# Technical Standards

## Assessment of Minimum Proficiency Level (AMPLab)
## February 2023

The Global Education Monitoring (GEM) Centre drives improvements in learning by supporting the monitoring of educational outcomes worldwide. The GEM Centre is a long-term partnership between the Australian Council for Educational Research (ACER) and the Australian Government's Department of Foreign Affairs and Trade (DFAT).

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# Acknowledgments

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The Australian Council for Educational Research (ACER) is the technical partner for this project. Support is provided from ACER's Global Education Monitoring Centre (GEM Centre), an ACER initiative in partnership with the Australian government's Department of Foreign Affairs and Trade.

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# Background

As part of Sustainable Development Goal (SDG) 4, Indicator 4.1.1 aims to measure the "proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex." To meet this goal, UIS has coordinated efforts to establish common reading and mathematics scales for all three points of Indicator 4.1.1, building on existing cross-national and national assessments. As a result of these efforts, two important points of consensus have been reached: the definition of the Minimum Proficiency Level (MPL) and the Global Proficiency Framework (GPF).

The overarching objective of the AMPLab project is to measure and analyze the performance of students at the end of lower and upper primary using an assessment that aligns with the GPF. This will:

- enable the collection of more informative data about where students are performing in terms of the MPLs at the end of lower and upper primary in reading and mathematics,
- produce baseline measures to set targets and compare learning gains/losses over time
- facilitate reporting on SDG 4.1.1
- aid the tracking of learning progress over time
- complement tools that had been already developed in 2021 in the Monitoring the Impacts on Learning Outcomes (MILO) study.

# Acronyms

| | |
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| **ACER** | Australian Council for Educational Research |
| **AMPL / AMPLab** | Assessment of Minimum Proficiency Level |
| **DIF** | Differential Item Functioning |
| **DM** | Data Manager |
| **DMM** | Data Management Manual |
| **DTP** | Defined Target Population |
| **NC** | National Centre |
| **NPM** | National Project Manager |
| **NTP** | National Target Population |
| **SDGs** | Sustainable Development Goals |
| **STF** | Student Tracking Form |
| **PPS** | Probability Proportional to Size |
| **QM** | Quality Monitor |
| **SC** | School Coordinator |
| **STF** | Student Tracking From |
| **TA** | Test Administrator |
| **UIS** | UNESCO Institute for Statistics |

# Purpose

1. The purpose of this document is to specify the set of standards to guide the data collection and data management activities related to assessing the performance of students at the end of lower and upper primary using an assessment that aligns with GPF Level 2. These standards will enable the creation of a high-quality dataset that allows valid inferences to be made.

2. The Assessment of Minimum Proficiency Level (AMPLab) project is a collaborative effort involving numerous stakeholders. It is managed by the UNESCO Institute for Statistics (UIS). The Australian Council for Educational Research (ACER) as a technical partner implements the technical aspects of the project on behalf of the UIS.

3. AMPLab will gather student learning and contextual data through administering pencil and paper test booklets and questionnaires to students at the end of lower primary school (AMPL-A) or at the end of upper primary school (AMPL-B or AMPL-A+B) in two domains:

   - Reading (AMPL-A and AMPL-A+B Reading includes an Aural Comprehension assessment)
   - Mathematics

4. The technical standards can also be adapted and used to guide future data collection cycles.

5. The standards for data collection and submission are developed with three major and inter-related goals in mind: consistency, precision and generalisability of the data. Furthermore, the standards serve to ensure a timely progression of the project in general.

   a) Consistency: Data should be collected in an equivalent fashion in all schools, using equivalent test materials. Given consistent data collection (and sufficiently high sample sizes and response rates), test results are comparable across sub-populations. The test results of different sub-populations will reflect differences in the performance of the students measured and will not be caused by factors which are unrelated to performance.

   b) Precision: Data collection and submission practices should leave as little room as possible for spurious variation or error. This holds for both systematic and random error sources, e.g., when the testing environment differs from one group of students to another, or when coding procedures leave room for interpretation. An increase in precision relates directly to the quality of results one can expect: The more precise the data, the more powerful the (statistical) analyses, and the more trustworthy the results to be obtained.

