

# Overview of capacity development modules

**COVID-19: Monitoring Impacts on Learning Outcomes (MILO)**

**22 March 2021**

The ACER Centre for Global Education Monitoring supports the monitoring of educational outcomes worldwide, holding the view that the systematic and strategic collection of data on education outcomes, and factors related to those outcomes, is required to inform high quality policy aimed at improving educational progress for all learners.



# Acknowledgments

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# Introduction

The COVID-19: Monitoring Impacts on Learning Outcomes (MILO) project aims to measure learning outcomes in six countries in Africa, in order to analyse the long-term impact of COVID-19 on learning and to evaluate the effectiveness of distance learning mechanisms utilised during school closures. In addition, this project will develop the capacity of countries to monitor learning after the crisis.

The four overarching goals of the project are to:

- Evaluate the impact of COVID-19 on learning outcomes and measure the learning loss by reporting against SDG indicator 4.1.1b
- Identify the impact of different distance learning mechanisms put in place to remediate the learning disruption generated by COVID-19
- Expand the UIS bank of items for primary education
- Generate a toolkit so that assessment results can be scaled to international benchmarks, reporting against SDG 4.1.1.b.

This document, the **overview of capacity development modules for COVID-19: Monitoring the Impacts of Learning Outcomes (MILO)** presents the proposed activities to increase large-scale learning assessment capacity in participating countries.

Capacity development is an integral part of the project implementation. This includes capacity building activities that form part of specific MILO tasks, as well as additional activities. The overall aim of the MILO capacity development is to leverage off the project implementation in order to build sustainable capacity of national teams in developing, implementing and using data from large-scale learning assessments for education system monitoring.

## Participating countries

The proposed capacity development modules aim to build upon the experience that the six participating countries' have in implementing large-scale assessments.

In each of the MILO participating countries an Assessment Unit (or equivalent), will be responsible for administering MILO, and this team will be the focus of capacity development activities. A suite of learnings modes will be offered to countries, which can include: self-guided learning through video-recorded presentations, readings and tasks, with live webinars and Q&A/discussion sessions.

The four Francophone countries participating in MILO (Burkina Faso, Burundi, Côte d'Ivoire and Senegal) also participate in the Programme for the Analysis of Education Systems (PASEC), which is implemented by the Conference of Ministers of Education of French-Speaking Countries (CONFEMEN). PASEC measures basic competencies in reading (in the language of instruction) and mathematics in early primary school and

the final year of basic education. PASEC is administered every five years. The first competency-based assessment was administered in 2014, which was then followed up in 2019.

An objective of PASEC is to develop each participating country's internal capacity to administer large-scale assessments, analyse the data and respond to the results by implementing reforms. PASEC is administered in schools by independently trained test administrators. The training of the test administrators is conducted in two stages. The first stage is for the national team, which includes a technical advisor reviewing all instruments (questionnaires and tests) with the national team. The second stage involves the national team training the test administrators.

Building on this capacity development experience, CONFEMEN will manage the administration of MILO with Burkina Faso, Burundi, Côte d'Ivoire and Senegal.

Further information about assessment administration and primary school national assessments of the six MILO participating countries is provided below.

#### *Burkina Faso*

Besides participating in PASEC, Burkina Faso has limited experience in large-scale assessments in basic education. However, their Education and Training Sector Program recognised the need for "reform of the assessment and certification system" (Burkina Faso Education, 2013, p. 68).

#### *Burundi*

In 2015, the Burundi education system was reformed, where compulsory education was extended to year 9, and the high stakes primary school leaving certificate (Certificat de Fin d'Études Primaires) was abolished (Republic of Burundi, 2018).

#### *Côte d'Ivoire*

At the end of basic education (grade 6), the Certificat d'études primaires élémentaires (CEPE) is administered in Côte d'Ivoire. It assesses all students in mathematics, text analysis, dictation, science, technology, history, geography, human rights and civics.

#### *Senegal*

Senegal has extensive experience participating in large-scale assessments. In addition to PASEC, every two years a sample of grade 4 students is assessed in mathematics, science and French, as part of National System School Performance Assessment (SNERS) (Ministère de l'Éducation, 2017). Furthermore, in Senegal there is an annual assessment of reading and mathematics in 1st, 2nd and 4th years as part of the Improvement of Quality and Equity in Basic Education (PAQEED) (Raudonyte, 2021).

