noted regarding the transferability of soft skills into classroom teaching performance. While many teacher education systems integrate co-extra-curricular frameworks, disparities in institutional support, access, and formal recognition persist. Addressing these challenges requires systematic inclusion of experiential components within program design, with mechanisms for assessment and reflection. This review concludes that extra-curricular engagement holds substantial but unevenly realized potential for fostering professional identity and competency among pre-service teachers.

Keywords: Extra-curricular activities, Pre-service teacher education, Competency development, Teacher professional development

Personalizing Education Plans Through Artificial Intelligence: an Evidence-Based Comparison OF AI-Generated and Traditional Teaching Approaches in Mathematics Using Bloom's Taxonomy and VAK Learning Styles

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Abstract

The rise of Artificial Intelligence (AI) in education presents a powerful opportunity to rethink how lessons are designed and tailored to meet the needs of individual learners. This study examines the effectiveness of AI-generated teaching plans created with ChatGPT, comparing them to traditional teacher-designed lessons in mathematics, specifically focusing on the topic "Solving Simple Equations." Sixty-four lesson plans—32 designed by teachers and 32 produced by AI—were tested with students grouped according to their VAK learning styles (Visual, Auditory, and Kinesthetic). Quantitative analyses, including descriptive statistics, ANOVA, and cluster modeling, were conducted to evaluate differences in performance and cognitive-level achievement based on Bloom's Taxonomy. Findings revealed no significant difference in overall mean performance between teacher- and AI- AI-designed lessons, suggesting that AI can generate pedagogically sound and effective instructional plans. However, learning-style interactions were significant (F 2,29) = 16.87, p & lt; .001, $\eta^2 = 0.54$): auditory learners achieved the highest scores with AI instruction, while visual learners performed better under teacher guidance. Cluster analysis showed that AI was capable of differentiating instruction according to learner readiness and learning style. Overall, the results affirm AI's potential as a pedagogical co-designer, capable of creating coherent, adaptive, and cognitively aligned lessons. The study advocates for a collaborative model where teachers and AI work together to advance personalized and equitable learning experiences.

Keywords: Artificial Intelligence, VAK Learning Styles, Bloom's Taxonomy, Mathematics, Education, Cluster Analysis, Personalized Learning

A Study on the Challenges Faced by Teachers in Classroom Management

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Abstract

The education system centers on the dynamic relationship between teachers and students, with the classroom as the main environment for learning across generations. Class teachers are key figures in this process, shouldering a range of responsibilities for managing their classrooms and often encountering diverse challenges and complex situations. This study aimed to investigate the difficulties teachers face in classroom management, focusing on four core objectives: investigating teachers' awareness of class management, identifying challenges in managing student and physical resources, and examining the actions teachers take to overcome these challenges. The research adopted a mixed-method approach, combining quantitative and qualitative techniques, and was conducted across 16 1AB schools, 36 IC schools, and 43 Type 2 schools in the four educational divisions of Nivithigala, Kahawatta, Kalawana, and Ayagama within the Nivithigala Education Zone of the Ratnapura District. A total of 225 participants, including grade 8 class teachers, students, and principals were selected through purposive sampling. Data collection tools included teacher and student questionnaires, interviews with teachers and principals, and classroom observation procedures, all tested for reliability and validity. Data were analysed using numerical data, percentage tables, and graphs to draw meaningful conclusions. The findings revealed that teachers' awareness of effective classroom management needs further enhancement. Major challenges in managing student resources included maintaining attendance, fostering self-discipline, handling behavioral issues, controlling disruptive noise, supporting students with special needs, and promoting self-assessment among students. Physical resource management issues included insufficient furniture, limited classroom space, inadequate display materials, poor-quality teaching inputs, improper organization of cleaning tools, and irregular record keeping. The study emphasized the necessity for teachers to adopt creative strategies to mitigate these problems and improve classroom management. Furthermore, it highlighted the importance of developing a classroom code of ethics to address emerging challenges and create a more organized, supportive, and effective learning environment.

***Keywords**:* Classroom management, Student resource management, Physical resource Management, Classroom code of ethics

Investigation of Teaching Aids Used by Pre-school Teachers for Enhancing the Language Skills of the Pre-school Children in Sabaragamuwa Province

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Abstract

Teaching aids are significant in the teaching-learning process, which helps to improve students' holistic development. In essence, teaching aids assist preschool children in achieving their language abilities effectively. Encouraging pre-school children to enhance their language skills is essential for their future formal education. However, research regarding how teaching aids affect pre-school children's language skills is limited in the world. The main objective of this study is to investigate the impact of teaching aids on enhancing the language skills of pre-school children. 200 pre-school teachers were selected, using random sampling methods from urban, rural, and estate pre-schools in the Sabaragamuwa province in Sri Lanka. A mixed method was utilized in this study. Descriptive statistics such as frequency distribution and graphic presentation were used to demonstrate demographic data and summarize responses of teachers' perception of whether the teaching aids affect the language skills of pre-school children. $\chi 2$ tests were used to analyze responses by age, sector, educational qualifications, and ethnicity of teachers to determine whether these variables influence the responses ($p<0.01$). Mean, mode, median, and standard deviation were calculated. Also, the key challenges faced by pre-school teachers and recommendations were analyzed, using the thematic analysis method. The finding reveals that teaching aids directly positively impact enhancing the language abilities of pre-school children, and teachers are facing a number of key challenges when using teaching aids in the classroom, such as a lack of resources to prepare teaching aids in relation to language lessons, time management issues, and no funding for preparing teaching aids from the government side. Recommendations are that the government and non-government organizations should grant financial support and professional pre-school teacher development programs, the teachers can use simple language-related games in the classroom, and activities using natural teaching aids for children.

Keywords: Teaching aids, Holistic development, Language skills, Formal Education

Challenges in Preventing Child Abuse within the School System: The Responsibilities and Roles of Stakeholders

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Abstract

Child abuse remains a critical threat to the physical, emotional, and psychological well-being of children in Sri Lanka. Teachers and school staff are crucial stakeholders, often being the first to spot abuse during daily interactions, necessitating their vital role in both recognition and prevention. Meanwhile, school administrators are tasked with the crucial responsibilities of formulating, facilitating, and enforcing prevention policies across the institution while allocating necessary resources. This study involved a comprehensive review of national and international research on child abuse prevention published from 2016 to 2025, utilizing major academic sources like ResearchGate, PubMed, and JSTOR. The analysis, which focused broadly on the roles of key stakeholders, determined that despite the government providing adequate legal provisions, a significant, persistent problem exists at the grassroots level of Sri Lanka's education system. A core finding is the complex interplay of individual, institutional, and societal factors that critically influence stakeholder awareness, attitudes, and intervention capacity. The review emphatically emphasized significant systemic gaps, including deficient policy enforcement, inadequate reporting mechanisms, and a critical absence of standardized preventive education programs for students. It is strongly recommended to strengthen community-based approaches, as these are vital in preventing child abuse and neglect by directly tackling root causes and providing direct support. These collaborative strategies emphasize early intervention, education, and assistance, actively engaging stakeholders like families, schools, and community organizations through awareness efforts and parenting programs, ultimately aiming to foster a safer and more supportive environment for all children. In conclusion, the review stresses the urgent need for comprehensive, multi-stakeholder strategies and fortified institutional accountability to effectively safeguard children in schools.