c) Generalisability: Data are collected from specific individuals, in a specific situation, and at a certain point in time. Individuals to be tested, test materials and tasks etc. should be selected in a way that will ensure that the conclusions reached from a given set of data do not simply reflect the setting in which the data were collected, but hold for a variety of settings and are valid in the target population at large. Thus, collecting data from a representative sample of the population, for example, will lead to results that accurately reflect the levels of numeracy and literacy of students at the end of lower primary school education (SDG 4.1.1.a Minimum Proficiency Levels in reading and mathematics) and at the end of upper primary school education (SDG 4.1.1.b Minimum Proficiency Levels in reading and mathematics) in the defined target population.

d) Timeliness: The complexity of the tasks of this study makes it necessary for UIS, ACER and participating countries to adhere to pre-determined timelines and facilitate timely turnaround of communications and tasks. Therefore, general standards relating to timelines and communication will be included. Task specific timelines will be incorporated where it is practical to do so.

6. There are two types of standards in this document; each with a specific purpose:

- Data quality standards refer to aspects of study implementation that directly concern the quality of the data or the assurance of that quality.
- Project management standards are in place to ensure that all assessment operational objectives are met in a timely and coordinated manner.

# Data Quality Standards

## Target population and sampling

### Rationale

The following population definition and sampling standards aim to achieve a level of precision in line with the best practices from established large scale assessment surveys[1].

Meeting the standards specified in this section will ensure that the assessed students come from the same target population. To be able to draw conclusions that are valid for the entire population, a representative sample shall be selected for participation in the assessment for students at the end of primary education. The representative sample should be large enough to achieve a desired precision of measurement. For this reason, minimum numbers of participating students and schools are specified.

### Standard 1.1

The UIS, ACER and the participating countries will work together to identify the populations to which inferences will be made. These populations are referred to as the Desired Target Populations.

The first target population is all students enrolled in the grade that corresponds to the end of the lower primary, where the language of instruction corresponds to the language of assessment.

The second target population for the study is all students enrolled in the grade that corresponds to the final grade of primary school, in schools where the language of instruction corresponds to the language of assessment.

By agreement, countries may use a grade other than the end of lower primary stage or the end of primary stage where that is the grade that a country references to report against SDG indicator 4.1.1(a) or 4.1.1(b) respectively.

All students enrolled in these grades in schools where the language of instruction corresponds to the language of assessment, belong to the National Target Population (NTP). In simple terms, the NTP is intended to provide full coverage of all eligible students in the education systems of participating countries. Any deviation from the full national coverage must be described and quantified in advance.

### Standard 1.2

The Defined Target Population (DTP) covers 95% or more of the NTP. The UIS, ACER and the National Centres (NCs) will work together to identify schools and students that are impractical to assess. These exclusions are referred to as school-level exclusions and

[1] Such as the Trends in International Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA).

within-school exclusions. The total of the combined school-level exclusions and student level exclusions will be no greater than 5% of the NTP.

## Standard 1.3

Only students within the DTP participate in the assessment.

## Standard 1.4

The school sample will be drawn using established and professionally recognised principles of scientific sampling.

The sampling design for the assessment is a two-stage stratified sample design. The first-stage sampling units consist of individual schools having students in the grade(s) corresponding to the end of the lower primary and/or the final year of primary school. Schools are sampled systematically from a school sampling frame, with probabilities that are proportional to a measure of size. The measure of size is a function of the estimated number of assessment-eligible students enrolled in the school for the corresponding grade. This is referred to as systematic Probability Proportional to Size (PPS) sampling. Sampling procedures are based on these principles.

## Standard 1.5

The second-stage sampling units consist of selecting one intact class of students from the schools selected in the first-stage sampling. By agreement, a maximum number of students within an intact class can be designated and sub-sampled.

The ACER Maple data management and within-school sampling software must be used to scientifically draw a random class of students from lists in each sampled school.

## Standard 1.6

ACER will work with the key stakeholders to set the sample size to achieve a level of precision in the sample estimates for each country equivalent to a 95% confidence interval of 5 percentage points for estimates of percentages, or 0.1 of the population standard deviation in student achievement for estimates of mean scores.

## Standard 1.7

The school sample size needs to result in a minimum of 150 participating schools. For each sampled school, two substitute schools will be selected where possible, using a systematic method, to ensure a proper level of school response as indicated in Standard 1.9.

Note that to achieve Standard 1.6, there may need to be more than 150 schools selected.