Senegal also participates in two citizen-led assessments: Jàngandoo and the International Common Assessment of Numeracy (ICAN). Jàngandoo assesses a sample of students at Grade 3 level in reading, mathematics & general culture (LARTES, 2020).

ICAN also assesses students at grade 3 level, focusing on numeracy (PAL Network, 2020).

### *Kenya*

In Kenya, the MILO team will work with the Kenya National Examination Council (KNEC). The KNEC has experience administering large-scale assessments. These assessments are often integrated in the National Assessment System for Monitoring Learner Achievement (NASMLA). Through, NASMLA, various year levels have been assessed, including a 'Class 7' assessment undertaken in 2019 in the subjects of: English, Kiswahili, Mathematics and Science (National Assessment Centre, 2020).

Additionally, Kenya conducts the citizen-led assessment, Uwezo. Uwezo assesses literacy & numeracy at Grade 2 level, using a nationally representative sample (Uwezo, 2020). The survey is administered by volunteers who are trained using a 'cascade training' model. First, master trainers are trained by personnel from the Uwezo regional office, they then train the district coordinators, who in turn train the volunteers. There are two survey manuals, one for the master trainers and another one for the volunteers.

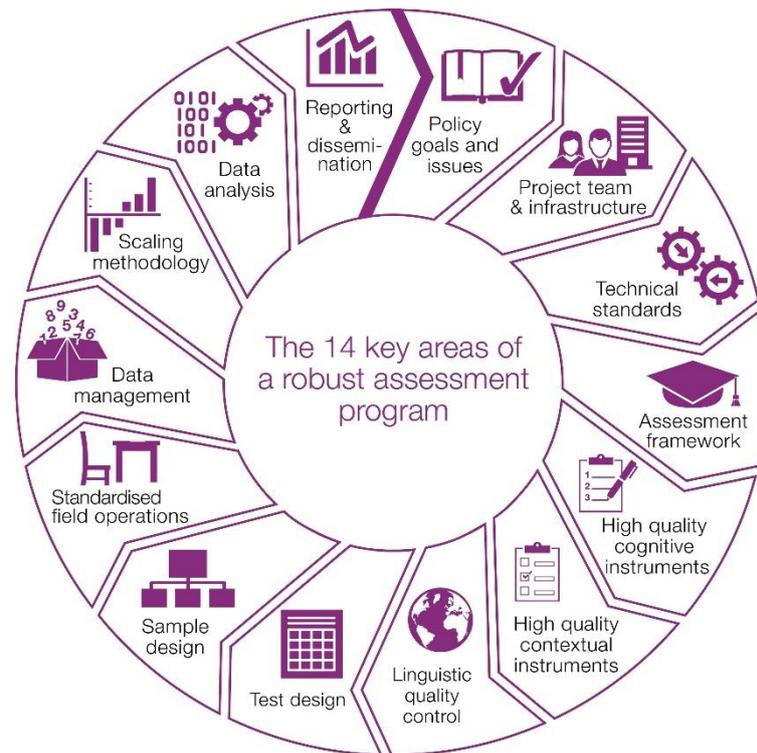
### *Zambia*

In Zambia, the MILO team will collaborate with The Examination Council of Zambia (ECZ). The ENZ administers the Grade 7 Composite Examination to all students at the end of primary school, in mathematics and reading (in English). Zambia has also implemented the National Assessment Survey (NAS) to grade 5 students on a 2 year cycle, which assessed English, Maths, life skills (UIS, 2015).

Both Zambia and Kenya participate in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), which is administered by KNEC and ENZ in Kenya and Zambia, respectively. SACMEQ assesses grade 6 students in reading & mathematics. One of the purposes of SACMEQ is to provide education officials and researchers with training in the technical skills required to monitor, evaluate, and compare the conditions of schooling and the quality of basic education. SACMEQ uses paper-based instruments, which are administered by trained data collectors, who generally are either retired teachers or employees of the ministries of education. MILO will build on the assessment skills Kenya and Zambia have developed through their participation in SACMEQ, as well as their other large-scale assessments described above.

## **MILO capacity development framework**

The capacity development that ACER will provide to participating countries is based on the Principles of Good Practice in Learning Assessment (ACER & UNESCO Institute for Statistics, 2017). Figure 1 shows the 14 key areas and lifecycle of a robust assessment program. The cycle flows from defining policy goals and education issues, to designing and implementing the assessment, through to analysis and reporting, which inform the initially defined policy goals, and identify new ones as the cycle re-commences.



