# Conclusion and the Way Forward

## 6.1    Introduction

The purpose of this chapter is to discuss the main patterns in learning outcomes identified through the National Assessment 2012. This chapter has three main objectives.

1.  Summarize the findings in relation to the patterns observed
2.  Analyze the main patterns observed, in the light of the main objectives of a national assessment.
3.  Identify further measures to provide opportunities to achieve 'education for all'.

## 6.2    Patterns Identified in the achievement of learning outcomes - 2012

### 6.2.1  All island performance

**Overall performance**

The overall performance in **mathematics** is not quite satisfactory with a mean score of 51.4. Further, disparity in achievement could be seen with 34.2% of the national sample scoring less than 40 while 24.93 has scored above 70.

The performance in **science** is even less satisfactory with a mean score of 41.95 and a median of 39.

Disparity in achievement prevails with 51.2% of the national sample scoring less than 40 while 9.2%  has scored above 70.

For the **English** language the national level mean and median values are 40% and 32% respectively. Approximately 61% of students score less than the pass mark. Further, the highest percentage of students' marks is within the range 20-29. Thus it could be concluded that the island wide achievement of learning outcomes for English language is not satisfactory.

Therefore, it could be concluded that the majority of the students have scored low marks in science and English. On the other hand there is disparity in all island achievement in all three subjects.

## 6.2.2. Provincial wise performance and trends

The findings of the present study indicate that there are variations in provincial wise achievement in all three subjects.

### Achievement in mathematics

According to the performance in mathematics the provinces fall into three categories. The highest performing provinces are the Western, Southern, North Western and Sabaragamuwa with mean scores above the national mean ( >51.439). The Northern and Central Provinces cluster in the middle. The lowest performing districts being Eastern, North Central and Uva fall into category 3. Disparity of marks within a province is highest in the Eastern province. North Central and Uva Provinces the disparity of marks is less, but the marks are low. Therefore, in these provinces achievement is more homogeneous but low.

### Achievement in science

The provinces can be clustered into three categories in relation to science performance as well. Similar to the achievement in mathematics Southern, Western and Sabaragamuwa with mean scores above the national mean (>41.95) fall into category one. However, North Western together with the Central Province cluster in the middle. Eastern, North Central and Uva with lower mean values fall into category three. Similar

to the performance in mathematics, in science achievement also the highest disparity is seen in the Eastern province. North Central and Uva Provinces' performance in science indicate a similar pattern of homogeneous achievement among students as in mathematics achievement.

**Achievement in English**

Unlike in the performance of the other two subjects in the achievement of English language the provinces fall into two categories.

Western, Central, Southern, North Western and Sabaragamuwa with mean scores above the national mean (40.04) fall into category one. The second category, Uva, North, North Central and Eastern are below the National mean. Disparity of marks within the lower group is higher than among the higher group. The significant feature of the performance in the three provinces with the lowest achievement levels – Eastern, North Central and the Northern is that there are a few outliers.

### 6.2.3 Achievement according to School Types

The gap between the achievement of students in 1AB schools and 1C and Type 2 is wide in all three subjects.

In the achievement of **mathematics**, majority of the students in 1C and Type2 schools, 50% and 58.6% respectively have scored below 40 marks. On the other hand, only 17.5% have scored below 40 marks in 1AB schools.

In relation to the achievement in **science** the gap between the achievement of students in 1AB schools and 1C and Type 2 is wide. In the 1AB schools the percentage of high achievers are only slightly higher than the low achievers. In the 1AB schools those who have scored less than the pass mark is only 20.8%. On the other hand, in 1C and Type 2 schools cumulative percentage is 69.3 and 77.4 respectively.

Compared to 1AB schools, the performance in **English** language of 1C and Type 2 schools is low. In 1C and Type 2 schools 85.02 cumulative percentages and 89.30 cumulative percentage of students' scores are below 40. On the other hand, in 1AB schools, failure percentage is only 38.17% and there are also 22.80% of high achievers scoring above 70. However, in1C and Type 2 schools there are outlier – those who have scored high values and extreme values.

### 6.2.4  Achievement according to gender

In all subjects females have performed better than their male counterparts.

In **mathematics** female performance is slightly better than all island and male performance. While 30.96% of girls have scored below 40, the male percentage is 37.8%. Equal percentage of males and females have reached the higher mark range of 70 -100.

