Chapter Eight

Conclusions and Suggestions

8.1 Conclusions

The conclusions arrived at using the analysis and interpretation of data are given under four sub headings. The analysis in chapters three, four, five and six have been used in the conclusions.

8.1.1 Improvement in Science and Technology and Mathematics Achievement Levels

- On average there is an improvement in achievement levels of Grade 08 students related to the subjects Science and Technology, and Mathematics. There is no improvement seen in relation to the First Language achievement levels. Therefore, the status of obtaining higher achievement levels in First Language, improving achievement levels in Mathematics and improving average achievement levels in Science and Technology, remains as it was in for both years. This national level pattern is common through the Western, Central, Northern, Eastern, North Western, North Central, Uva and Sabaragamuwa Provinces.

- In all the provinces, there is an improvement in Mathematics Achievement Levels.

8.1.2 Inequalities in Providing Education Opportunities at Junior Secondary Level

Based on the findings, the equality of learning outcomes among the various groups such as provinces, females and males, urban and rural, medium of instruction and types of schools, it is found that there are larger inequalities in the provision of education at junior secondary level. These can be specifically stated as follows.

- ***Successful Attempts-*** Western, Sabaragamuwa and North Western Pprovinces have been able to provide better education opportunities in all three subjects.
- ***Poor Attempts-*** Uva and Eastern Provinces are poor in providing equal opportunities in all three subjects.
- ***Average Level*** opportunities are provided by all other provinces.
- ***Gender differences*** are found in all three subjects. Female students show better performance than the males.
- ***Location wise-*** urban students enjoy more opportunities than rural students.
- ***Medium wise*** - English medium students are provided with better opportunities in all three subjects. Tamil medium students show lower achievement levels, than the Sinhala medium students. The position of Sinhala medium students are in between the students in the English medium and Tamil medium.
- According to the ***Types of schools,*** Type 2 schools provide the lowest opportunities. The best opportunities are provided by 1AB schools.

8.1.3 Less Emphasis on Developing Student Abilities in Each Subject

Attention has to be drawn on the need for more emphasis by curriculum developers and teachers in developing the abilities of students in subjects. When achievement levels are analyzed it can be surmised that attention has not been drawn on developing specific abilities in subject by curriculum developers in preparing teacher guides and, implementing learning activities in the class room by teachers. As a result improvements in abilities in the subjects, when taken singly, does not seem significant.

- In ***First Language*** only a very slight improvement is seen in the abilities of vocabulary and syntax, Comprehension, appreciation and writing; these abilities have shown only slight improvement.
- In ***Mathematics,*** improvement is shown in all sub skills such as knowledge and skills, communication, connections, reasoning and problem solving

- In ***Science and Technology,*** an improvement is shown in all sub skills such as knowledge, comprehension, application, analysis and synthesis.

8.1.4 Less Percentage of Students Reaching the Level of Mastery

When the achievement levels are graded as Mastery, Near Mastery and Non Mastery, it is found that the percentage of students reaching the level of mastery is very low, in all three subjects (Table 7.1). Educationists expect that at least 80 % of students should reach the level of mastery at the end of each year. A developing country like Sri Lanka may target for 50 percent of students in the level of mastery and it can be made 80 percent, in 5 years' time. It has to be noted that in this context, the level of mastery always refers to the successful achievement or acquisition 80 percent or more learning outcomes in units of the total curriculum.

- A process of grading students according to the percentage of learning out comes specified in the curriculum (units or sample tested).
- Similar to the grading of students as Competent, Nearly Competent and Incompetent

Table 8.1 - Percentage of Students Reaching the Level of Mastery

Subject	Level of Mastery	2005 Percentage	2008 Percentage
First Language	Mastery	12.2%	13.3%
	Near Mastery	41.75%	41.6%
	Non Mastery	46.15%	45.1%
Science and Technology	Mastery	6.9%	11.5%
	Near Mastery	28.7%	30.7%
	Non Mastery	64.4%	57.8%
Mathematics	Mastery	03.8%	0.67%
	Near Mastery	15.9%	21.9%
	Non Mastery	80.3%	71.4%

Intervention is needed by the curriculum developers , teachers and supervision and monitoring personnel to increase the percentage of students achievement level of mastery in all three subjects, without any inequalities among provinces,

school types, medium of instruction and between female and male and urban and rural schools.