**Figure 1: The 14 key areas of a robust assessment program (ACER & UIS, 2017)**

The 14 key areas of a robust assessment program align with the MILO capacity development activities. This is presented in Table 1, which shows how each key area links with activities aimed to develop partner countries capacity.

The focus of MILO capacity development is on skill development through working directly with ACER experts on key tasks, using professional tools and manuals, along with expert advice and discussion. Professional tools that countries will use include data management software. Developing the capacity to use such tools increases the quality of data that countries can collect in undertaking monitoring programs. Manuals will provide information and justification about the technical rigour of the assessment, such as relating to the technical standards of data collection and management. Throughout all stages of the assessment program lifecycle, ACER experts will be available for countries to consult with to gain specific advice and instruction.

In initial consultation with participating countries, they expressed a specific need for capacity building in: item development, psychometric methods, and data analysis. For this reason, a suite of seven modules have been outlined to build capacity across these areas, which are detailed in the following section. As with the ‘learning by doing activities’, these seven MILO capacity development modules align with the key areas of assessment, and are italicised in Table 1 to highlight where they link with each of the key areas of robust assessment programs.

**Table 1: Alignment of capacity development activities with key areas of assessment program**

<b>Key area</b>	<b>MILO Activity</b>
<b>Policy goals and issues</b>	Defined by UIS, and refined in consultation with MILO country partners and ACER.
<b>Project team and infrastructure</b>	Determined by each MILO participating organisation.
<b>Technical standards</b>	MILO participants learn through applying the MILO technical standards they are responsible for, with the assistance of technical manuals. Countries will document their own adherence to the standards with feedback provided by ACER.
<b>Assessment framework</b>	A core element of an assessment framework will be produced by ACER – an assessment blueprint – which breaks down the percentage of items needed across each of the learning domains. It will be shared with and explained to MILO participants.
<b>High quality cognitive instruments</b>	<i>Item development for the UIS Global Item Bank (Module Option 1)</i>
<b>High quality contextual instruments</b>	Developed by ACER, shared with and explained to MILO participants. A contextual framework is similarly developed, shared and explained.
<b>Linguistic quality control</b>	ACER guides MILO participants on making local adaptations with manuals and will be available for consultation.
<b>Test design</b>	<i>Psychometric methods: Introduction to Item Response Theory (Module Option 2) Setting the end of primary benchmarks for minimum proficiency levels in mathematics and reading (Module Option 4)</i>
<b>Sample design</b>	In consultation with MILO participants, ACER develops a sampling framework document. To achieve this, participants will complete technical forms with the assistance of the guidelines, thereby advancing their knowledge of sampling design.
<b>Standardised field operations</b>	ACER will guide MILO participants through field operations documents and will be available to consult.
<b>Data management</b>	MILO participants will undertake data management, with the assistance of the ACER data management manual. Additionally, a webinar series for all participating countries will be provided to cover training on the use of ACER's data management software – Maple.
<b>Scaling methodology</b>	<i>Psychometric methods: Using pairwise comparison method to place assessment items from different sources on a common scale (Module option 3)</i>
<b>Data analysis</b>	<i>Psychometric methods: Using common items to establish a psychometric link between two assessments (Module option 5) Using common persons to establish a link between two assessments (Module option 6) Modelling for differences in socioeconomic status of learners across time points (Module option 7)</i>
<b>Reporting and dissemination</b>	ACER will produce a final report and country summaries for UIS for dissemination. Countries will observe how analysis is communicated, thereby advancing their analytical reporting abilities, with particular regard to future SDG 4 reporting.

# MILO capacity development module options

The options for capacity development in MILO cover the following areas of a robust assessment program:

- High quality assessment items
- Scaling methods
- Data analysis.

These areas are focussed upon because they do not explicitly involve participating countries as actors in the core study design.

The MILO assessment items are drawn from the UIS Global Item Bank. The items are reviewed by test development experts at ACER and selected based on quality, item type (auto-scorable) and coverage of the construct as specified in the MILO assessment blueprint. The items have been evaluated according to a set of technical criteria, including their adherence to principles of good test development, absence of any culturally sensitive content, and translatability between English and French. Module option 1 addresses item development with a particular focus on preparing assessment items for inclusion in the UIS Global Item Bank.

