South Asian Regional Conference on Using Large-Scale Assessments to Improve Teaching and Learning

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M. B. M. B. K. Gawarammana
Assistant Director of Education/ Policy and Planning Branch, MoE
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Table of Contents

Table of Contents 1
1. Introduction 2
2. National Assessments and Global Indicators 2
3. Cross-National Assessments 5
   3.1. PISA at a glance 6
   3.2. Some sample questions from PISA 8
4. Factors affecting student performance 9
5. Assessments and teaching of 21st century skills 9
6. Suggestions for strengthening National Assessments 10
References 11
Appendix 12

1. Introduction

The World Bank sponsored the South Asia Regional Conference on Using Large Scale Assessments to Improve Teaching and Learning held in New Delhi, India, from April 25- 27, 2018.

The main objectives of the conference were to enable South Asian countries to share their experiences of conducting assessments of learning outcomes and to learn from each other as well as from global experts, on the use of large scale assessments to enhance curriculum design and delivery, and increase the quality of teaching and learning.

This conference mainly remarked on following areas:

1. Importance of participating in International Assessments for instance, PISA, TIMMS, PIRLS and etc.;
2. Global indicators for student learning;
3. Designing effective national assessment system best fit to the national context;
4. Necessity for regional networking in strengthening assessments to improve learning outcomes of students;
5. Citizen-led assessments;
6. Designing and implementing large-scale assessment;
7. Non-cognitive skills and teaching of 21st century skills; and
8. Future of assessments

2. National Assessments and Global Indicators

At the inaugural session, the keynote speaker, Ms. Silvia Montoya, Director, UNESCO Institute for Statistics (UIS) made clear that 'National Assessments', the procedure used to assess student learning at the system level, is a complex activity which require a variety of skills and resources and how much this process is vital to recognize to which extent government and schools are successful in utilizing resources to improve students' learning outcomes. Consequently, she propagated the significance of ensuring, the data provided on student learning are high of quality and address the concerns of policy makers, decision makers and other stakeholders in the education system.

The Education 2030 Framework for Action has defined 17 goals and 169 targets of 2030 Agenda for Sustainable Development adopted by Heads of State in New York in 2015 which contain SDG 4 goal and targets for education adopted by Education Ministers in 2015: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all".

As Mr. Shailendra Sigdel, Statistical Cluster Advisor, UIS-UNESCO explained, national assessment process need to be aligned with the following indicators:

Table 1: SDG4 indicators and targets related for assessments

4.1.1.	Proportion of children and young people (a) in Grade 2 or 3 (b) at the end of primary education (c) at end of lower secondary education achieving at least minimum proficiency level in (i) reading and (ii) mathematics;
4.2.1.	Proportion of children under 5 years of age who are developmentally on track in health, learning and psychological well-being
4.4.1.	Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill
4.5.1.	Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated
4.6.1.	Proportion of population in a given age group achieved at least a fixed level of proficiency in functional (a) literacy (b) numeracy skills by gender

In addition, to global indicators there are few other thematic indicators related to assessments	
4.1.2.	Administration of a nationally-representative learning assessment (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education of skill
4.4.2.	Percentage of youth/adults who have achieved at least minimum level of proficiency in digital literacy skills
4.7.4.	Percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability
4.7.5.	Percentage of 15-year-old students showing proficiency in knowledge of environmental science and geoscience

The information paper 'Country readiness to monitor SDG4 education targets – regional survey for the Asia and Pacific region' from (UIS) explains 4 out of 12 countries where data are available do not conduct national assessment in grades in alignment with SDG4 targets.

Table 2:National learning assessments by measurement point (UNESCO, UIS, 2016)

Country	Age										
	5	6	7	8	9	10	11	12	13	14	15
Afghanistan			G1	G2	G3	G4	G5	G6	G7	G8	G9
Bangladesh		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Bhutan		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
India		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Maldives		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Nepal	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
Pakistan	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
Sri Lanka	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11

Represents the existing assessment that the country have and align with SDG4 targets

Represents the existing assessment that the country have and do not align with SDG4 targets

Source: http://www.uis.unesco.org/Library/Pages/default.aspx

In the case of Sri Lanka, National Assessments are conducted after the completion of Grade 4 (not in Grade 2 or 3 or at the end of the primary cycle) and after the completion Grade 8 (before the end of junior secondary level) hence, do not aligned with the SDG4 targets but still data are valid.