In **science** Female performance is slightly better than all island and male performance. While 48.30% of girls have scored below 40, the male percentage is 54.42

Female performance in the **English** language is higher than all island and male performance. Among both males and females there is a larger percentage of low achievers. On the other hand, the number of high achievers among both males and females is low. Therefore, the disparity in achievement in the English language is very high.

### 6.2.5  Achievement according to medium of instruction

There is wide disparity in achievement among students belonging to different medium of instruction in all three subjects.

Considering the pass mark as 40, in **mathematics** 32.1% of Sinhala medium and 40.4% of Tamil medium students have scored below the pass mark.

In **science** the Sinhala medium students' mean score is above the national mean while the Tamil medium students' mean is lower.

Sinhala medium students' mean achievement in the **English** language is slightly above to the all island mean value. The Tamil medium students' mean achievement is below the national mean. However, inspite of this low performance here are a few students who have performed extremely well.

### 6.2.6  Achievement of competency levels

The analysis of the facility indices for the three subjects indicates that there is great variation in the achievement. The ranges for the facility indices for each subject is given below.

| Mathematics | 0.1873 - 0.7063 |
| Science | 0.1131 – 0. 8285 |
| English | 0.1196 – 0.6624 |

The facility indices given above indicate that there is wide disparity in achievement among students.

The percentage of correct responses to questions targeted at measuring different competency levels in all three subjects is not very satisfactory. For majority of the questions the achievement level is below 0.5. Therefore, it could be concluded that students' achievement of the different competency levels is not quite successful.

## 6.3  What the findings reveal

### 6.3.1  Impact of the curriculum reforms

As discussed in chapter 1, there are several objectives of a National assessment. Since the national assessment 2012 was the first study after the implementation of a new competency based curriculum in 2007, it is important to find out whether the aims and objectives of the new curriculum have been achieved.

Further, it is necessary to find out whether the findings indicate particular strengths and weaknesses in students' knowledge and skills.

The purpose of the reform was to produce students who could apply their learning to everyday situations. (World Bank, 2011)

In teaching **mathematics** it had been claimed that students skills in open ended problem solving and decision making were weak and only a few were able to demonstrate their ability in higher order skills. The main aim of the new curriculum "is to develop individuals who are able to think mathematically and apply mathematical knowledge effectively and responsibly to problem solving and decision making" (World Bank, 2011, p.88). It has been revealed that the curriculum strands and general aims in grades 6-10 curricular correspond to international standards. However, learning outcomes are not included for the process strands of communication, relationships, reasoning and problem solving (Mc Coal, 2007). This study further claims that the activities in the Teacher Instructional Manuals (TIM) are limited to focusing on basic concepts and mathematical skills and do not engage students in applying their learning to everyday problems and situations.

The present National assessment data also confirms these findings. The competencies identified in the grade 8 curriculum too provide very little emphasis on the development of the skills of reasoning, problem solving and relationships.

On the other hand, the curriculum is over loaded with subject content.
According to TIM the objectives of the **science** programme in grades 6-11 are the application of scientific knowledge and concepts to everyday living and to the nation's well being using inquiry skills, problem solving and scientific reasoning. However, it had been claimed that the activities relating to the competency levels identified are directed towards learning content and not so much to promote student directed inquiry (Mc Caul, 2007). Further shortcoming identified is the little attention paid to the practical work in the science curriculum (World Bank, 2012). Both these claims are justified through the findings of the NEREC, 2012.

As discussed in chapter 4, the lowest percentage of correct responses had been obtained for the test items corresponding to the following competency levels.

6.1 Conducts explorations to identify the morphological diversity of leaves.

.4 Uses the expansion of solids, liquids and gases in day today life effectively.

7.1Uses properties of light in human needs

In teaching **English** the new curriculum had been introduced to learn a language in order to use the language practically in day to day situations. "therefore, in preparing the new syllabus, the practical aspect was considered to be more important than the theoretical aspect" (NIE, 2009, p.1). However, as discussed in chapter 5 the students application of the language skills learnt had been weak. There is also a problem of sequencing the competency levels. For example, the competency level for creative writing is before writing short notes. Even understanding the basic competency levels there is disparity inter provincial as well as intra provincial wise.