## Standard 1.8

Unless otherwise agreed, the student sample size is a minimum of 4,000 assessed students. The main consideration in determining the total number of students is meeting the precision levels established in Standard 1.6.

## Standard 1.9

The school response rate must be at least 85% of sampled schools. If the response rate from sampled schools does not reach this level, then substitute schools may be used to reach an acceptable response rate.

## Standard 1.10

The student response rate is at least 80% of all sampled students across responding schools. This response rate includes students from substitute schools.

## Standard 1.11

Absent sampled students cannot be substituted with non-sampled students.

## Standard 1.12

Sample weights will be calculated to reflect the contribution of each participating student to the survey estimates, taking into account the sample design and adjustments for non-response.

Note 1.1 A student is regarded as a participant if they have responded to 10% or more of the assessment items

Note 1.2 Data from schools where the student response rate is greater than 25% will be included in the dataset. However, in calculation of school response rates, only schools with more than 50% of participating students will be included.

Note 1.3 School level exclusions are schools which may be excluded from the sampling frame because:
- of geographical inaccessibility
- of extremely small size (<5 eligible students)
- all students within the school would be within-school exclusions
- of other agreed reasons

Note 1.4 Student level exclusions are exclusions of particular students from the assessment because of one of the following:
- the student has a functional disability – that is, physical disabilities such that they cannot perform in the assessment situation.
- the student has an intellectual disability – that is, students who, in the professional opinion of the school principal or other qualified staff, are emotionally or mentally unable to follow the general instructions of the assessment.
- the student has insufficient language experience – that is, students who are unable to read or speak the language(s) of the assessment and would not be able to overcome the language barrier. Such students meet all of the following criteria:
* they are not native speakers of the assessment language
* they have limited proficiency in the assessment language
* they have less than one year of instruction in the assessment language

# Language of testing

## Rationale

Learning outcomes are most accurately reported for those students for which the test is administered in a familiar language. In instances where students have limited knowledge of the testing language, the test may underestimate their ability. It is therefore optimum that the test is administered in the language of instruction.

## Standard 2.1

Test audio, test booklets and questionnaires will be administered in either English or French. The NC will determine which is the appropriate language of assessment for their respective education systems.

## Standard 2.2

Audio files in English and French produced using voice actors in standard British English and standard metropolitan French respectively will be provided to NCs for the listening comprehension assessment. To ensure that accent is not a barrier to comprehension, NCs have the option to re-record this script using the local accent.

# Test development

## Rationale

Instruments should reflect the requirements outlined in the AMPLab Assessment Blueprint and Contextual Framework. The instrument should provide data that can be analysed to address the research questions of the AMPLab assessment. The tests should provide fair and accurate measures of students' achievement on the domain which is defined by the blueprint and they should adhere to the test specifications. The questionnaires should address issues which are specified in the research questions of the AMPLab assessment to maximise reliability and validity of the measures and to minimise the burden on respondents.

## Standard 3.1

An assessment blueprint and a contextual framework will be developed detailing the specifications for the test audio, test booklets and questionnaires. These documents will describe the content of the instruments, the way that they will cover the different constructs of the domain, types of items, the timing and the conditions under which the instrument is administered.

## Standard 3.2

The test audio and booklets meet the domain definitions and test specifications. All aspects of the test are clear and accurate including the stimulus, items and instructions.

The items are appropriate to the purpose of the test, the population and the test specifications.

### Standard 3.3

The procedures used to develop the test audio and booklets are clearly documented, including detailing the quality assurance processes that are used.

## Adaptation, translation and linguistic verification of material

### Rationale

In order to ensure that measures derived from assessment instruments are comparable within the country it is necessary to use a set of standardised items. Efforts should be made to ensure that each adapted item, booklet and audio element are relevant to the target population and equivalent to the source version. Specific terms within AMPLab contextual questionnaires need to be adapted in such a way to ensure their comparability. A lack of adaptations or inappropriate adaptations can jeopardise the comparability of data.

Similarly, it is essential that equivalent information is provided to all students participating in the assessment. Any instructions given to the students, as well as the procedures used throughout the test administration need to be equivalent. To achieve this goal, all individuals who play a key role in the data collection process, i.e., the Test Administrators (TAs) and School Coordinators (SCs), should receive and deliver a set of standardised instructions.

### Standard 4.1

Both English and French versions of AMPLab student test audio, test booklets and contextual questionnaires are conceptually equivalent. Agreed upon AMPLab questionnaire adaptations to the language-specific context are made if needed.