8.2 Suggestions

Suggestion -1

8.2.1 Improvement in Curriculum Designing and Implementation

(a) Improvements in Curriculum Designing

The changes introduced as a result of the sub-committee of the Task force appointed to make necessary improvements in the secondary school cycle have resulted in changes in curriculum as well as teaching learning procedures. It is found that as a result of the various activities and intervention programmes implemented, the achievement levels of the students have improved. Yet, more effective steps have to be taken to achieve the targets of Education in junior secondary level.

Facilitating the children to reach the expected mastery level in their subject areas, curriculum developments should identify the components of abilities, skills and attitudes which should be developed among junior secondary school children at each grade level. The process of transformation at classroom level has not taking place effectively, by developing the identified components within students.

At present, the practice is to prepare the text books in accordance with the curriculum designed by the relevant authorities. They are printed and distributed among children and teachers by the government, free of charge. Teacher instruction manuals are distributed among teachers. However, there is no consistency between textbooks and teacher instruction manuals. As a basic resource for students' learning, the gap between textbooks and teacher instruction manuals should be bridged. As far as the parents are concerned manuals should be made available to them as well, briefing them on the present practices in the

classroom related to learning outcomes, contents, assessment and other procedures.

The other problem is the failure of the teachers to understand the array of desired learning objectives and the essential learning objectives that children have to achieve as a result of learning each subject in the relevant grade. Mastering the essential learning competencies will be reflected in achievement. The Essential Learning Competencies (ELC) in secondary grades has neither been identified no been published for the use of stakeholders. The average learners and the gifted students can be facilitated if all the desired learning competencies are published. In addition, this will result in bringing up the slow learners at least up to average levels, and eventually, enable them to reach high performance levels such as mastery. Therefore, identifying all the desired learning competencies in every subject in each grade level and publishing them is imperative to improve the achievement levels of students. The National Institute of Education should play a dynamic role in this regard.

(b) Determination of Desired Learning Objectives and Essential Learning Competencies

The National Institute of Education curriculum developers should draw up, print and distribute lists of Desired Learning Objectives and Essential Learning Competencies and indicators of achievement, in each subject, for secondary grades. This will enable the project teams to design and develop appropriate materials, the teachers to facilitate optimum learning in all sub-cohorts of students such as the non-achievers, the high achievers, to challenge those who have already attained mastery to reach further heights, motivate those who are in the near-margin of mastery attainment and those sub-cohorts who need to reduce a wider gap to achieve mastery. An all island programme needs to be launched by the National Institute of Education to create awareness in teachers and in service advisors of the critical need for and significance of, outcomes based teaching and learning facilitation.

(c) Implementation of Curriculum

Implementation of curriculum effectively and efficiently is a prime need. The findings of the present study highlights that the variations in implementing curriculum at national level is one of the major reasons for the differences in providing general education on an equity basis. According to other research findings it is found that printing of curriculum related materials in time and distribution of these materials to all schools sufficiently and in time, are two main problems. If proper implementation of the curriculum is expected the deployment of teachers according to need is essential. The capacity of principals as instructional leaders also should be strengthened. Nowadays it is found that they spend more time on administrative matters than playing the role of instructional leader. Therefore a mechanism at school level to veer the role of the principal towards total quality improvement is needed. This has to be complemented with external supervision and monitoring programmes led by Zonal, and Provincial Educational Authorities.

Suggestion - 2

8.2.2 Reconsidering and Revitalizing Assessment and Evaluation Procedures in General Education

In Sri Lanka, a paradigm shift in the field of assessment and evaluation is a felt need. The procedures adopted during the last six decades by the education system have led to a culture of learning for testing. The objectives at school level ought to be the assessment of the progress of the students. If the student is to be assisted in their learning tasks throughout the period of learning in the classroom, it is not periodic testing that is needed, but an authentic assessment process that makes way for diagnostic and remedial intervention.