***Keywords**:* Child abuse, School stakeholders, Prevention, Responsibilities

Developing Formative Assessment Practices of Science Teachers

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Abstract

This study aims to enhance the formative assessment practices of Grade 9 science teachers in Sri Lanka through a School-Based Teacher Development (SBTD) programme. Although formative assessment was formally introduced in Sri Lanka through the "School-Based Assessment Programme" under Circular No. 98/42 in 2004, evidence indicates that its intended goals have not been fully achieved, mainly due to teachers' limited knowledge, skills, and attitudes toward formative assessment. This study, which addresses the identified research gap, includes five objectives: examining the knowledge,skills, and attitudes of science teachers on formative assessment; identifying the strengths and weaknesses of current methods; developing a professional development programme to address the identified issues; and evaluating the effectiveness of the programme in classroom practices. Sample surveys will be conducted to collect the required qualitative and quantitative data. This study involves a stratified purposive sample of 334 science teachers from Colombo, Gampaha, and Kalutara districts, representing 1AB, 1C, and Type 2 schools. The SBTD programme developed for this study consists of a series of workshops designed to improve teachers' knowledge, skills, and attitudes regarding formative assessment. The programme emphasizes self-assessment, peer assessment, feedback,rubrics, and practical classroom application of formative assessment strategies. This programme will lead to a significant improvement in teachers' understanding of formative assessment principles, their ability to apply them effectively in science classrooms, and their overall attitudes toward formative assessment. These enhancements are expected to strengthen classroom-based formative assessment practices, promote active student engagement, and contribute to the broader goal of improving teaching quality and learning outcomes in science education. The study's findings will offer valuable insights into the effectiveness of the SBTD programme in developing formative assessment literacy among science teachers in Sri Lanka.

Keywords: formative assessment, science teachers, professional development, design-based research, SBTD programme

The Perception of Teachers Towards the Implementation of the Five Essential Learning Concepts (5 ELC) Proposed in the Catholic Curriculum Reform (CCR)

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Abstract

The government educational authorities consistently emphasize the vital importance of religions and value education in Sri Lanka, "providing a high level of religious and value education, highlighting National educational goals". This literature review pertains to ongoing research titled "The perceptions of the teachers towards the implementation of 5 essential learning concepts, proposed in the catholic curriculum reforms." The work employs secondary data analysis through a systematic review based on academic databases, including Google Scholar, Research Gate, Research Rabbit, and Elicit. Ten articles are being reviewed to elicit data related to curriculum implementation, corresponding to the perceptions of the teachers. Structurally, the article first establishes the five Essential Learning Concepts: character formation, environmental sensitivity, social and cultural sensitivity, health and wellbeing, and mindfulness as the foundation of the Catholic reforms, supported by strong empirical evidence. Subsequently, it highlights the need to investigate teachers' perceptions regarding the implementation of these five Essential Learning Concepts. 432 schools are being selected in the Colombo district as the sample unit. The survey and focus group interviews are being navigated under a mixed-methods research design. Interestingly, there isn't any research conducted on the 5 essential learning concepts in the Catholic curriculum so far, since it is still in the process of implementation. Nevertheless, the teachers are the mainstream stakeholders of the implementation process; their perceptions of the given 5 essentials learning concepts are the key deciding factors for the fruitful implementation of the proposed curriculum reforms. Thus, the research findings will provide a platform for a better realization of the implementation outcomes regarding the success of 5 essential learning concepts on the catholic curriculum reforms in 2026.

Keywords: 5 Essential learning concepts, Catholic curriculum reforms, and teachers' perceptions

Abstract of M.Phil/ P.hD Students Submitted for Posters Presentations

Barriers to Fostering Creativity through the Primary First Language Curriculum in Sri Lanka

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Abstract

Creativity is recognized as a vital learning skill in 21st-century education, and research highlights the importance of developing creative abilities from the primary stage. The first language (L1) plays a crucial role in fostering creativity; therefore, prioritising creativity within the primary L1 curriculum is essential. Although nurturing creativity should be a significant responsibility of schools, studies indicate that this goal is not effectively achieved. Teachers, as the main facilitators of students' creative development, must have the opportunity to act without barriers. However, research on the barriers faced by Sri Lankan primary teachers in developing creativity through the L1 curriculum remains limited. This study aimed to examine the barriers encountered by teachers in promoting students' creative skills during L1 teaching and learning. Using a convergent mixed-methods design, quantitative data were collected from 66 randomly selected teachers in the Piliyandala Educational Zone through an online questionnaire, and the data were statistically analyzed. Findings revealed significant barriers, including an examination-oriented education system (96.8%), a lengthy curriculum (100%), inadequate training (92.4%), a lack of administrative support (90.8%), a shortage of teaching and learning resources (98.4%), overcrowded classrooms (95.4%), and limited parental support (98.4%). For the qualitative phase, interviews with 12 teachers and 12 classroom observations from four schools representing each primary stage were thematically analyzed. The identified barriers were categorized under three main themes: (1) Barriers related to the education system and curriculum, (2) Barriers related to teachers and school administration, and (3) Barriers related to students and parents. The study recommends strengthening teacher professional development, improving school resources, enhancing administrative and parental support, and revising the L1 curriculum and assessment methods to foster creativity in primary education better.

***Keywords*:** Creative skills, first language (L1), primary education, barriers affecting teachers

Challenges Faced by Technology Stream Students in Developing Vocational Competencies for Future World-Related Work: A Literature Review

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Abstract

The primary task of the technical sector in general education is to deliver and manage the production process through the exploration of materials, tools, and technical methods, and nurture the learning process with the help of practical experiences. This also widens the educational opportunities by introducing the world of work and the technological world. The development of vocational-oriented competencies in students at the secondary level of education would be facilitated if the existing academic orientation and examination domination were minimised to bring about a change in the competitive pattern of education. The Technology Stream was introduced as the fourth subject stream at the G.C.E. (advanced level) in Sri Lankan government schools in 2013, based on the above concept. The technological stream of the G.C.E. (Advanced Level) consists of subjects relevant to the technological and work-related world. This research paper aims to identify the challenges faced by students in the Technology stream as they develop vocational-oriented competencies suitable for the future world of work, through a literature review of related previous studies. The research is conducted using a descriptive qualitative method for the literature review. The literature sources were analyzed thematically using qualitative content analysis. The studies revealed that lack of basic practical knowledge in students, teacher shortage and insufficient facilities to conduct practical lessons in schools are some of the significant challenges faced by students. The proposed solutions are based on the research findings.

***Keywords**:* Technology Stream, G.C.E. (Advanced level), World of Work, vocational-oriented competencies

The TPACK Competencies and Implementation Practices of Tamil Language Teachers in Digital Environments

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Abstract

In the contemporary era, Teaching and learning processes integrated with Technology hold a significant position and are bringing about innovative changes in the field of Education. Specifically, the TPACK competencies of Teachers are a crucial factor in determining the quality of language teaching and student engagement. Although the necessity of Digital integration in language Education has increased, it is observed that Tamil language teaching in Sri Lanka remains rooted in traditional teaching methods. This study, therefore, aims to investigate how Tamil language teachers utilise their TPACK knowledge in their teaching and learning processes within a digital environment. Based on the TPACK framework, the relationship between the teachers' technological competence, pedagogical methods, student engagement and achievement level improvement was evaluated. The descriptive survey method and a mixed-methods approach were used to investigate the current status. Data were collected from 55 Tamil language teachers working in the secondary sections of 35 schools, which are categorised as 1AB, 1C, and Type 11 in the Katugastota and Wathegama Education Zones. Data was gathered through structured questionnaires, interviews, and classroom observations and then analyzed using the content analysis method. The main findings of the research revealed that while the majority of teachers have strong content knowledge, they face challenges in integrating Technological and pedagogical expertise. Specific challenges acting as barriers to the holistic implementation of TPACK include a lack of self-confidence among teachers, technological limitations, time constraints, and inadequate training. Furthermore, it was found that learning platforms for experiential learning and digital learning resources have a positive impact on enhancing student engagement, language proficiency, and self-directed learning skills. The study offers essential guidance for educational planning and Teacher Training programs. Additionally, it presents policies and recommendations for elevating the quality of Tamil language teaching in technology-integrated learning environments in the future.