### Standard 4.2

The following documents are translated into the French language in order to be linguistically equivalent to the English source versions.

- test booklets
- test audio
- contextual questionnaires (student, school and system level questionnaires)
- The TA script from the TA manual.

### Standard 4.3

The English source version of AMPLab audio, booklets and contextual questionnaires translated into French will be independently verified prior to implementation to ensure that generic and item-specific translation guidelines have been followed.

### Standard 4.4

Localisation of the listening comprehension audio script must be equivalent to the English or French source version in the following aspects:

- Script content
- Tone, animation, clarity, and speed of delivery
- Length of time of the recording, including pauses for students to answer questions
- Sound quality

Further specification will be outlined in the Instrument Construction Guidelines.

### Standard 4.5

All localised listening comprehension audio will be verified by ACER prior to implementation to ensure its equivalence with the source version as described in Standard 4.4.

## Duplication of materials (print and audio)

### Rationale - Print

Variations in print quality may affect data quality. When the quality of paper and print is poor, the performance of students may be influenced not only by their levels of proficiency, but also by the degree to which test booklets and contextual questionnaires are legible. To rule out this potential source of error, and to increase the consistency and precision of the data collection, paper and print quality samples are required from the NC.

### Standard 5.1

All student test booklets and the contextual questionnaires are printed using high quality paper and print quality. They will be printed on 80gsm (grams per square metre) paper.

### Standard 5.2

The cover page of the test booklets and contextual questionnaires used in schools contains all information as specified by ACER and outlined in the NPM manual.

### Standard 5.3

The format, pagination and layout of both English and French language versions of the test booklets are equivalent.

### Standard 5.4

The format, pagination and layout of both English and French language versions of the contextual questionnaires are equivalent.

### Rationale – Audio

Variations in audio quality may affect data quality. When the sound quality is poor, the performance of students may be influenced not only by their levels of proficiency, but also by the degree to which the listening comprehension script is audible. To rule out this potential source of error, and to increase the consistency and precision of the data collection, the NC is required to provide any localised version of the listening comprehension audio to ACER.

### Standard 5.5

Audio files for the listening comprehension assessment should be in 192 bps MP3 format.

### Standard 5.6

Speakers used for playing audio during administration of the test should adhere to minimum specifications as outlined in the Instrument Construction Guidelines.

### Standard 5.6

All files should be accessed either directly from the location provided by ACER or downloaded from that location and accessed on a device provided to the TA. To ensure no loss of sound quality, the audio file should not be transferred using any other method. Further specifications will be outlined in the Instrument Construction Guidelines.

## Test administration

#### Rationale

Certain variations in assessment procedures are likely to affect test performance, such as the session timing, the administration of test materials and instructions given prior to and during testing, and rules for excluding students from the assessment. A full list of relevant assessment conditions is given in the assessment operational manuals.

The TA plays a central role in the assessment procedures. Special consideration is therefore given to the training of the TAs, ensuring that as little variation in the data as possible is caused by random or systematic variation in the activities of TAs.

The AMPLab assessment covers a wide range of content areas. Given the time constraints, the test booklets include clusters of test items on a rotated basis, and test booklets are allocated to students in a statistically random fashion. Student Tracking Forms (STFs) will be used to ensure the correct allocation of AMPLab test booklets to students by TAs.

## Standard 6.1

All AMPLab assessment sessions follow the procedures as specified in the TA manual, particularly the procedures that relate to:

- Test session timing (countries participating in the AMPL-A or the AMPL-A+B study designs are recommended to administer the study over two days).
- Student tracking:
    - a STF is prepared for each sampled school
    - test booklets are distributed to students according to the order specified in the STF
- Maintaining the AMPLab assessment conditions.

## Standard 6.2

TAs are trained in the field operations procedures outlined in the TA manual. TAs receive a copy of the TA manual prior to the AMPLab assessment session.

## Standard 6.3

TAs read out the standard TA script prior to the students sitting the AMPLab assessment session.

## Standard 6.4

TAs administering the listening comprehension assessment (AMPL-A and AMPL-A+B) play the listening comprehension audio to students in a space and using devices that ensure all students can hear the audio clearly.