In further discussions it was explained though large-scale assessments can provide significant information for countries, there are instances in which some countries disregard or fail to use these results in education policy making effectively due to following barriers:

1. Lack of or poor dissemination of information;
    - Assessments teams not sharing findings in sufficient or salient way that improve education system operations.
    - Only education officials and policy makers have access to assessment data, resulting in littles public awareness and pressure.

2. Limitations in assessment programme and analyses;
    - Limited capacity of technical experts to analyze large-scale assessment data
    - Results not used to specifically target or develop interventions at the classroom level
    - Uncertainty of data being recognized at the national level
    - Assessments not responsive to pressing policy concerns of a country's education system

In Sri Lanka, National Education Research and Evaluation Centre (NEREC) has taken priority in conducting national assessments. Though, NEREC conducts data dissemination symposiums at Ministry level and publishes a simplified report of national assessments on the web still, there are awareness gaps and under-utilization of the findings.

3. Cross-National Assessments

Moreover, a new synthesis paper from the UNESCO, UIS explains how many countries already use data from large-scale cross-country assessments to enhance their educational practice and policy. It also spells out the implications for investment in education resources and potential challenges.

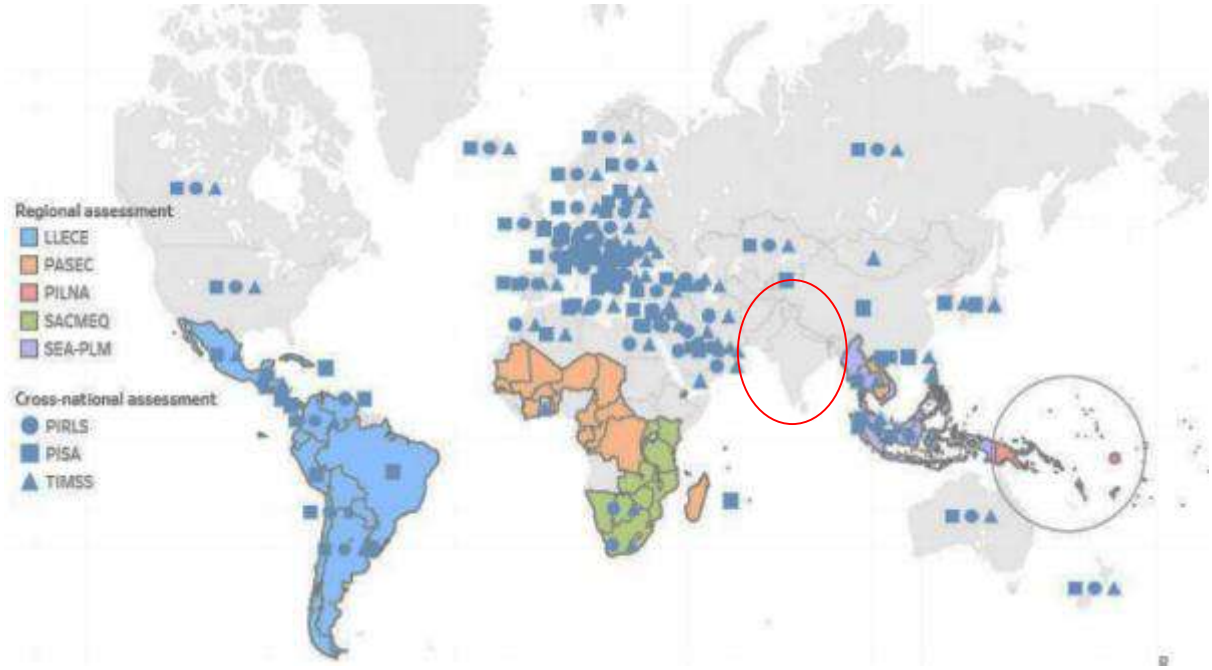


Figure 1: Geographical distribution of large-scale learning assessments (UNESCO UIS, 2018)

As figure 1 illustrates, none of the South Asian countries still have not taken part in cross-national assessments. Similar contexts of economic challenges faced by the South Asian countries might have been the reason for not taking part in cross-country assessments, though most of the countries have identified the positivity in cross-country assessments.

However, in the bright side of the cross-national assessments, various countries utilize large-scale assessment data in resource allocation for teacher training and professional development, developing educational materials and using time resources inside and outside the classroom which have substantial influence on improving learning outcomes of students.