With regard to scaling methods, ACER will undertake the core psychometric tasks in the MILO study due to the tight timeframes imposed. Therefore capacity development module options 2, 3, 4, 5 and 6 are offered to participating countries as a way of building capacity for future assessment activities. These modules cover an introduction to Item Response Theory, Pairwise Comparison scaling method, Standard setting (as applied to SDG 4.1.1b), common item scaling to establish the link between historic data (PASEC or national assessments) and the 2021 implementation of PASEC/national assessments, and common person scaling to link the 2021 implementation of PASEC/national assessments to the MILO assessments.

Data analysis will be the topic of module option 7. In particular, this module will address modelling to control for differences in the target learner populations over time for comparison. Specifically, differences in socio-economic status between the populations will be the focus of this module.

Seven modules are proposed for consideration and prioritising. In consultation with participating countries, the UIS will eventually select two (or more, depending on budget) of these modules to make available to all participating countries.

## Module option I: High quality assessment items

<b>Module option I High quality assessment items: Item development for the UIS global Item Bank</b>	
<b>Aim</b>	Item writing is an essential skill for developing and conducting assessments. In this workshop participants will develop their item writing skills. Participants will receive instruction in item writing, including the importance of adhering to frameworks, considering the role of different item formats, and issues of equity and transparency. Participants will review existing material and write new items under the supervision of ACER’s test development experts. The guidelines for preparing items for inclusion in the Global Item Bank will be explained and followed. Following the workshop, participants will receive an item writing task, to support skill consolidation.
<b>Target audience</b>	Assessment Team/Item writers
<b>Lead</b>	Stavroula Zoumboulis & Dara Ramalingam
<b>Level</b>	Basic. This workshop addresses members of the assessment team, in particular the test development team. Preferably participants are experienced in the relevant domains of reading and mathematics.
<b>Mode</b>	The workshop is planned as a sequence of instruction, followed by practical application. In total there will be 12 hours of contact time.
<b>Topics</b>	<p>Topics and activities include:</p> <ul style="list-style-type: none"> <li>• The importance of assessment frameworks;</li> <li>• Principles of good item development;</li> <li>• The role of different item formats;</li> <li>• Scoring guidelines for constructed-response items;</li> <li>• Basic considerations for linguistic quality control when translating and adapting items into multiple languages;</li> <li>• Item review procedures, such as item panelling and cognitive laboratories;</li> <li>• Review existing items and stimulus material (provided in English by participants), and write new items together with ACER’s test development experts;</li> <li>• Preparing items for inclusion in the Global Item Bank: formatting and metadata.</li> </ul> <p>As basis for the workshop, participants would provide English versions of stimulus material and items from their assessments they wish to critique. ACER would also provide stimulus material for the workshop.</p>
<b>Follow-up activities</b>	Based on the workshop, participants could develop a number of items. These items could then be shared, and undergo a panelling process, involving participating centres and ACER (the items would need to be in English). The panel could be held using video- or phone conferencing. Based on the feedback from the panelling process, participants would finalise the items. In a last step, ACER test development experts could conduct a summative review of these items, and provide written feedback.