## Standard 6.5

The relationship between TAs and participating students must not compromise the credibility of the AMPLab assessment session. The TA will be independent from the students and the school staff, which means he or she should **not** be:

- An instructor of any student in the AMPLab assessment session he or she will administer
- A member of staff in the school in which he or she will administer the AMPLab assessment
- A relative of any of the staff in the school in which they administer the AMPLab assessment

- A parent or close relative of any of the participating students in the AMPLab assessment.

# Security of material

## Rationale

The goal of the assessment is to improve the quality of education through measuring students' learning outcomes and understanding the contextual factors associated with learning outcomes. Prior familiarisation with the assessment materials, or training of students to the assessment, may affect the validity and comparability of the data, and changes in learning outcomes. Therefore, confidentiality of the assessment materials is essential.

## Standard 7.1

The AMPLab assessment materials designated as secure are kept confidential at all times. Secure materials include all test materials, data and draft materials. In particular:

- Only approved project staff and participating students during the test session are able to access and view the test booklets.
- Only approved project staff and participating students during the test session are able to listen to the test audio.
- Only approved project staff have access to secure data and embargoed materials.

## Standard 7.2

Formal confidentiality arrangements are in place for all approved AMPLab project staff.

# Quality monitoring

## Rationale

To obtain valid results from the assessment, the data have to be collected in a consistent, reliable and valid fashion. Independent Quality Monitors (QMs - observers) are responsible for assessing the implementation of activities that align with this goal during the test administration.

## Standard 8.1

The AMPLab test administration is monitored using school visits by trained independent QMs.

## Standard 8.2

At least 5% school visits are conducted in each participating country to observe AMPLab test administration sessions. A range of different types of schools will be included in the sample for monitoring.

### Standard 8.3

AMPLab Test administration sessions that are the subject of the national QM visit are randomly selected.

### Standard 8.4

QMs will be familiar with the test implementation procedures of the AMPLab assessment, complete the quality monitoring checklist and observation form, and be familiar with the education system of that country. Also, QMs must not have a personal interest in the results of the school or be personally affiliated with the observed school.

## Data management

### Rationale

To obtain valid results from the assessment, the data collected must be of a high quality, using consistent, reliable, and valid approaches. Consolidating and merging national databases is a time-consuming and difficult task. To ensure the timely and efficient progress of the project, ACER needs continuous access to national staff helping to rule out uncertainties and to resolve discrepancies. This standard aims to prevent substantial delays to the whole project which could result from a delay in processing the data from one or more NCs and to avoid the loss of the data.

### Standard 9.1

Each NC should appoint a data manager (DM). DMs will be required to attend training on data management and use of ACER Maple data management software, provided by ACER prior to data collection. DMs will train NC data administration and data entry personnel on the use of ACER Maple in line with the procedures described in the Data Management Manual (DMM).

### Standard 9.2

ACER Maple data management software must be used for class and student sampling, data entry and data verification as outlined in the DMM.

### Standard 9.3

The data verification procedures, as specified in the DMM, will be executed by the NC staff in ACER Maple software before submitting the final database to ACER.

### Standard 9.4

A DM from the NC will be available upon submission of the database to ACER. The DM:

- is authorised to respond to ACER data queries
- is available for a four-week period immediately after the database is submitted unless otherwise agreed upon
- is able to respond to ACER queries in English within three working days

- is able to resolve data discrepancies.

# Data submission

## Rationale

The timely progression of the project depends on the quick and efficient submission of all collected data. Therefore, participating counties are asked to submit only one standard database to ACER.

### Standard 10.1

Participants' tracking data, test booklets data and contextual questionnaire data collected by the NC must be entered into ACER Maple data management software provided by ACER, as specified in the DMM.

### Standard 10.2

Each NC submits its data to ACER in a single database in the specific format produced by ACER Maple software, as specified in the DMM.

### Standard 10.3

NC submits its data to ACER after the data for all instruments and all participants are entered into ACER Maple and all discrepancies are resolved, as described in the DMM.

### Standard 10.4

All data are submitted without recoding any of the original response variables.

### Standard 10.5

The timeline for submission of national databases to ACER is within eight weeks of the last day of assessment, unless otherwise agreed between the NC and ACER.

# Psychometrics and data analysis

## Rationale

The production of a high-quality database and the use of modern psychometric and statistical methods is essential to the integrity of the AMPLab Assessment. A high-quality database will ensure that researchers can analyse the data in a standard way, following methods established in high-quality large-scale education surveys. Following standardised procedures will help ensure that the AMPLab Assessment database is consistent and comparable. Note that the standards in this section apply to the technical partner, ACER.

