NEQMAP

Network on Education Quality
Monitoring in the Asia-Pacific

Measuring and analysing economic, cultural, and social status in large-scale assessment to inform policies in Asia-Pacific

Closed discussion meeting (November 15th at 2pm to 4pm GMT+7, Online -TBC)

Outcome document

Context

The Network for Education Quality Monitoring in the Asia-Pacific (NEQMAP) invited experts to a meeting on November 15th 2023, to discuss the current developments in the measurement and analysis of economic, cultural and social status (ECSS) in large-scale assessments and their relevance to inform policymaking in Asia-Pacific. The goal of this meeting was to provide a platform for peer-learning and exchange among experts involved in various LSAs (international, regional and national) in Asia-Pacific with the goal of improving relevance of respective indicators for education policymaking in the region.

In particular, the discussion focused on:

- The current data collection and methodological choices made to measure ECSS in LSAs and the limitations to these methodologies.
- Comparability of indicators' operationalisation and estimation methodology.
- The main recommendations that are or can be considered to improve measurement and analysis of ECSS in large-scale assessments.

The meeting involved representatives of the main international and regional large-scale assessments in Asia-Pacific: the Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading Literacy Study (PIRLS), the Southeast Asia Primary Learning Metric (SEA-PLM) and the Pacific Islands Literacy and Numeracy

Assessment (PILNA). Representatives of the Australian Council for Educational Research (ACER) produced a background paper[1] and provided a scene setting presentation.

Participants

Moderator	• Soumaya Maghnouj, NEQMAP Secretariat, UNESCO
Scene setting presentation	• Alejandra Osses Vargas, GEM Centre, ACER • Ursula Schwantner, GEM Centre, ACER
Panel Discussants	• Alejandro Ibanez and Antoine Marivin, SEA-PLM Secretariat, SEAMEO • Francesco Avvisati, Education and Skills Directorate, OECD • Matthias Von Davier, TIMSS & PIRLS International Study Center, Boston College • Seema Prasad, Educational Assessment Officer, EQAP • National assessment (TBC)
Observers	• Huong Le Thu, UNESCO • Nyi Nyi Thaung, UNESCO • Suguru Mizunoya, IIEP

Discussion summary

Large-scale assessments play an important role in monitoring equity of learning outcomes across population sub-groups and access to learning opportunities. One of the key indicators of equity in education is the economic, cultural, and social status (ECSS) of students. However, while indicators of ECSS are ubiquitous in background questionnaires of national, regional and international LSAs, they tend to differ in terms of the underlying theoretical framework, operationalisation, and measurement model. These differences can lead to varying findings about how equitable education systems are and hence varying policy implications for countries.

Current practices for measuring, collecting, and reporting ECSS in large scale assessments.

The scene-setting presentation and background paper prepared by ACER mapped out the definitions and operational choices of ECSS in PISA, TIMSS, SEA-PLM and PILNA. The main differences between large-scale assessments are related to the operationalisation of parents' occupation, parents' education, and the list of home possessions. Participants highlighted the following current practices:

- **TIMSS and PIRLS:** TIMSS and PIRLS include an index of Home Educational Resources (HER) which has been in the past cycle the closest approximation of ECSS available in TIMSS and PIRLS. A new index for Home Socio-economic Status (HSS) has been developed as part of TIMMS and PIRLS Grade 4 while TIMSS Grade 8 will continue to have only the Home Educational Resources scale. HSS relies on the home questionnaire which is only available in assessments administered to grade 4 students.

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[1] Osses, A., Schwantner, U., & Adams, R. J. (2023). Measuring and analysing economic, cultural, and social status in large-scale assessments. Background document for NEQMAP discussion meeting. Australian Council for Educational Research

- **PISA:** In PISA an index of Economic, Social and Cultural Status (ESCS) is used. The development of this index, while informed by theoretical underpinning from the gradient approach of ECSS, is also informed by practical considerations and constraints related to measuring ECSS in the context of a large-scale assessment – such as comparability over time and across countries, length of background questionnaires, etc. The definition and methodology related to the ESCS index are publicly available on the PISA website.
- **PILNA:** The measurement of ECSS in PILNA includes parental occupation and an indicator of household wealth. Collections of such data rely on students reporting through the student background questionnaire. PILNA uses national scales to estimate the household wealth indicator (comparison to the national average).
- **SEA-PLM:** In the SEA-PLM first cycle, an ECSS index was used with national scales. This approach considers the important level variation in economic development across countries in Southeast Asia. In the current cycle, SEA-PLM is introducing some changes to the Socioeconomic index, including an open-ended question for reporting on parental occupation (previously closed categories were used).

In terms of reporting, it is worth noting that while PISA and TIMSS/PIRLS use international scales allowing direct comparison across countries, SEA-PLM and PILNA use national scales. It is also worth noting that the differences in the age of the assessed population (primary school for SEA-PLM, PILNA and TIMSS/PIRLS grade 4, and secondary for PISA and TIMSS grade 8) also impacts on how the data is collected. In assessments of early grades, there is a need to have parents' questionnaire or more support to the students in completing the background questionnaire.

Identified constraints and challenges.

Participants discussed some of the challenges and constraints they face in the collection, measurement and reporting of the data related to ECSS. These can be summarised as follows:

- **Diversity across participating countries and cultural and societal norms:** Participants highlighted the difficulty of developing comparable indicators that work across a diverse set of countries ranging from high income to low-income countries. Participants also noted that in some socio-cultural contexts in Asia-Pacific, asking about job or occupation can be perceived as a sensitive topic. This may impact the response rate on questions related to parental occupation. Additionally, in some countries, parents commonly hold multiple occupations.
- **Modality of the data collection:** Large scale assessments rely predominantly on self-reported data from student background questionnaires to collect ECSS data. This may create challenges of accuracy and comparability of the data collected. Participants highlighted for instance the limitation related to students' report on parental occupation.
- **Continuity and comparability over time:** The mandate of large-scale assessments to produce trend data can limit the capacity to drastically change ECSS indicators. Changes are often incremental (e.g., slight changes to variables within the index) and slow.

Direction of change.

Participants highlighted the following directions of change and considered areas of improvement:

- **Better capturing ECSS at the lower end of the socio-economic distribution and in low-income country contexts:** Several participants highlighted the need to improve the data collected from low ECSS households and/or low-income countries. In PISA, the introduction of an indicator of "material deprivation" is considered to provide an improved proxy for material possessions at the lower end of the ECSS scale. SEA-PLM is introducing an open-ended question to facilitate reporting of non-formal occupations.
- **Improving coding and comparability across countries:** Participants also highlighted the need to continue in improving the coding of the variables used in the calculation of the ECSS indicators. For example, the use of machine learning and AI can help improve the coding of open-ended questions, such as on parental occupation.
- **Updating questionnaires to remain relevant to changing societal norms:** Participants also emphasised the importance of regularly updating operationalisations of ECSS indicators to ensure relevance to changing societal norms. For example, PISA extended the question about "parental occupation" by the option to consider "guardian occupation".

Possible next steps and follow-ups.

Participants highlighted the need for further research to explore how to improve the comparability of ECSS indicators and relevance to varying country contexts. Such research programme would require further development of capacity at national levels to explore the data, analyse and suggest alternative indicators where relevant. Finally, exploring ECSS indicators used in household surveys has also been mentioned as a possible next step.

NEQMAP will aim to support such initiatives in Asia-Pacific and continue the exchange of ideas and experiences across large scale assessments in the region.