"Increased allocation of resource does not suffice in improving learning: It must be combined or informed by better use of resource" (UNESCO, UIS, 2016)

3.1. PISA at a glance

The Organization for Economic Co-operation and Development (OECD) launch this triennial survey of 15-year-old students around the world to collect comparable evidence on student performance to assess the extent to which 15-year-old students, have acquired key knowledge and skills that are essential for full participation in modern societies.

The assessment focuses on the core school subjects of science, reading and mathematics and proficiency in an innovative domain.

"The assessment does not just ascertain whether students can reproduce knowledge; it also examines how well students can extrapolate from what they have learnt and can apply that knowledge in unfamiliar settings both in and out of the school" (OECD, 2018).

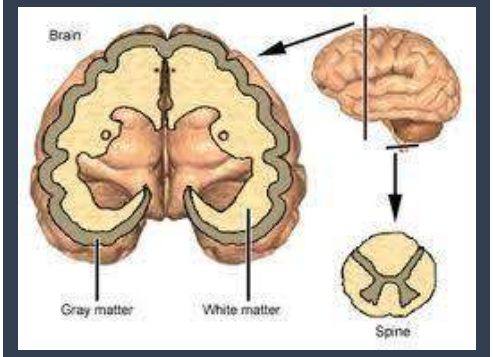
Sri Lanka is still attempting to increase the number of students continue studies in the science and mathematics field. The school science and mathematics curricular is presented in a form that providing students with the basic facts, laws or theories rather than on the broader concepts of scientific inquiry and evolving nature of scientific "truth" and this has laid the foundation for training

Did you know?

Gray Matter

The central nervous system is made up of two kinds of tissues: **gray matter and white matter**.

Gray matters are the darker tissue of the brain and spinal cord, consisting mainly of nerve cell bodies and branching dendrites.



Gray matter in the brain is directly responsible for memory, seeing, hearing, executive functions, impulse control, emotions and speech.

The more gray matter you have in the decision-making, thought-processing part of your brain, the better your ability to evaluate rewards and consequences.

- Children with autism have more gray matter in their brains.
- Age is negatively associated with gray matter volume.

Common techniques for increasing gray matter in the brain:

- Physical activity, yoga and exercises
- Mindfulness meditation
- Omega 3 intake
- Healthy breakfast

Source: www.inner-light-in.com

only a few number of scientists. Therefore, promoting a positive and inclusive image on science and mathematics education is important.

Consequently, participating in international assessment arena will ignite positive changes in policies and practices aiming for successful schools in Sri Lanka. It will be timely valuable to open up a dialogue among Sri Lankan educationists on pros and cons of cross-national assessments.

"Cross-national assessments provide better information"

Comments made by the delegates participated for the South Asian Regional Conference:

Advantages	Challenges
More data provide more information – Big data analysis.	Socio-economic disparities are not addressed completely hence, findings may hinder the real situation.
Improve the reliability of findings: these initiatives are usually established and managed by teams of experienced research specialists.	Possibility of overestimating or underestimating the real status.
Create opportunities to learn from other countries	Create unnecessary competition among countries.
Benchmarking local education according to global standards.	A test designed to serve as a common denominator of curricular in many countries is not going to provide as valid measure of curriculum mastery for every individual country as test which take account only of the curriculum of individual countries.
It is possible to identify areas to be enhanced in local curriculum and policy framework in order to provide world-class education for students.	Some countries specially developing countries lag behind due to lack of technological facilities.

Citizen-led Assessments of Basic Learning

PAL NETWORK
People's Action for Learning

Fourteen countries working across three continents to assess basic reading and numeracy competencies of all children, in their homes, through citizen-led assessments (CLA).

"Household-based assessments of basic reading and numeracy competencies are the only way to find out whether ALL children are acquiring basic skills, which are the building blocks for all future progress in school".

Assess children one on one in the households at regular intervals.

Source: http://palnetwork.org/

3.2. Some sample questions from PISA

Fun and knowledge in the same page

Mathematics

Penguins (in French, "penguin" is "manchot".)

The animal photographer Jean Baptiste went on a year-long expedition and took numerous photos of penguins and their chicks.

He was particularly interested in the growth in the size of different penguin colonies. the larger of the two eggs is the only one that survives.

Question 1: Penguins

Normally, a penguin couple produces two eggs every year. Usually the chick from the larger of the two eggs is the only one survives.