***Keywords*:** TPACK, Tamil Language Teaching, Technology Integration, Digital Learning,

Contribution of Primary Teacher Education programmes towards the Inclusive Education in Sri Lanka: A review of literature

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Abstract

Inclusive Education (IE) is recognized globally as a key agenda for education reform aimed at ensuring quality education for all learners. Among reform initiatives, teacher preparedness for diversity-focused classrooms, particularly in primary education, has become a top priority. Sri Lanka is also progressing towards developing an inclusive environment within its mainstream education system, including teacher education programmes. However, limited studies have examined the understanding and perspectives of IE within current primary-level teacher education programmes, both in-service and pre-service. This study forms part of an ongoing research study titled *"The Contribution of Primary Teacher Education Programmes to Strengthening Inclusive Education."* The paper analyses theoretical perspectives and synthesizes new insights drawn from existing empirical literature. Findings are based on data and information gathered from scholarly book chapters, research articles, high-index journal articles, circulars and guidelines issued by relevant authorities. Documentary analysis was employed to review the collected data. The paper discusses themes such as the definition of inclusive education, critical determinants affecting IE practices in primary schools, factors influencing the transformation of teacher education inputs into inclusive classroom practices, intervening factors contributing to the success of inclusive initiatives, and recent national policy directions. The review revealed that IE ensures all learners study together in the same classrooms and participate in shared educational activities, emphasizing equality, accessibility, and respect for diversity. Curriculum content, training methodologies, institutional support, and policy arrangements were identified as key determinants shaping effective IE practices. Teachers' perceptions, competencies, and professional commitment are crucial in translating teacher education inputs into inclusive practices. This review highlights that while inclusive education is gaining policy attention, more focused research and stronger teacher education reforms are needed to enhance Sri Lankan primary teachers' awareness, capacity, and commitment towards inclusive practices.

***Keywords*:** Primary education, primary teacher education programmes, inclusive education, primary teachers, diverse learners,

Character Education and Student Well-being: A Comprehensive Framework for Developing Responsible Citizens

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Abstract

In an era where education is often dominated by academic results, grades, and competition, the deeper purpose of schooling nurturing empathy, values, and social responsibility has gradually faded into the background. This study arises from that concern, seeking to address the fragmented character education practices that fail to holistically support students' well-being or guide them toward becoming compassionate and responsible citizens. The research pursues two main objectives: first, to examine the relationship between character education practices and student well-being in secondary schools, exploring how teachers, students, and parents perceive and experience value-oriented instruction and empathy-building activities; and second, to propose a comprehensive framework that integrates character education with student well-being initiatives to cultivate balanced, ethical, and community-minded individuals. Adopting a two-phase mixed-method approach, the study begins with a qualitative survey involving 20 teachers, 50 students, and 50 parents from a leading school in the Colombo District, Sri Lanka. Using purposive sampling, 150 questionnaires containing both open- and closed-ended questions will be administered to assess current practices and identify gaps. The second phase, an action research component, will include interviews and focus group discussions to gain deeper insights into the experiences and challenges faced by the school community. Qualitative data will be analyzed using techniques such as elaboration, comparison, explanation, and content analysis. The study further explores how core values are embedded in teaching practices, identifying both effective pedagogical strategies and obstacles, such as limited resources and curriculum constraints. Findings from existing literature emphasize the urgent need for character education in secondary schools, revealing a strong link between values-based education and improved student attitudes, emotional health, and social relationships. Responsibility emerges as a key value that fosters strong character and enhances academic outcomes. Importantly, literature also highlights that character development must be intentional, holistic, and integrated across all aspects of school life, emphasizing a whole-school approach where values are embedded throughout the curriculum to promote civic responsibility and ethical behavior. Ultimately, this research seeks to provide actionable insights for educators and policymakers to strengthen the integration of character education in secondary schools. The study also aims to investigate how cultivating responsibility affects students' decision-making, accountability, and self-regulation in both academic and social contexts. By examining these dimensions, the research seeks to highlight responsibility as a foundational virtue that empowers learners to act with integrity and make positive contributions to their communities. Furthermore, by promoting a whole-school approach, the study aims to contribute to the moral and ethical development of students, preparing them to become responsible and compassionate citizens.

Keywords: Character education, responsible citizenship, student well-being

Transforming Music Classrooms: Edutainment as a Bridge Between Rote Learning and Joyful Learning

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Abstract

Music learning aims to promote creativity, aesthetic sensitivity, and emotional expression among the learners. In most educational settings, particularly in music learning, teaching remains heavily influenced by rote learning, exam-oriented instruction, and passive learning among students. Such conventional approaches often fail to achieve the broader aims of music learning, resulting in low motivation and interest among students. This study examines how edutainment strategies that blend education and entertainment can transform traditional practices into more interactive, student-centred learning experiences. Grounded in a mixed-methods design, the research investigates the teaching of music in grades 6 through 11, uncovering instructional methodological weaknesses, curriculum implementation, and professional development for instructors. The study also examines students' attitudes toward music class and what drives their decision to take or drop the course. Results indicate that a lack of interactive activities, minimal use of technology, and an overemphasis on theory can lose students' interest and hinder the achievement of intended learning outcomes. To surmount these challenges, the study recommends incorporating edutainment approaches, such as musical games, multimedia materials, storytelling, and performance-based learning activities, into music education. Not only do these methods enhance engagement and enjoyment, but they also foster creativity, cognitive development, and socio-emotional learning. The study finally argues that a shift from rote learning to enjoyable, experiential learning through edutainment can bridge the gap between the intended and actual learning outcomes of music education. The findings refer to the potential of edutainment as a new approach for transforming Oriental music education and music learning into a sustainable, enjoyable, and meaningful experience for students in today's learning environment.

***Keywords*:** Edutainment, Music Education, Joyful learning, Engagement

Impact of Open and Distance Learning on Science Teacher Preparation: A Literature Review

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Abstract

Open and Distance Learning (ODL) has emerged as a transformative model in teacher education, offering flexible and inclusive pathways for both aspiring and in-service science teachers. This literature review critically examines how ODL influences science teacher preparation, particularly in developing competencies for inquiry-based science teaching. It synthesizes empirical findings and theoretical perspectives to explore how ODL environments shape teacher knowledge, pedagogical skills, and instructional self-efficacy. Although ODL broadens access to higher education, especially for educators managing professional and personal commitments, it presents notable challenges. These include limited exposure to hands-on laboratory experiences, fewer opportunities for real-time peer collaboration and mentoring, and difficulties in nurturing inquiry-oriented pedagogical practices. Such limitations can undermine teachers' confidence and readiness to implement student-centred approaches effectively, leading to lower levels of self-efficacy among ODL-trained teachers compared to those from conventional programs. However, the literature also reveals promising innovations that address these challenges. Virtual laboratories, online collaborative communities, scaffolded professional development, and multilevel learning models have demonstrated potential in enhancing teacher preparedness. Many of these interventions draw upon Bandura's self-efficacy theory and constructivist principles to provide adaptive support that aligns with individual teacher needs. The review emphasizes the importance of designing ODL programs that integrate authentic, practice-based learning with flexible delivery formats. It advocates for sustained mentorship, formative feedback, and active professional learning networks to improve the quality of science teacher education. These insights provide valuable guidance for policymakers, curriculum designers, and teacher educators seeking to strengthen ODL-based science teacher preparation and inform future empirical research in this area.