## Module option 2: Psychometric methods – Educational Measurement

Module option 2 Psychometric methods: Introduction to Educational Measurement	
<b>Aim</b>	<p>Participants will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the key measurement concepts of reliability, validity and measurement error, including the relationships between these, under Classical Test Theory and Item Response Theory paradigms;</li> <li>• Analyse item and test level data from standardised assessments using ACER ConQuest with an emphasis on applying the Rasch model and its extensions to generate information that can be used to improve the quality of measures;</li> <li>• Describe and interpret Differential Item Functioning (DIF) analyses and test equating using the Rasch model; and,</li> <li>• (Option module component) Create reproducible analysis reports and visualisations using the ConQuestR package in R to automate and communicate results from a psychometric analysis.</li> </ul>
<b>Target audience</b>	Assessment developers who want to gain a basic understanding of the quantitative aspects of educational measurement.
<b>Lead</b>	Dan Cloney and David Jeffries
<b>Level</b>	Introductory. This course is appropriate for education professionals, researchers and analysts working across sectors including schools, vocational education and training and higher education; who wish to gain an understanding of educational measurement or pursue a specialisation in educational measurement. This course does not assume participants have extensive knowledge of the foundations of assessment or basic working knowledge of statistics. However, the course will bring the greatest benefits to those with previous experience in designing assessments or working with educational assessment data.
<b>Mode</b>	This module is provided online using the Moodle platform. All content and activities are self-contained and delivered using the micro-credential model: focusing on short, flexible, skill-specific units. This module has 4 units (plus one optional unit on reproducible IRT research) and each unit is designed to take 5 hours to complete including learning time (self-paced lectures, activities, and reading), group discussion (forum and videoconference), and a skill-based assessment.
<b>Topics</b>	<ul style="list-style-type: none"> <li>• Foundations of Educational Measurement <ul style="list-style-type: none"> <li>– Objective measurement</li> <li>– Discuss approaches for interpreting student achievement, including developmental continua and learning progressions</li> <li>– Reliability, validity and measurement error</li> </ul> </li> <li>• Classical Test Theory and Item Response Theory <ul style="list-style-type: none"> <li>– Compare and contrast Classical Test Theory (CTT) and Item Response Theory (introductory)</li> <li>– Analyse Item Characteristic Curves</li> <li>– Classify the quality of tests items by analysing item analysis output</li> </ul> </li> <li>• Item and test analysis using ACER ConQuest <ul style="list-style-type: none"> <li>– Applied analysis of item and test level data with an emphasis on applying the Rasch model and its extensions to generate information that can be used to improve the quality of measures.</li> </ul> </li> </ul>

<b>Module option 2 Psychometric methods: Introduction to Educational Measurement</b>	
	<ul style="list-style-type: none"> <li>• Application of item and test analysis               <ul style="list-style-type: none"> <li>– Introduction to differential Item Functioning (DIF)</li> <li>– Introduction to test equating</li> </ul> </li> <li>• (Optional unit) Application of reproducible methods to generate automated psychometric analysis               <ul style="list-style-type: none"> <li>– Produce an automated and reproducible psychometric analysis and reporting workflow for quality assuring multiple-choice assessments.</li> </ul> </li> </ul>
<b>Follow-up activities</b>	<p>Workshop participants are encouraged to apply their new skills to analyse item- and test-level data from assessments conducted in their local context using ACER ConQuest. Participants can also bring along their data and questions to the interactive discussions held during the module.</p> <p>ACER ConQuest is professional item response and latent regression modelling software and is used to analyse assessment data from large scale studies, including national and international assessment programs. The provided licence to ACER ConQuest is appropriate for ongoing use by participants at scale and support is provided through ACER’s in house expert team.</p>

### Module option 3: Psychometric methods – Pairwise comparison method

<b>Module option 3 Psychometric methods: Using pairwise comparison method to place assessment items from different sources on a common scale</b>	
<b>Aim</b>	<p>Pairwise comparison involves training participants to make a judgement about which item in a pair is more difficult. Pairwise comparison offers a way to place assessment items from different sources on a common scale without the need for student data. .</p> <p>The aim of this activity is for participants to understand how to prepare for and conduct a pairwise comparison exercise. Note that this is <u>not</u> a formal pairwise comparison exercise.</p>
<b>Target audience</b>	Assessment Team
<b>Lead</b>	Goran Lazendic, Stavroula Zoumboulis and Dara Ramalingam
<b>Level</b>	Basic. Participants should be familiar with assessment items in reading and/or mathematics in relation to the primary school curriculum.
<b>Mode</b>	Workshops involving about 12 hours of contact time.
<b>Topics</b>	<ul style="list-style-type: none"> <li>• Mathematics learning area in SDG 4.1.1</li> <li>• Reading learning area in SDG 4.1.1</li> <li>• Determining if assessment items are aligned to SDG 4.1.1</li> <li>• Selecting items for a pairwise comparison</li> <li>• The pairwise comparison method</li> </ul>
<b>Follow-up activities</b>	Not applicable for this workshop.