With rockhopper penguins, the first egg weighs approximately 78 g and the second egg weighs approximately 110 g. By approximately how many percent is the second egg heavier than the first egg?

A. 29%
B. 32%
C. 41%
D. 71%

UNIT PENGUINS SCORING 1
Question intent:
Description: Calculate with percentage within a real context
Mathematical content area: Quantity
Context: Scientific
Process: Employ

Full Credit: C. 41%

Source: https://www.OECD.org/pisa

Science

There are many types of pox viruses that cause pox diseases in animals. Each type of virus usually infects only one animal species. A magazine has reported that a scientist has used genetic engineering to modify the DNA of mouse-pox. The altered virus kills all the mice it infects.

The scientist says research on modifying viruses is necessary in order to control pests that damage human food. Critics of the research say viruses could escape from laboratories and infect other animals. They are also worried that a modified pox virus for one species could infect other species, especially humans.

Humans are infected with a pox virus called smallpox. Smallpox kills most people it infects. While it is thought that this disease has been eliminated from the general population, smallpox virus samples are kept in laboratories around the world.

Question 1: MOUSEPOX
Critics have expressed concern that the mouse-pox virus could infect species other than mice. Which one of the following reasons is the best explanation for this concern?

A. The genes of smallpox virus and the genes of modified mouse-pox virus are identical.

B. A mutation in mouse-pox DNA might allow the virus to infect other animals.

C. A mutation could make the mouse-pox DNA identical to smallpox DNA.

D. The number of genes in mouse-pox virus is the same as in other pox viruses.

Full Credit: B

Assessments *of learning* *as learning* *for learning*

4. Factors affecting student performance

Andreas Schleicher, Director, Education and Skills and Special Advisor on Education Policy to Secretary-General OECD pointed out that students' attitudes, interests and dreams play a prominent role in the process of assessing students' learning outcomes.

Among other factors that are considered as significant in student achievements, following factors are identified as important:

educational history – performance in school;
class attendance;
resources in schools;
level of teacher education and qualifications;
socioeconomic status of students; and
students' social life at school for e.g. peer pressure and bullying.

5. Assessments and teaching of 21st century skills

Esther Care, Senior Fellow – Global Economy and Development, Center for Universal Education explained how new kinds of assessments designed to assess 21st century skills which contain fundamentals of collaboration; learning to work together, learning to solve problems and learning to learn.

"Collaborative problem solving is about learning to see things in the point view of other members of the group. It's about being able to identify parts of a problem, to find patterns, formulate rules and generalization and to form hypotheses and reflect solutions" (Care, 2014).

Food for thought…

"The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor."
— Campbell's Law —

6. Suggestions for strengthening National Assessments

- Improve the technical quality of assessments, including developing the capacity of those involved in the design and implementation of national assessments
  - Quality and soundness of the national assessments is important in order to assure effectiveness of the policy making process.
  - High quality skills are required for all engaged in at all stages (i.e. designing, developing, sampling, test administration, data collection, data cleaning and analysis and reporting and dissemination stages) of the assessment process hence, it is essential to pursue capacity development opportunities. This is a crucial factor in designing an effective national assessment suits for the local context.
  - Consider engagement in regional or international assessment programmes and study best practices of other countries for e.g.

    Vietnam: national assessments integrated in to the school curriculum.

    Indonesia: has introduced 'integrity index' in order to apprehend the effect of 'cheating'.

- Process of communication and dissemination of assessment results should be strengthened.
  - Ensure effective dissemination and communication of assessment results not only for those who are directly involved in the programme but for all stakeholders.
  - Use different strategies suitable for different stakeholder groups to communicate findings of the assessments.
  - Leverage national assessment findings effectively to address needs of students through bottom-up approach.

- Address the challenge of technological advancements
  - Develop an item bank for national assessments.
  - Countries are now moving towards for computer-based assessments.

- Create mindful discussions on improving quality drivers of national assessments.
  - **Enabling context**

    Leadership, policies, institutional arrangements and resources
  - **System alignment**

    Learning goals, curricular and opportunities
  - **Assessment quality**

    Design, analysis, reporting and use (Clarke, 2018)

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Appendix

Report Furnished after Official Visit Abroad

South Asian Regional Conference on Using Large-Scale Assessments to Improve Teaching and Learning

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Name: M. B. M. B. K. Gawarammana

Designation: Assistant Director of Education/ Policy and Planning Branch, Ministry of Education

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M. B. M. B. K. Gawarammana Date