Keywords: Open and Distance Learning (ODL), Science teacher education, Inquiry-based teaching, Teacher self-efficacy, Professional development

How School Teachers' Job Satisfaction Affects School Productivity

(A Study Based on a Selected Educational Zone)

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Abstract

Studies have revealed that the level of job satisfaction among individuals working in an institution significantly influences its overall efficiency and productivity. This study investigated the impact of job satisfaction on the productivity of government school teachers. A mixed-method research approach was adopted, and data were collected through questionnaires, interviews, and observations. The sample consisted of 15 principals and 300 teachers selected from 15 government schools representing Types 1A, 1 B, 1C, 2, and 3. The study focused on six key aspects related to teachers' job satisfaction. Data analysis revealed that teachers generally did not experience a high level of job satisfaction. Among the six areas examined, only the relationship with teaching staff showed a high level of satisfaction. Job satisfaction related to student relations, privileges provided to teachers, school physical resources, professional training, further education, and promotions was found to be low. Satisfaction related to the relationship between the principal and school officials, supervision, support from parents, alumni, and the community, as well as social acceptance, was at a moderate level. Furthermore, the relationship between teachers' job satisfaction and various demographic and professional variables revealed that distance from home to school, type of school, and teachers' professional qualifications had a significant impact on job satisfaction, whereas gender, marital status, length of service, and teacher grade did not. Among the sample, 49% of teachers were dissatisfied with their profession, 29% were moderately satisfied, and 22% were satisfied. The findings also revealed that teachers with higher job satisfaction demonstrated greater commitment to school productivity, whereas those with lower job satisfaction showed less commitment to school productivity.

***Keywords*:** Government school teachers, job satisfaction, School productivity

Introducing an Activity Framework for Integrating Environmental Activities & Aesthetic Subjects to the Prospective Primary Teachers Curriculum: National College of Education in Sri Lanka

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Abstract

This is an ongoing study to investigate the effectiveness of integrating aesthetic subjects into the curriculum of prospective primary teachers in a college of education in Sri Lanka. The subject of environmental activities aims not to enable the learner to surpass the environment, but to cultivate the abilities and attitudes necessary to live harmoniously within it. Likewise, aesthetic education develops creativity and sensitivity by nurturing the mind, heart, and emotions. When integrating these two domains, the concept of curriculum integration becomes highly significant. However, it has been revealed that pre-service primary teacher trainees in National Colleges of Education face various challenges and difficulties in practically implementing such curriculum integration within school settings. Although National Colleges of Education are leading institutions responsible for producing teachers for the nation, many research studies indicate a lack of adequate attention to this aspect in Sri Lanka. Accordingly, the objective of this research was to identify the problems and challenges encountered in integrating environmental activity–based and aesthetic learning experiences, and to propose appropriate solutions and recommendations. The study employed a mixed-methods approach, utilising the explanatory sequential mixed design described by Creswell and Creswell (2018). In the first phase, data were collected and analyzed through a survey conducted among pre-service teacher trainees and lecturers of National Colleges of Education. In the second phase, an action research program was implemented to develop an intervention framework based on the findings. The sample consisted of 100 pre-service primary teacher trainees, 20 lecturers in aesthetic education, 20 lecturers in primary education, and 20 mentors and class teachers from schools where the trainees conducted their teaching practice. The study provides new insights into the National College of Education system in Sri Lanka, offers a fresh interpretation for prospective primary teacher training, promotes the integration of environmental and aesthetic education, and serves as a potential guideline for future teacher development.

***Keywords**:* Environmental activities, Aesthetic education, Curriculum integration, prospective primary teacher development

Teachers' Role in Using Computer Technology in the Teaching and Learning Process

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Abstract

The roles of teachers and the integration of computer technology play a pivotal role in determining the quality of teaching and learning within contemporary classrooms. The primary purpose of this study was to investigate the extent to which teachers incorporate computer technology into their instructional practices. The study sample consisted of 40 principals and 200 teachers representing 1AB, 1C, and Type 2 schools across the Colombo, Hambantota, and Ampara districts in Sri Lanka. The findings revealed several persistent challenges, including technical constraints, limited teacher competence in computer use, negative perceptions of modern technology, and inadequate infrastructural resources. Collectively, these factors hinder effective student engagement in the teaching–learning process. The proposed framework advocates a pedagogical shift from conventional, teacher-centred instruction toward a student-centred paradigm in which teachers serve as facilitators of learning through the strategic use of digital tools, personalised instruction, and collaborative online platforms. By adopting such practices, educators can enhance student engagement, foster digital literacy, and promote the development of higher-order thinking skills essential for 21st-century learning environments.

Keywords: Teacher's role, computer technology, teaching learning process

Concept Mapping: As a Self-Regulated Learning (SRL) Tool in Biology Education

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Abstract

Developing self-regulated learning (SRL) strategies is essential for fostering independent and meaningful learning among Advanced Level Biology students. Foremost among the various SRL tools, concept mapping has emerged as a powerful metacognitive strategy that enhances students' ability to organize knowledge, monitor understanding, and connect concepts systematically. This study explored the use of concept mapping as a self-regulated learning tool to improve students' competency in answering essay-type questions in Biology. The intervention was implemented with an advanced-level student who had shown poor performance in essay-based assessments. Fifteen structured teaching-learning sessions incorporating concept mapping were integrated into lessons as a means for engaging students in active reading and summarisation, logical organisation and illustration of information, self-evaluation and clarification of doubts about the subject content. Before the intervention, the student exhibited significant weaknesses in essay writing, including the inclusion of very little and sometimes inaccurate information, a lack of logical sequencing, and poor, incomplete diagrams, scoring below 25% for all essay questions in the first-term end evaluation. Following the intervention, empirical evidence revealed a marked improvement in both cognitive engagement and academic performance of the student. In the second-term end-of-term review, the student scored over 60% on both essay questions from the content taught using concept mapping as a pedagogical tool. In addition, the qualitative analysis indicated that the student was able to organise answers into logical paragraphs with accurate and relevant facts and draw fully labelled diagrams – skills previously lacking. The student's feedback further indicated an increase in confidence and interest in Biology, which directly addressed the internal problem of a lack of interest. Hence, findings of the action research highlighted the potential of concept mapping as a dynamic, practical and effective self-regulating learning and pedagogical tool that fosters higher-order thinking skills and academic achievement in Biology education.

Keywords: Concept mapping, Self-Regulated Learning (SRL), Cognitive engagement, Metacognition

Towards Better Relief Work in Schools: An Application of Educational Management Skills

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Abstract

Teacher absenteeism is a persistent and unavoidable reality in education systems worldwide. When students attend school but are deprived of scheduled teaching and learning due to absent teachers, the substitute activities often lack educational value and become pedagogically questionable. Recognizing the urgency of this issue, the present study was undertaken with the understanding that addressing teacher absenteeism is imperative for ensuring equitable and practical learning. Guided by the principles of action research, which emphasise contextual understanding, participant perspectives, and narrative inquiry, the study employed qualitative methods including interviews, focus groups, and classroom observations. Quantitative integration was achieved through surveys and statistical analysis, enabling triangulation and validation of findings across three iterative research cycles. The sample was randomly selected, focusing on students in Grades 6 to 9. Findings suggest that a systematic approach to managing teacher leave, combined with the use of pre-designed worksheets and corresponding evaluation tools prepared by subject teachers, can effectively ensure continuity in learning during relief periods. This strategy was found to be both pedagogically sound and well-accepted by stakeholders, offering a scalable model for minimizing the instructional disruption caused by teacher absenteeism.

***Keywords*:** Teacher Absenteeism, Relief Work, School Administration

Instructional Leadership Practices of School Principals in Improving Teaching – Learning Process of Secondary Schools in Sri Lanka.