Where the purpose is diagnostic intervention, norm referencing is less useful; instead criterion- referencing will be more helpful. Norm referencing uses the position of the child in the group, which is not useful in identifying the strengths and weaknesses of the student. What is wanted is to assess the progress of the student using his or her previous performance levels, ipsative referencing.

The traditional achievement testing programmes may not be helpful to make the assessment authentic, curriculum embedded, evidence based, and performance based. The written tests which have the qualities of validity and reliability are less useful. Instead of using the traditional report card system, recording and reporting a progress map of the student could be utilized.

(a) Introducing Authentic Assessment Procedures at School Level.

Authentic assessment is a form of assessment in which students are asked to perform real-world tasks that demonstrate meaningful application of essential knowledge and skills. Students should in worth while problems or questions of importance, in which they must use knowledge effectively and creatively. The tasks are either replicas of or analogous to, the kinds of problems faced by adult citizens and consumers or professionals in the field. An authentic assessment usually includes a task for students to perform and a rubric by which their performance on the task will be evaluated. For this purpose different assessment modes are often grouped into three broad categories, as follows:

I **Observations:**
Information gathered mainly by teachers in their daily work with students

II **Performance samples:**
Tangible products that serve as evidence of students' achievement.

III **Test – like procedures:**
Measures of student achievement at a particular time and place

Authentic assessment involves the students in tasks that are worthwhile, significant and meaningful. Such assessments consider learning activities progressively. Authentic assessment involves higher order thinking skills and the coordination of a broad range of knowledge. They communicate to students what it means to do their work well by making explicit the standards by which that work will be judged.

Authentic assessment may involve such varied activities as oral interviews, group problem solving tasks, creation of portfolios.

(b) Implementing Portfolio Assessment in Every Class

A portfolio is a container that holds evidence of an individual's skills, ideas, interests and accomplishments. It can be as basic as a folder stuffed with selected papers, as fancy as decorated notebook showcasing polished writing samples, or as high-tech as a laser disk with stored images of a student's accomplishments. Unlike a test which provides a snapshot of students achievement at a particular time and place, a portfolio document provides evidence of leaning over time. Looked at individually, a portfolio reveals how well a student has progressed.

A well designed assessment portfolio can serve four distinct purposes

I. enables teachers to assess students' growth and progress

II. enable parents and teachers to communicate more effectively about a students work.

III. Enable teachers and supervisors to evaluate instructional programmes.

IV. Enable students to become partners with teachers in the assessment process.

In assessment, the teacher is to facilitate the student when he is learning in the classroom, observe the student and listen to him, identify his strengths and weaknesses and, assist him/her to achieve desired learning objectives as well as essential learning objectives and reach the level of mastery. This has to take place in the process of teaching and learning. If the portfolio assessment is adopted, achieving these objectives will be successful. As a result improvements in achievement levels and even inequalities in achievement levels will be shown. Therefore, inequalities among various categories can be minimized and the percentages of students in the mastery group will be increased and, the non - mastery group will be decreased.

The procedures in the classrooms have to be curriculum embedded. The real portrait of the child has to be grasped using authentic assessment procedures for that, an evidence based assessment process is needed. The approach has to be performance based. It should assess cognitive as well as non-cognitive developments. The assessment programme has to be one that measures the progress of the child and a psychological approach in testing has to be adopted.

(c) Paying Emphasis on Curriculum Embedded Assessment

Curriculum embedded assessment drives the curriculum that is, teachers first determine the tasks that students will perform to demonstrate their mastery, and then a curriculum is developed that will enable them to perform those tasks well, which would include the acquisition of essential knowledge and skills. This has been referred to as planning backwards. Curriculum embedded assessment is used as a part of the regular instructional programme. It is done at a time deemed most appropriate by the teacher. Curriculum Embedded Assessments generally requires students to pull together and apply what they know in an informal classroom setting rather than in a formal test situation. This type of assessment makes the teachers and students engage in performance based tasks during the teaching learning procedure. These procedures will lead the teachers to go out of the normal classroom and work in groups, in the usual environment outside the classroom. As a result the ability of learners to perform what is learnt in the classroom in real life situations, will be developed more.