### Standard 11.1

Data will be cleaned. Anomalies regarding duplicate identification variables, out of expected range values, and invalid codes will be resolved and reported.

### Standard 11.2

Sample weights will be calculated and included in the final database.

### Standard 11.3

For assessment data, missing responses are scored incorrect, and all trailing missing are treated as not administered except for the first in the sequence, which is treated as incorrect for the item calibration stage.

### Standard 11.4

Assessment data will be scaled using models derived from Item Response Theory. The choice of model will be approved by the UIS.

### Standard 11.5

Differential Item Functioning (DIF) by gender and by language will be calculated and reported. Treatment of items showing DIF will be reported.

### Standard 11.6

Item statistics will be reported. These will include indications of missing, facility, item-rest correlations, estimates of ability across category and estimates of goodness of fit to model.

### Standard 11.7

Learner ability and item difficulty estimates will be placed on separate scales, for each of reading and mathematics.

The learner ability estimates for students at the end of lower primary and the end of upper primary school will be placed on the same empirical scale. This applies for both the reading scales and the mathematics scale.

### Standard 11.8

A Plausible Values method will be used to generate unbiased population estimates of learner ability. Plausible Values will be included in the final database.

### Standard 11.9

Conditioning of the psychometric population model will be used to improve sub-population estimates. Conditioning on gender and participating country, at least, will be implemented.

### Standard 11.10

Sampling variance will be calculated using an appropriate method, such as sample replication or linearization. The choice of method will be documented. If replication is used, replicate weights will be included in the final database.

### Standard 11.11

All analysis of assessment data will include adopting Plausible Value methods, using sample weights, and using appropriate methods for determining sampling variance. Standard Errors for all statistics will be provided to the UIS.

# Project Management Standards

## Communication

### Rationale

To ensure the timely progression of the project, delays in communication among all parties involved should be minimised.

### Standard 12.1

Qualified staff from all parties involved in the processes of the data management and data submission are available to communicate and respond to queries during all stages of the project based on the work plan activities.

## Schedule for submission of materials

### Rationale

In order to progress according to project timelines, efforts should be made to ensure that all parties involved can submit project materials within the allocated timeframes.

### Standard 13.1

All parties involved will keep to pre-determined schedules for all activities, including:

- population definition and stratification variables
- assessment window definition
- sampling
- contextual questionnaire item review
- translation review
- contextual questionnaire adaptation
- data submission
- reporting.

# Archiving of materials

## Rationale

The NC will maintain an archive of electronic and paper forms of all assessment material for the AMPLab Assessment. This will provide an overview of all materials. This will also ensure that instruments will be available to all parties involved to assist with data cleaning and processing.

## Standard 14.1

The NC will maintain a permanent electronic archive of all assessment materials, including:

- all test booklets, including audio files and script for the listening comprehension assessment
- all contextual questionnaires
- sampling forms and sampling frame
- school sample results and selection numbers
- tracking forms
- QM assessment forms.

## Standard 14.2

The NC will archive and retain all assessment materials a minimum of one year. Materials to be archived include:

- all completed test booklets and contextual questionnaires in paper format
- student lists
- student tracking instruments
- all submitted data.

## Standard 14.3

Archived materials will be stored in one location only and will be under the guardiancy of the NC.

## Standard 14.4

Upon request by the appropriate authority, materials will be deleted from all electronic sources and physical materials shredded in line with the requirements of national laws.

# Reporting and dissemination

## Rationale

The success of the study is dependent upon the reporting and sharing of results with all relevant national stakeholders. This reporting includes the conclusions derived from national data collection. It is important to ensure that the circulation of information occurs within time periods that are appropriate to both key stakeholders and the project as a whole.

## Standard 15.1

The NC develops appropriate mechanisms in order to promote participation and effective implementation.

## Standard 15.2

Adherence to the Technical Standards will be monitored and reported by the NC to the UIS.

## Standard 15.3

The reporting will indicate the relative levels of achievement of students in each of the two subjects.

## Standard 15.4

The reporting will include the findings regarding the relationship between background variables and learning outcomes.

## Standard 15.5

The reporting will include contextual findings in their own right relevant to the study research questions in relation to the students, schools and systems.