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Abstract

Leadership is the process of guiding, directing, and influencing individuals or groups to achieve specific goals and objectives. Instructional leadership, in particular, plays a pivotal role in fostering effective and successful schools by enhancing the pedagogical outcomes of students. The objectives of the research are to identify instructional leadership practices of school principals, investigate how secondary school principals implement instructional leadership roles to promote a school environment, evaluate how the instructional leadership practices of school principals affect the performance of teachers and students, compare instructional leadership practices of different categories of schools and identify challenges faced by principals when implementing instructional leadership practices in schools. A mixed-methods approach was used, with quantitative data collected in the first phase and qualitative data in the second. The research sample comprises nine schools from 1AB, 1C, and Type 2 schools in the Gampaha and Colombo districts, with 200 teachers, 200 students, and nine school principals. Questionnaires, structured and unstructured interviews, and observations will be used for data collection. Quantitative data will be analysed statistically, while qualitative data will be analysed thematically. To achieve the primary objective of the research, which is to identify the instructional leadership roles of school principals, document analysis was conducted. School principals, as instructional leaders, play a crucial role in defining the school's mission, managing the instructional program, and promoting a favourable school climate. Findings highlight key practices of instructional leaders, including setting clear goals, supervising instruction, coordinating curriculum, promoting professional development, and monitoring student progress. By adopting these practices, principals create a conducive learning environment, support teacher growth, and improve student outcomes.

Keywords: Instructional leadership practices, School Principals, Teaching – Learning Process, School Effectiveness

Schools as Professional Organizations in Supporting School-Based Professional Teacher Development: A Systematic Literature Review

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Abstract

The SBTD program, introduced in 2005 to improve student learning by addressing teachers' challenges, was revised in 2019 as SBPTD to enhance teacher professionalism in line with Ministry of Education policies. The objectives of this study were to examine the importance of the school as a professional organization, its characteristics, and how it differs from bureaucratic organizations, to explore the understanding of SBPTD of principals and teachers and to study the nature of implementation of SBPTD programs in Sri Lankan schools. Theoretical literature as well as local and international empirical studies have been reviewed. Fifty articles were selected through a systematic literature review, and 20 articles were ultimately selected based on the application of inclusion and exclusion criteria. A thematic analysis was conducted using qualitative data. The findings highlighted the importance for schools to act as professional organizations despite many bureaucratic characteristics they demonstrate due to their complex structure. Studies emphasised the importance of schools having more professional characteristics, such as a client-oriented service, teamwork among professionals, independence in decision-making, and self-management. This is recommended to be backed by a culture of continuous learning, collaboration, shared leadership, and data-driven decisions to improve teaching and learning. Furthermore, the review revealed that many principals and teachers do not perceive SBPTD as something that the school itself can implement, but rather as something that external parties, especially education authorities, should undertake. It was emphasized that although SBPTD programs are theoretically viable, their practical implementation in schools is still insufficient. The review further revealed that SBTPD plays an essential role in enhancing the professional skills of the Sri Lankan teacher education sector by developing the skills, knowledge, and attitudes required for teachers. However, despite SBPTD being endorsed in education policies, there are differences in its implementation. The review revealed that although the SBTPD has been introduced in many schools, it has not been successfully implemented to enhance the teaching-learning process in schools, apart from conducting awareness-raising workshops for teachers.

Keywords: School-based professional teacher development, school as a professional organization

Constructive Data Collection Tools for Research on the Impact of Electronic Devices on Students' Achievement in Social Science Subjects

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Abstract

This study focuses exclusively on the construction, validation, and reliability of data collection tools designed for research on the impact of electronic devices on students' achievement in the social science subjects of History, Geography, and Civics. The research problem examines how electronic devices affect the achievement of senior secondary students in social science subjects, addressing both their learning benefits and potential distractions. It fills a research gap by exploring trends, challenges, and effective usage strategies. The study was conducted across 16 schools within the South Division of the Puttalam Zone. The study population comprised 206 teachers and 664 students. Using a simple random sampling method, 135 teachers and 244 senior secondary students were selected as the research sample. Two key instruments were constructed: a teacher questionnaire and a student questionnaire. The teacher questionnaire consisted of two sections: a demographic section with 13 questions (3 open-ended and 10 closed-ended) and an objective section with 46 items (3 open-ended, 27 closed-ended, and 16 Likert-scale). The student questionnaire included a demographic section comprising 6 questions (2 open-ended and 4 closed-ended) and an objective section with 35 items (3 open-ended, 22 closed-ended, and 10 Likert-scale items). The variables incorporated into these tools were identified and derived from an extensive literature review, ensuring theoretical grounding and construct validity. The DELFI technique will be applied in the next phase to validate and refine the instruments with input from experts in language, research methodology, technology, and social sciences. These instruments were systematically structured around major variables. The dependent variables were the three social science subjects—Geography, History, and Civics—while the independent variables included types of electronic devices used, time and duration of usage, types of internet browsers, virtual platforms (Zoom, MS Teams), social media tools, and learning sources such as Google Maps, Google Earth, historical cartoons, virtual tours, eBooks, MS Encarta, and Wikipedia. Data will be analyzed using thematic, descriptive, and inferential methods through SPSS. Collectively, these tools establish a reliable framework for understanding the relationship between electronic device use and academic achievement in social science education.

Keywords: Data Collection Tools, Instrument Development, DELFI Technique, Construction, Validation

The role of teachers in promoting students' moral values in secondary schools

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Abstract

This study examines the role of teachers in promoting the moral values of secondary school students. It focuses on reviewing the attainment of moral values by students through the teaching and learning activities of secondary school teachers. Teachers play a significant role in improving students' moral values, and therefore, research in this area is deemed necessary. This study is based on the research problem that systematic programs are not implemented among teachers within the school's internal structure to improve the moral values of secondary school students. The primary objective of this study is to investigate the role of teachers in the approaches and practices employed to enhance the moral values of secondary school students and to propose recommendations for improvement. The study is based on the following objectives: identifying teachers' level of interest in improving students' moral values, identifying teachers' management skills in improving moral values among students, identifying teachers' professional input in improving students' moral values, and identifying teachers' involvement in co-curricular activities in improving students' moral values. A descriptive survey method and a mixed-methods approach are used to analyze the situation. In the Batticaloa district, 45 secondary schools from among 85 schools belonging to type 1AB, 1C, and Type II in the Kalkudah education zone, 45 principals, eight in service advisors serving in the specified zone, and three divisional education officers; 126 teachers out of 1216 teaching in the junior, senior, and intermediate sections have been selected on a proportional stratified random sample basis. Data were collected from teachers using questionnaires, interviews, and observations, as well as interviews with principals, in-service advisors, and divisional education officers. Focus group discussions were conducted with parents, and document analysis was also employed. The data were then analyzed using descriptive statistical approaches such as percentages, standard deviations, and means, and presented through tables and graphs. Inferential statistical methods, including t-tests, ANOVA, correlation, regression, and thematic analysis, were also employed for interpretation. The results of the analysis reveal a significant positive correlation between the teachers' teaching-learning process and the improvement of students' moral values, which is also evident through the literature review. The findings also indicate that many teachers show less interest in enhancing students' moral values in schools, leading to the creation of complex student groups within the school structure that enter society. To prevent this, proposals are put forward suggesting that systematic projects should be strengthened to improve moral values among students within the school structure and to provide professional development for teachers.