(d) Mapping the Progress of Students in All Subjects at Classroom Level.

A mapping exercise will be useful for the learners, teachers as well as monitoring personnel. For a very long period educational personnel have been using profiles of students in certain countries to identify the patterns of behaviour, and strengths and weaknesses in their learning achievements. Sometimes it may look like a form filled out by teacher, students or family members that provides information about a students' interest , traits , abilities achievements and so on. In some cases it may be a graphic interpretation of an individual's or group's scores on several tests

when such schools have presented in terms which make them comparable. Progress mapping is an improved version of this methodology, which is used by some of the developed countries. The progress map may be of two types. One is prepared for individuals. The other is prepared for the total group of students in the class. These maps can be considered not only as a means of identifying the progress of each student, but also as a means of identifying how far the teacher has been successful in the teaching task of identified units in the curriculum. Converting the raw scores into another form of grading will make the comparison of achievement and, watching the progress of the students easier. The teacher will understand how the student is reaching the level of Mastery in relation to the units included in the curriculum. On the other hand, the teacher himself as well as the monitoring personnel will be able to understand how far the teaching has been successful in relation to different units of the curriculum When these progress maps of the students are sent to the parents a proper dialogue can occur between the school and the family regarding the intervention needed and the support that could be given by the parents, to improve the quality of learning and achievement level of students.

In order to achieve the targets related to authentic assessment, portfolio assessment, curriculum embedded assessment, progress mapping etc. strengthening of the school based assessment which has been already introduced in Sri Lankan schools is the most suitable strategy.

The School Based Assessment programme already in place in the system should be linked to this initiative for outcomes based teaching and learning facilitation, starting with the primary cycle and continuing up to secondary cycle. The objectives of school based assessment would be achieved, if assessments are used for diagnosis and remedial interventions than merely serving recording purposes. Essential and desirable learning objectives that meet the needs of all sub-cohorts of learners, if specified, will facilitate outcomes based learning and teaching in classrooms. Teachers need intensive training in how to match learning objectives and the needs of learners who are at different points in the continuum of learning,

in the different subjects. Strengthening the current practices of School Based Assessment will ensure a balance development in learning and increase the levels of achievement of students. This will minimize inequalities and providing learning opportunities, enable a larger percentage of students to reach the level expected leading to greater achievement levels in general.

Suggestion - 3

8.2.3 Introduction of Diagnostic and Remedial Intervention Programmes

(a) National Level Project on Diagnostic and Remedial Teaching

An on-going national level project on diagnostic and remedial teaching, with action-research and periodic assessment built into this project, would provide the support base and services needed to sustain this urgently needed development initiative. The development of diagnostic instruments and tests, training of trainers and classroom teachers for remedial and outcomes based teaching in First Language, Mathematics and Science and Technology should be given priority on a system-wide basis. The national teacher education system and all teachers at secondary level should be part of this project, in their respective capacities.

Comprehensive information about students who need remedial intervention in all schools by Provincial and Zonal level should be maintained, to initiate the action. This could be identified by implementing school based assessment effectively or by developing diagnostic tests for each subject at every grade level. For this purpose, training in diagnostic test construction is needed for all teachers.

The Faculty of Education University of Colombo with the support of National Education Research and Evaluation Centre (NEREC) can be responsible about designing the diagnostic testing tools and training of necessary resource personnel. The National Institute of Education can take responsibility for implementation of the programme. The sponsorship of funding agencies would facilitate this initiative because this is an area of expertise that needs to be developed in-depth

and substantial numbers of teachers and teacher educators in the system are to be developed at all levels.

Targets should be set in National, Provincial, Zonal, and School Level Plans and Programmes, in order to provide training to teachers and teacher educators using appropriate strategies, and incentives should be provided to take this initiative forward. Parental awareness and active collaboration in the effective implementation of the action plans will be critically important to its success. Monitoring and evaluation process must be built in, at all levels.