## Module option 4: Psychometric methods – Standard setting

<b>Module option 4 Psychometric methods: Setting the end of primary benchmarks for minimum proficiency levels in mathematics and reading</b>	
<b>Aim</b>	<p>A goal of the MILO study is to report the proportion of the population within each MILO participant's target grade that meet the minimum proficiency levels in mathematics and reading as expressed through SDG 4.1.1(b) (end of primary school). To do this the minimum proficiency levels must be set as benchmark standards on the MILO reporting scale. These benchmarks will also be set on the reporting scales applied to the PASEC and national assessments.</p> <p>After undertaking this module, participants will understand the process of standard setting using the bookmark method. They will understand the importance of framework/construct alignment as a pre-requisite. They will understand the preparations and resources needed to conduct a standard setting exercise.</p>
<b>Target audience</b>	Psychometrics/data analysis team
<b>Lead</b>	Goran Lazendic
<b>Level</b>	Intermediate. Participants should be familiar with assessment items in reading and/or mathematics in relation to the primary school curriculum.
<b>Mode</b>	6 hours face to face workshop 6 hours homework
<b>Content</b>	<ul style="list-style-type: none"> <li>• Methods for putting items on a single scale</li> <li>• The mathematics learning area in SDG 4.1.1 framework and minimum proficiency level at the end of primary school</li> <li>• The reading learning area in SDG 4.1.1 framework and minimum proficiency level at the end of primary school</li> <li>• The bookmark method</li> <li>• Using the benchmarks to estimate the proportion of the population at or above the minimum proficiency levels in reading and mathematics</li> </ul>
<b>Follow-up activities</b>	Not applicable for this workshop.

## Module option 5: Psychometric methods – Common item linking

Module option 5 Psychometric methods: Using common items to establish a psychometric link between two assessments	
<b>Aim</b>	<p>Common item linking will be used in MILO to establish the link between the PASEC/national assessment historic data and the 2021 implementation of PASEC/national assessment.</p> <p>Participants will understand how the procedures of common item linking are implemented when working with real datasets.</p> <p>Context: Students' scores from different instruments assessing the same construct are not directly comparable but must be equated. There are two IRT-based methods of equating; common item and common person equating. Common item equating involves the use of a set of common items referred to as link items. Common person equating involves the administration of two tests to a common group of persons.</p> <p>This workshop presents an overview of <i>common items</i> linking and equating procedures with various illustrative examples.</p>
<b>Target audience</b>	Psychometrics/data analysis team
<b>Lead</b>	Alla Berezner
<b>Level</b>	<b>Advanced.</b> Participants should have experience in applying methods from Item Response Theory. Module option 2 on Educational Measurement will not be a sufficient pre-requisite.
<b>Mode</b>	Approximately 12 hours with a mixture of video presentation and homework.
<b>Topics</b>	<ul style="list-style-type: none"> <li>• Types of calibration methods and choosing an appropriate one considering the assessment context and data</li> <li>• Assessing quality of the link items</li> <li>• Anchoring items</li> <li>• Linking error</li> <li>• Reporting scale scores.</li> </ul>
<b>Follow-up activities</b>	Based on the workshop participants could apply a common item method of equating to their national assessment datasets. The results could then be shared with ACER, and undergo a review process, involving participating centres and ACER. The review process could be held using video- or phone conferencing. Based on the feedback from the review process, participants would finalise the scale score transformation for reporting purposes. These activities would essentially duplicate the process that ACER is undertaking for MILO.

## Module option 6: Psychometric methods – Common person linking

Module Option 6 Psychometric methods: Using common persons to establish a link between two assessments	
<b>Aim</b>	<p>Common person linking will be used in MILO to link the 2021 implementation of PASEC and national assessments to the MILO assessments.</p> <p>In this workshop participants will gain an understanding of the procedures of common person linking with real datasets.</p> <p>Context: Students' scores from different instruments assessing the same construct are not directly comparable, but must be equated. There are two IRT-based methods of equating; common item and common person equating. Common item equating involves the use of a set of common items referred to as link items. Common person equating involves the administration of two tests to a common group of persons.</p> <p>This workshop presents an overview of <i>common person</i> equating procedures with various illustrative examples.</p>
<b>Target audience</b>	Psychometrics/data analysis team
<b>Lead</b>	Alla Berezner
<b>Level</b>	<b>Advanced.</b> Participants should have experience in applying methods from Item Response Theory. Module option 2 on Educational Measurement will not be a sufficient pre-requisite
<b>Mode</b>	Approximately 12 hours with a mixture of video presentation and homework activities.
<b>Topics</b>	<ul style="list-style-type: none"> <li>• Types of calibration methods and choosing an appropriate one considering the Assessment context and data</li> <li>• Examining dimensionality</li> <li>• Reporting scale scores</li> </ul>
<b>Follow-up activities</b>	Based on the workshop participants could apply a common item method of equating to their national assessment and MILO datasets. The results could then be shared with ACER, and undergo a review process, involving participating centres and ACER. The review process could be held using video- or phone conferencing. Based on the feedback from the review process, participants would finalise the scale score transformation for reporting purposes. These activities would essentially duplicate the process that ACER is undertaking for MILO.