Keywords: Students, Moral values, Teacher, Teaching-learning

Essential Teacher Professional Skills for Teachers in the 21st Century: Insights from a Systematic Literature Review

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Abstract

In the rapidly evolving educational landscape of the 21st century, the professional skill set demanded of teachers has broadened considerably, extending far beyond conventional pedagogical knowledge and instructional practices. This systematic literature review (SLR) seeks to identify, analyze, and synthesize the core professional competencies essential for contemporary teachers to navigate and thrive within increasingly complex and diverse classroom environments. Drawing upon a comprehensive selection of empirical and conceptual studies published between 2014 and 2024, this review integrates findings from varied global educational contexts, with a particular emphasis on teacher effectiveness, sustained professional development (PD), and student learning outcomes. A total of six high-quality, peer-reviewed research studies were selected based on their methodological robustness, thematic relevance, and direct engagement with the critical challenges facing education in the 21st century. The analysis reveals that effective teaching today requires mastery of a diverse and interconnected set of professional competencies, including, though not limited to, advanced communication skills, digital literacy, emotional intelligence, adaptability, collaborative problem-solving, leadership capacity, and intercultural competence. These skills are shown to be fundamental in cultivating inclusive, engaging, and future-responsive learning environments. The findings further highlight the indispensable role of continuous professional development and institutional support mechanisms in enabling teachers to acquire, refine, and sustain these essential competencies. By mapping and contextualizing these professional skills, this study provides actionable insights for educational policymakers, curriculum developers, teacher educators, and institutional leaders striving to align teacher preparation and practice with evolving global standards. Ultimately, this review contributes meaningfully to the discourse on teacher professionalization and offers a compelling rationale for re-envisioning teacher education in the context of digital innovation, cultural diversity, and lifelong learning.

Keywords: 21st-century teachers, professional skills, professional development, teacher education

An Analysis of the Use of E-Learning Resources among Pre-Service Teachers: A Study of the National College of Education

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Abstract

Over the past few years, educational institutions at all levels have undergone significant transformations with the integration of technology. Preparing pre-service teachers in the National Colleges of Education (NCoE) for this digital shift has become increasingly important. With an emphasis on self-directed learning, there is a growing need to guide student teachers toward the effective use of e-learning resources. The purpose of this study was to analyze the types and extent of e-learning resources currently used by pre-service teachers in NCoE. A sample of 45 pre-service teachers enrolled in a primary education program was selected using purposive sampling. Data were collected through a structured questionnaire developed with expert consultation and analyzed using quantitative methods. The findings revealed that 72% of participants used smartphones and 54% used laptops for their learning activities, while only 12% reported using smartboards. Accessing information articles, video materials, and visual notes occurred only occasionally among the participants. The use of educational software was reported at a moderate level (45%). These results indicate a need for appropriate interventions to enhance the utilization of e-learning resources among student teachers. The study also highlights the importance of conducting further qualitative research to gain deeper insights into pre-service teachers' engagement with e-learning resources.

Keywords: Pre-service teachers, e-learning resources, technology integration,

Study on the pedagogical orientations of teachers regarding the integration of Buddhist ethical teachings to foster self-discipline among students

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Abstract

This study explores the pedagogical orientations of teachers concerning the integration of Buddhist ethical teachings in promoting self-discipline among students. This study examines the pedagogical perspectives of educators on incorporating Buddhist ethical principles to foster self-discipline in students. Based on the moral and philosophical tenets of Buddhism, such as mindfulness (sati), good conduct (sīla), compassion (karuṇā), and wisdom (paññā), these teachings provide important insights for comprehensive education. The research aims to investigate teachers' perceptions, interpretations, and applications of ethical principles in contemporary classroom environments, as well as the impact of these practices on students' self-control, moral reasoning, and responsible behaviour development. A mixed-methods approach was utilized, integrating quantitative surveys and qualitative interviews to achieve a comprehensive understanding of instructors' educational approaches. Participants were educators from both secular and religiously affiliated academic institutions. The study examined factors such as educators' understanding of Buddhist ethics, their instructional methodologies for moral education, institutional encouragement, and perceived obstacles to incorporating ethical content into academic curricula. The findings indicated that most of teachers understood the capacity of Buddhist ethical teachings to foster self-discipline, mental balance, and respect for others. Teachers who incorporated reflective activities, such as meditation, storytelling, and moral discourse, reported that their students showed increased interest in the material and demonstrated better self-control. Nevertheless, difficulties such as insufficient preparation, apprehension of religious bias, and curricular limitations were also acknowledged. The study finds that the successful incorporation of Buddhist ethics necessitates a balanced pedagogical approach that prioritizes experiential learning, multicultural sensitivity, and ethical inquiry over doctrinal instruction. It suggests professional development programs to give teachers culturally appropriate and pedagogically effective ways to teach moral values. Schools can help students grow as people and in their relationships with others by teaching them to be mindful of their morals and encouraging self-discipline.

Keywords: Buddhist Ethics, Self-discipline, Pedagogy, Moral Education, Teacher Orientation

Exploring Digital Citizenship Awareness and Curriculum Integration among Secondary Students in Sri Lanka

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Abstract

The rapid growth of digital technologies has transformed education and social interaction, underscoring the importance of equipping students with the skills to use digital tools ethically, safely, and responsibly; a concept known as digital citizenship (DC) (Ribble, 2015). This study examined DC awareness among Sri Lankan secondary school students. It explored the perspectives of teachers and curriculum developers on students' DC awareness and the need to integrate DC in the school curriculum. A mixed-method, convergent-parallel research design was employed. Quantitative data were collected through an online DC scale administered to 80 students in Grades 10 and 11 studying Communication and Media Studies (CMS) in four randomly selected schools in the Western Province. The 48-item scale, based on Ribble's nine elements, was rated on a five-point Likert scale. Qualitative data were gathered through interviews with four CMS teachers and two university lecturers involved in curriculum development, providing deeper insights into students' DC awareness and the necessity of educational integration. Quantitative findings revealed a moderate overall level of digital citizenship ($M = 2.89$, $SD = 0.16$). Students showed high awareness in Digital Access and Communication ($M = 3.7$), moderate awareness in Digital Literacy, Commerce, and Safety ($M = 3.1$), and low awareness in Digital Etiquette, Rights and Responsibilities, Law, and Health and Wellbeing ($M = 2.2$). Qualitative findings supported these results, highlighting limited curriculum coverage, inadequate teacher preparation, and challenges related to students' misuse of digital media. Curriculum developers emphasized the need for better alignment across subjects and continuous teacher professional development. The study concluded that although students demonstrated basic digital skills, significant gaps remain in ethical, legal, and well-being-related aspects of digital engagement. It further recommends integrating DC into the CMS curriculum, promoting cross-curricular collaboration, and enhancing teacher training to foster responsible and informed digital citizens in Sri Lanka. The findings also suggest the need for urgent curriculum reform and further research in this area.

Keywords: Digital Citizenship, Curriculum Integration, Communication and Media Studies, 21st-century skills

Perception of Health Teachers on Implementing Comprehensive Sexuality Education in Government Schools in Sri Lanka

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Abstract

Comprehensive Sexuality Education (CSE) is a vital component of health education that encompasses the cognitive, emotional, physical, and social aspects of human sexuality. Even though education systems in the world recommend that CSE is crucial for improving sexual and reproductive health outcomes, it is still not being implemented effectively in the Sri Lankan school system. The objective of the current study was to investigate the perceptions of teachers delivering health and physical education concerning the implementation of CSE in government schools in the Colombo district.

A qualitative research design was employed, incorporating ten health and physical education teachers selected from diverse educational zones within the Colombo district. Structured interviews were conducted to collect data via face-to-face and telephone interactions. The collected data were transcribed and analysed thematically to discover new patterns and concepts regarding CSE in the Sri Lankan education system. The results revealed three main themes: the growing need for CSE integration into the school curriculum, the lack of adequate training and teaching resources for educators, and pedagogical challenges associated with teaching sensitive topics. Although some CSE-related concepts are included in subjects such as Health and Physical Education, Science, and Citizenship Education, the coverage is partial and primarily focuses on biological aspects. Furthermore, most teachers lack awareness of CSE concepts and hesitate over the challenges of social and cultural issues that might arise during the delivery of CSE components. The study finds that teachers recommend the inclusion of CSE for the health and well-being of students; however, currently, they are not trained, nor is institutional support offered for teaching CSE. The successful implementation of the CSE in Sri Lankan schools following comprehensive, age-appropriate sexual health education depends on strengthening the skills of teachers through professional development programs and adding a structured CSE framework to the national curriculum.