Therefore, it appears that the overall achievement of the aims of the new curriculum has not been achieved.

## 6.3.2  Opportunities for equity

As already discussed in chapter 1,  promoting "Equity" and "excellence" and reducing disparities in the education system is one of the main focuses of the Government of Sri Lanka and this is highlighted in the Education Sector Development Framework and Programme (ESDFP) from 2012–2016.

One of the major areas identified in this Framework is "improving the quality of basic and secondary education" and "increasing equitable access to basic and secondary education" (p.2). Therefore, it is necessary to find out whether any particular subgroups in the population perform poorly. For example, whether disparities exist, between the achievements of boys and girls, students from different language or ethnic groups, or students in different regions of the country.

As discussed in section 6.2 there is disparity in achievement between provinces, between boys and girls, between different language or ethnic groups, among school types and different medium of instruction. There is not only inter provincial disparities but also intra provincial disparities. Therefore, it could be concluded that students' performance at the end of the eighth year of schooling indicates that equal opportunities to achieve the goal of 'education for all' had not been successful.

## 6.4   The way forward

The national assessment 2012 collected information on demographic and other background factors to compare the achievements of subgroups in the population. Such information would be correlated with student achievement in a subsequent report. That would help to identify the groups that are underserved by the system as well as factors associated with low achievement. This in turn will facilitate the planning of remedial measures (Kellaghan, Greaney and Murray, 2009).

It has been stressed that the national assessment of learning outcomes should be better utilized for policy purposes (World Bank, 2012). The Ministry of Education (MoE) in collaboration with the Provincial Education Authorities(PEAs) and national level education institutions has developed Education Sector Development Framework and Programme (ESDFP) from 2012-2016. As a rolling plan of this strategic plan, the ESDFP plan for 2013 -2017 has been formulated (Ministry of Education, 2013)

Section 6.4 of this chapter examines how the findings of the national assessment 2012 can be further strengthened the proposals of the ESDFP.

**Curriculum revision**

Under theme 2 of the ESDFP one of the areas identified for improvement is the secondary stage revision of the national curriculum. The subject curriculum committees had already identified certain issues such as content overload, over weight of textbooks and lack of discovery learning through practical projects especially in science. The national Assessment 2012 confirms that such issues exist. Therefore, it is recommended

that the proposals of the EDCFP be implemented. A revision of the competencies and competency levels identified for all three subjects – mathematics, science and English should be revised.

In the mathematics curriculum more emphasis should be placed on the development of skills, in the relationships, reasoning and problem solving standards. As in other countries such as Singapore problem solving in mathematics should be the main focus and the syllabus should give clear guidelines as to how the content standards, processes, correct attitude formation and development of meta cognition should be incorporated into the teaching of mathematics (World Bank, 2011).

The content of the science curriculum is over burdened and there is an imbalance between subject content. Further, there should be more practical work and activities to enable students to use science in their day to day activities.

English language curriculum should also be revised to provide more opportunities to apply the basic concepts learnt in developing reading and writing skills. Reordering of the competency levels is also necessary

**Diversify the curricula**

Use of common teaching methodologies to teach students who are in different performance levels in the same classroom has been repeatedly identified as an issue in teaching any subject and especially the English language and mathematics. The item analysis maps clearly indicated that there are high achieving as well as very low achieving students who are not catered to by the present curriculum. This was especially evident in the performance of English language. Therefore, there is a need to adopt the practice of countries such as Singapore and UK and introduce different syllabi and examinations.

## Teacher development

Teachers need to identify the students with exceptional abilities as well as learners needing special attention. Further, they should be able to adapt the learning material to provide fast track programmes for the best students and remedial programmes for the low achievers. This teacher development programmes should include these skills as well as to train teachers in the use of strategies such as mixed ability and same ability groupings.

## Equity in learning opportunities

Increase equitable access in primary and secondary education and strengthening divisional level planning and enhancing resources to promote student learning at all levels are some of the strategies identified by the ESDFP. However, the national assessment results indicate that there are inter and intra disparities among provinces, school types, ethnic groups and to a certain extent between genders. Multiple variables may influence these disparities and special attention of the policy planners and more public resources should be targeted to these provinces and low performing sub groups.