Suggestion - 4

8.2.4 Introduction of Action Research Programme at School Level

Action research is a very precious tool that can be used to improve learning achievement levels of students. This kind of research studies conducted by class teachers, are often concurrent with their teaching. These studies are school and classroom-based studies initiated and conducted by teachers and other school staff. Action research involves teachers, principals, and other school staff as researchers, who systematically reflect on their or other's work and collect data that will answer their questions. This is usually a cyclical process by which change and understating can be pursued at one time, with action and critical reflection taking place in turn. The reflection is used to review the previous action and plan the next one. Action research is usually informal, designed for direct application to behavior or to a situation such as research by teachers in their classrooms. This is an informal, qualitative, interpretive, reflective and experimental methodology that requires all the participants to be collaborative researchers. Action research is carried out by people who usually recognize a problem or limitation in their workplace situation and, together, devise a plan to counteract the problem, implement the plan, observe what happenings, reflect on these outcomes, revise the plan, implement it, reflect, and revise and so on.

In order to achieve the target of improving learning achievement, an action research programme has to be carried out by every province. The seventeen National Colleges of Education can take the lead in this activity. The Faculties of Education and the

Departments of Education of the Universities may play the role of consultants. Using research findings for the purpose of improving educational practices will then become the culture in Sri Lanka. Learning – teaching methodologies and strategies developed through action research will be a valuable component that enhances the process of learning - teaching in the classroom

Suggestions - 5

8.2.5 Minimizing Differences Among Schools

(a) Among School Types

The research studies carried out by NEREC in Grade 04, Grade 08 and Grade 10, and by the NIE in Grade 03 and Grade 05 and also other related studies by eminent educational personnel and institutes provide substantial evidence to support the existing poor quality standards in Type 2 and 1C schools. The research studies conducted by NEREC in schools with poor performance have highlighted the unavailability of facilities in these schools and, the urgent need for an intervention programme.

From all the evidence cited, one can conclude that two special programmes have to be launched immediately to effect a qualitative change in educational as well as management practices in the Type 2 and 1C schools. These educational practices may include teaching strategies, learning procedures and assessment techniques. Management practices may be embedded in the activities of the principals, support of the school community as well as the school environment. On the whole, there should be an attitudinal change in parents, teachers, students and educational authorities, to take immediate action to develop these schools.

Out of the total number of 9678 schools in Sri Lanka, 1883 are 1C schools and 4204 are Type 2 schools which together amount to a total of 6087 schools. This is nearly 2/3 of the total number of schools. The attention of the authorities is mostly

focused on developing the 1AB schools, which is only a small percentage of the total number of schools. Out of the total number of 394237 students studying in formal schools, 1276671 are from 1C schools and 1033148, from Type 2 schools. The percentage of students studying in these two categories of schools is more than 60.0. Most of these schools are located in rural areas. The socio-economic background of the families of these students may not be as favourable as that of the parents living in urban areas. Most of these families may be engaged in agricultural activities such as the cultivation of paddy, tea, rubber and coconut. and some, in growing other crops. Many of them may be dependent on Samurdhi benefits. Taking this situation into consideration, a special programmes has to be launched without any further delay, to improve Type 2 schools.

(b) Special Programme for Type 02 Schools

As majority of the type 02 schools are located in isolated, difficult and rural areas. If they are to be upgraded as schools of excellence, necessary improvements have to be effected, which will help influence positively the attitudes of parents and teachers. The competition for admission to primary grades in urban 1AB schools may also be reduced, eventually. The attitudes of teachers may change and their willingness to serve in these schools enlisted, thus addressing the serious problem in the system of teacher deployment. Type 02 schools are located in every Educational Zone. Therefore, the most glaring disparities in outcomes, focused on in the findings of this report, by school type (1AB/Type 02), location (urban/rural), medium of instruction (Sinhala/Tamil) - in provision of basic education may be minimized, within the next decade, in accordance with the targets set to achieve Education For All goals by year 2015, as stipulated in the Declaration on Education For All.