Keywords: Comprehensive Sexuality Education, Teacher Perception, Health Education, Sri Lanka, Sexual and Reproductive Health

The Role of Extra-Curricular Engagement in Pre-Service Teacher Competency Development: A Critical Review of the Literature

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Abstract

The development of a competent and adaptable teaching workforce is vital for educational advancement, and teacher education institutions increasingly recognize the value of experiential learning beyond formal coursework. This critical review examines studies published between 2010 and 2024 across databases, including ERIC, Scopus, and Google Scholar, focusing on how extra-curricular engagement contributes to the professional competency development of pre-service teachers. Twenty-eight peer-reviewed articles were selected based on relevance to teacher education, reported outcomes, and methodological rigor. Drawing on research from diverse educational contexts, this review synthesises evidence on how participation in student-led organisations, community service, performing arts, sports, and cultural activities supports the growth of key professional skills. The review acknowledges that many countries have successfully integrated co-curricular engagement into teacher education programs as a means of strengthening the quality of future educators. The analysis identifies consistent evidence that structured extra-curricular participation, such as student organisations, community outreach, and creative or athletic programs, enhances key competencies, including leadership, collaboration, communication, and reflective practice. However, findings also reveal methodological limitations across studies, including small sample sizes, self-reported measures, and contextual variability. Conflicting results were noted regarding the transferability of soft skills into classroom teaching performance. While many teacher education systems integrate co-extra-curricular frameworks, disparities in institutional support, access, and formal recognition persist. Addressing these challenges requires systematic inclusion of experiential components within program design, with mechanisms for assessment and reflection. This review concludes that extra-curricular engagement holds substantial but unevenly realized potential for fostering professional identity and competency among pre-service teachers.

Keywords: Extra-curricular activities, Pre-service teacher education, Competency development, Teacher professional development

A Study on the Challenges Faced by Teachers in Classroom Management

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Abstract

The Education system centres on the dynamic relationship between teachers and students, with the classroom as the main environment for learning across generations. Class teachers, as key figures in this process, shoulder a range of responsibilities in managing their classrooms, often encountering diverse challenges and complex situations. This study aimed to investigate the difficulties teachers face in classroom management, focusing on four core objectives: investigating teachers' awareness of class management, identifying challenges in managing student and physical resources, and examining the actions teachers take to overcome these challenges. The research adopted a mixed-method approach, combining quantitative and qualitative techniques, and was conducted across 16 1AB schools, 36 IC schools, and 43 Type 2 schools in the four educational divisions of Nivithigala, Kahawatta, Kalawana, and Ayagama within the Nivithigala Education Zone of the Ratnapura District. A total of 225 participants, including grade 8 class teachers, students, and principals, were selected through purposive sampling. Data collection tools included teacher and student questionnaires, interviews with teachers and principals, and classroom observation procedures, all of which were tested for reliability and validity. Data were analysed using numerical data, percentage tables, and graphs to draw meaningful conclusions. The findings revealed that teachers' awareness of effective classroom management needs further enhancement. Major challenges in managing student resources included maintaining attendance, fostering self-discipline, handling behavioural issues, controlling disruptive noise, supporting students with special needs, and promoting self-assessment among students. Physical resource management issues included insufficient furniture, limited classroom space, inadequate display materials, poor-quality teaching inputs, improper organization of cleaning tools, and irregular record keeping. The study emphasized the necessity for teachers to adopt creative strategies to mitigate these problems and improve classroom management. Furthermore, it highlighted the importance of developing a classroom code of ethics to address emerging challenges and create a more organized, supportive, and effective learning environment.

***Keywords**; Classroom management, Student resource management, Physical resource Management, Classroom code of ethics*

An Integrative Perspective on Social and Emotional Learning (SEL) Frameworks: Implications for Global and Sri Lankan Education Systems

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Abstract

Social and emotional learning has emerged as a global priority as education systems worldwide shift from narrow conceptions of academic achievement toward holistic models of student development. While there is widespread recognition of the contribution that SEL makes to improved academic success, mental well-being, prosocial behaviour, and life outcomes, the field remains conceptually diffuse. Over 130 frameworks currently exist worldwide, each with its own distinctive terminology and classification systems, which creates confusion for policymakers, curriculum designers, and educators. This conceptual overlap is particularly germane for Sri Lanka and South Asian countries, where schools increasingly emphasize character, cooperation, and emotional resilience, but have failed to adopt a single model of SEL to guide implementation, teacher training, and assessment. This study provides a comparative analysis of five internationally influential frameworks: CASEL, NRC, SEAD, BESSI, and Harvard's EASEL taxonomy. Through qualitative conceptual analysis, the paper demonstrates that despite differences in terminology, all frameworks consistently identify five core competencies. These findings confirm that SEL frameworks are not competing or contradictory; instead, they reinforce a shared set of human competencies. The paper further discusses the relevance of SEL for the Sri Lankan education system, which faces rising student stress, diverse multicultural classrooms, rapidly changing labour-market expectations, and the need for school environments that foster emotional well-being and social harmony. Although Sri Lankan schools currently inculcate values, civic responsibility, and co-curricular leadership, these are fragmented without a standardized competency framework. The study concludes that an integrative perspective could support national curriculum design, teacher education, culturally relevant SEL practices, and assessment. Recommendations include developing a unified SEL framework, enhancing teacher training, embedding SEL in classroom practices, and conducting local research to measure outcomes. Such an integrative model has the potential to strengthen equitable, inclusive, and future-ready education in Sri Lanka and similar contexts.

Keywords: Social and Emotional Learning, SEL frameworks, Curriculum, 21st-century skills

Developing Best Practices to Enhance Socio-Emotional Skills through Collaborative Learning: A Systematic Review

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Abstract

This study aims to find ways to develop social-emotional skills to gain scientific knowledge that guides the students to become successful professionals. In the 21st century, students are expected to be active learners in the learning process from multiple perspectives. Therefore, besides planning for students' academic achievement. There is a need for the development of their desired social-emotional skills, such as self-awareness, self-management, social awareness, interpersonal relationship skills, and responsible decision-making, throughout their lifelong journey. In this regard, collaborative learning plays a vital role in developing social-emotional skills among students. So should need to find ways to build social-emotional skills among students through collaborative learning. It was identified that the development of social-emotional skills among students was not at the expected level. As a consequence, a systematic literature review was conducted using published research papers in the last decade. The PRISMA article selection process was employed to identify suitable research papers. A narrative review method was adopted in this study. The literature examining how collaborative learning affects the development of social-emotional skills was selected for the review. Thematic analysis was used to analyse the data and to identify the key themes related to the study. In a collaborative learning system, all strategies are organized and focused on what is needed for all students to develop social-emotional skills. There are additional critical aspects to consider in collaborative learning strategies. This study's results indicate that students prefer to work in groups rather than individually, revealing their innovative skills and increasing social interaction skills among students. Therefore, Collaborative learning shows a significant effect on students' social-emotional skills development. Students believe that collaborative learning encourages everyone to work effectively with others and enhances the development of social-emotional skills among students.