## Module option 7: Data analysis – Differences in Socioeconomic status

<b>Module Option 7 Data analysis: Modelling for differences in socioeconomic status of learners across time points</b>	
<b>Aim</b>	In this workshop participants will learn how to control for the influence of SES on achievement results at a static point in time, and how to incorporate changes in SES of a population over time into multivariate models.  Context: The measurement of socioeconomic status (SES) of students participating in large-scale educational surveys is important given it's well-reported association with learning outcomes. Students from more well-resourced families tend to have greater learning outcomes. It is important that this is adequately accounted for in analyses as often the relationship between contextual variables and achievement becomes minimized once SES is controlled for.
<b>Target audience</b>	Data analysis team
<b>Lead</b>	Tim Friedman
<b>Level</b>	Intermediate. Participants should have experience in multivariate analysis.
<b>Mode: 12 hours contact time</b>	<ul style="list-style-type: none"> <li>• Socioeconomic status: theory</li> <li>• Measuring socioeconomic status</li> <li>• Describing SES of a population</li> <li>• Controlling for SES in multivariate analyses at a static point</li> <li>• Controlling for SES in multivariate analyses over time</li> <li>• Case study: population differences over time and modelling learning outcomes to account for these differences, using data from international/regional large-scale assessment (e.g. PASEC)</li> </ul>
<b>Follow-up activities</b>	Based on the workshop participants should understand the concept of socioeconomic status, how it can be measured in large-scale educational assessments, and how it can be used in the analysis of data for such assessments at a single point in time, and over time. Follow-up activities would include participants applying the techniques learnt in the workshop to relevant national, regional or international datasets.

## Delivery mode

The capacity development modules will be delivered using an online communication platform. ACER has experience with multiple platforms for delivering high quality courses and capacity building, including: Moodle, Big Blue Button, MS Teams and Zoom. The most appropriate platform will be chosen depending on the technological capacity of countries and the selected modules, as different content lends itself better to specific media. Hence, technological detail will be determined in consultation with UIS and country partners.

Each platform has strengths and weaknesses. Moodle for example, allows for module content to be presented to participants through a range of modes within a contained and comprehensive platform. Pre-recorded video presentations, written content, and

readings can be embedded into the system to mitigate issues with time zone differences or internet connectivity issues. The system allows for module content to be downloaded by participants and tasks can be completed within the online system, or participants can upload their output back into the Moodle environment once complete. The system also has discussion forum functionality in which participants can converse, ask questions, and enter content, and facilitators can respond and provide feedback. Asynchronous content can be supplemented by live webinars through the Big Blue Button – the embedded video webinar tool within the system. However, using Moodle requires greater know how from users. Furthermore, similar results can be achieved by using a combination of programs that users are already likely to be familiar with, such as MS Teams and Zoom.

All capacity building and related material is scoped to be in English. French materials or live translations may be considered at additional cost.

## **Process for consultation with UIS**

Using the overview of capacity development modules provided in this document, ACER will consult with the UIS in determining the selected MILO capacity development modules. This consultation will take place via the weekly meetings between ACER and UIS. If more detailed discussion is required, specific meetings will be scheduled, for example with ACER capacity development experts.

An objective of the consultation process is to refine the selected capacity development options so that these are of most benefit for participating countries. All participating countries have some experience administering large-scale assessments, however, there is variability amongst the experience and capacity between countries. This variability needs to be identified so that selected modules can be designed with greatest impact. Identifying the appropriate modules and the level to pitch those modules at can be achieved by a brief 'capacity needs questionnaire' to be completed by a representative of each country's assessment unit (or equivalent body). The survey would inquire where the greatest need and desire is for skill development. The questionnaire would cover the degree of experience and skills available in each country in the options described in this overview. The development of this questionnaire is contingent upon further consultation with the UIS.

Another possibility for selecting the final capacity development modules is to provide countries with an outline of the optional modules above and ask them to rank order their preferences. ACER could then develop the top three ranked modules and two of these could be chosen by vote or by UIS executive decision.

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