Keywords: Best practices, Social Emotional Skills, Collaborative learning, Developing

Effect of Teacher–Student Interaction on Emotional Intelligence

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Abstract

Emotional intelligence (EQ) has become a vital focus in educational psychology, shaping students' academic performance, social behavior, and emotional well-being. Among the many factors that influence the development of emotional intelligence, teacher–student interaction stands out as one of the most significant determinants within the school context. This paper presents a theoretical literature review examining the impact of teacher–student interaction on the development of emotional intelligence in learners. The review draws on foundational theoretical frameworks such as Vygotsky's Social Development Theory, Bandura's Social Learning Theory, and Goleman's Model of Emotional Intelligence, which collectively explain how social relationships, communication, and modelling shape emotional learning. Research consistently reveals that positive, empathetic, and supportive teacher–student relationships improve students' emotional awareness, empathy, intrinsic motivation, and self-regulation. In contrast, negative, authoritarian, or emotionally detached interactions tend to reduce students' engagement, self-esteem, and the growth of key emotional competencies. Furthermore, emotionally intelligent teachers play a pivotal role in establishing a nurturing classroom climate by demonstrating empathy, emotional control, and constructive communication. Such emotionally safe environments cultivate trust, openness, and collaboration—conditions that are essential for holistic learning and psychological health. The review also identifies notable gaps in the literature, including limited attention to contextual variables such as cultural influences, teacher training in emotional competence, and differences between urban and rural educational settings. The study concludes that teacher–student interaction is a crucial factor in fostering emotional intelligence and recommends incorporating emotional intelligence–based approaches into teacher education, classroom management, and curriculum design. Future research should prioritize longitudinal, intervention, and cross-cultural studies to deepen the understanding of this dynamic and transformative relationship.

Keywords: Teacher–Student Interaction, Emotional Intelligence, Educational Psychology, Socio-Emotional Learning

A study on how to apply the counselling concepts included in 'Thera Theri Gatha Pali' for counselling school students

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Abstract

Whether the student counselling process operating in the school system in Sri Lanka is yielding the expected results is a concern**.** School authorities have therefore experimented with various methods to enhance its effectiveness and efficiency. This study proposes introducing the Buddhist approach embodied in *the Thera–Therī Gāthā,* a collection of verses attributed to early Buddhist monks and nuns, to counselling as a potential solution. The primary aim of this design-based research is to examine the effectiveness of applying counselling concepts from the *Thera–Therī Gāthā* to the school counselling process. Four key objectives were identified, namely: to identify the counselling concepts embodied in the Thera–Therī Gāthā Pali, to develop a plan for applying these counselling concepts within the student counselling process, and to evaluate the feasibility and appropriateness of this plan. To make recommendations based on the findings. A design-based research approach was adopted, combining quantitative, qualitative, and mixed-method techniques to gain a comprehensive understanding of the problem. Data were collected from two sources: (a) textual analysis of the *Thera–Therī Gāthā Pali* (source sample), and (b) field sampling involving 96 students from Grades 10 and 11, 24 class teachers, 3 school principals, and 3 counselling teachers. Findings revealed that students, teachers, and principals held a positive attitude toward integrating Buddhist counselling principles from the *Thera–Therī Gāthā Pali* into school counselling practices. Data analysis indicated that the application of these Buddhist counselling concepts could be particularly suitable and relevant to the contemporary school context. The study concludes with recommendations for implementing this approach and offers suggestions for future research in Buddhist-based counselling for educational settings.

Keywords: *Counselling, Student Counselling, Buddhist Counselling, Thera Theri Gatha*.

Strategies for Utilizing the Concept of Social Cohesion to Promote Citizenship in Multicultural Societies

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Abstract

Exploring strategies that foster social cohesion in multicultural societies was the main aim of this research. With the rise of global migration and increasing diversity, the contemporary world faces significant challenges in preserving social unity while honouring cultural pluralism. The specific objectives of this study were: 1) to investigate the theoretical foundations of citizenship quality, 2) to study the components of social reconciliation, 3) to evaluate the importance of social cohesion in enhancing citizenship, and 4) to analyze implementation strategies within diverse communities. The qualitative approach was employed as the research method. Data collected through content analysis was thematically analyzed. As this research was based on a literature review, 25 research works from scholars in Sri Lanka, Malaysia, Indonesia, and Australia served as the secondary data sources. According to research findings, citizenship education in Sri Lanka has fostered greater mutual understanding among the Sinhala, Tamil, and Muslim communities. This research offers a practical framework for creating resilient, inclusive societies where diversity enhances rather than undermines national unity, promoting both democratic participation and intercultural harmony in the 21st century. In this research, findings were that Good citizenship and social reconciliation are deeply interconnected. The traits of good citizenship, civic responsibility, respect for diversity, and active participation form the foundation for achieving meaningful social reconciliation. The main conclusion here was that while reconciliation concepts are widely discussed in Sri Lankan society, their structural qualities remain minimally visible in citizens' actual behavioural responses. The research reveals a disconnect between policy aspirations and practical implementation.

Keywords: Citizenship in multicultural societies, strategies, the concept of social cohesion, utilizing

The Match Between Technology and the Job Market

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Abstract

A key responsibility of a country's education system is to produce human resources that can contribute to the country's economic development. To fulfil this responsibility, the aims of the education system must be aligned with the country's economic development goals. The objective of this research was to study the match between the technology stream and the job market requirements, with the specific objectives of: investigating the human resource skills needed in the current job market, analysing the human resource skills expected to develop through the technology stream, examining the nature of current teaching and learning process in the technology stream, and the student perceptions with respect to the match between the technology stream and the job market opportunities. The study employed a mixed-methods approach to sample testing. One sample consisted of AL students and the teachers from all four schools in the Piliyandala Educational Zone in the Colombo District, which conduct the technology stream on their premises. Additionally, the other two subject directors at the National Institute of Education, as well as 25 recruiting officers from 25 job-providing private organisations registered with the NAITA of Sri Lanka. The data from the first sample were quantitative and were collected through a questionnaire, while the data from the second sample were qualitative and were collected through semi-structured interviews. The data were analysed using both quantitative and qualitative techniques. The findings made it possible to identify the specific job market requirements in terms of skills and the skills that students can develop by the end of their technology course of study, revealing that there is less than a perfect match between the two. Based on these findings, it may be recommended that the game between the two may be further improved by paying special attention to: the identification of evolving new skill requirements in the job market with constant attention to the dynamic nature of the economy and making curriculum adjustments according to the direction they are taking.

Factors Influencing the Teaching and Learning of Geography Subject

(Research based on G.C.E. (A/L) Geography Teachers and Students in Gampola Education Zone)

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Abstract

Geography is an essential subject that helps students understand the relationship between human beings and their environment. It enhances awareness of natural resources, human beings and their environment. It enhances awareness of natural resources, human lifestyles, and the spatial patterns of the Earth. However, several factors influence the teaching and learning of geography, such as teacher competency, availability of materials, curriculum design, and student attitudes. The present study focuses on the factors influencing the teaching and learning of geography in the Gampola Education Zone. This study aims to identify and analyse these factors and propose strategies for improving the quality of the geography subject. A review of existing literature indicates that several interrelated factors significantly influence Geography education. Teacher competency, pedagogical approaches, and the availability of adequate teaching and learning resources are consistently identified as key factors in determining success. Studies conducted in Sri Lanka and other South Asian countries reveal that insufficient teacher training, Limited fieldwork opportunities, restricted access to maps and ICT tools, and overcrowded classrooms hinder effective geography instruction. Furthermore, research emphasises that learner–centred approaches, such as inquiry-based and experiential learning, enhance students' interest and conceptual understanding. Socio-economic background, parental support, and students 'attitudes toward the subject also play a significant role in shaping engagement and achievement levels. Moreover, curriculum relevance and language proficiency have been identified as key mediating factors that affect how well students connect classroom learning to real-world geographical issues. Within the Sri Lankan context, especially in rural areas, disparities in resource allocation, teacher training and infrastructure are found to impact both teaching effectiveness and learning outcomes. Previous studies have advocated for integrating ICT, promoting field-based learning, and enhancing teacher professional development as strategies to overcome these challenges. Therefore, this study grounded in prior research, aims to examine how these influencing factors operate specifically within the Gampola education zone. The findings are expected to contribute to improving the quality, relevance, and effectiveness of Geography education at the higher secondary level.

Keywords: Factors influencing, teaching, learning