
Translation procedures of the international educational assessment instruments

LUELA LIÇI, MSc

PhD candidate, University of Tirana

Abstract

In the last two decades, interest in international educational assessments has increased because the results of these assessments have been used in education decision making process.

The growing number of countries participating in these international studies and translation of educational materials of PISA, TIMSS and PIRLS programs in many languages of the world is accompanied by the request to ensure translation quality. The linguistics quality control centres have developed translation policies and standards.

The purpose of this paper is to present a comparative analysis of the translation quality procedures implemented by PISA, TIMSS, and PIRLS.

Keywords: adaptation, international assessment, quality control, translation, translation guides, verification

CONTEXT

Since 1964, when the International Association for the Evaluation of Educational Achievement (IEA) conducted the first internationally comparative study in mathematics, international educational assessments have been part of the global agenda. Since that time there has been a large increase in the number of international global and regional educational assessments and participant countries. Not only the number of countries participating in international assessments has increased, but also the number of languages in which assessment

instruments are translated. So, the quality of translation is a demanding issue.

This paper is focused on the translation procedures used in the large-scale international assessments, organized in the framework of PISA, TIMSS and PIRLS.

PISA is conducted by the OECD, while TIMSS and PIRLS are conducted by the IEA.

The key information about these assessment studies is presented in the table 1.

Wu (2010) mentions that to fully understand the differences between PISA, TIMSS, and PIRLS, it will be important to be familiar with the history and the “philosophies” of IEA studies and OECD work. Wu explains “OECD, being a co-operative organization between governments, has policy-makers’ interests as the focus of its work. In contrast, IEA, formed as a united body of research organizations, has the interests of researchers at the forefront of its studies. In TIMSS it was deemed important to link the survey results directly to instructional practices in the classrooms, while in PISA, the measure of the outcome of schooling is deemed more important for governments in shaping educational policies”.

Despite the philosophical differences, the IEA and the OCD are interested in ensuring the quality of the translation of the materials and in particular are interested to ensure the equivalence of the translation, so that the assessment results can be compared internationally.

Table 1. Key information about International Assessment Studies

	PISA	TIMSS	PIRLS
Full name	Program for International Student Assessment	Trends in International Mathematics & Science Study	Progress in International Reading Literacy Study
Assesses	Reading, mathematics, science, problem solving, global competencies	Mathematics and science	Reading
Age of test takers	15	10 and 14	10
Grade	Grade 9	Grade 4 and 8	Grade 4
Frequency	Every 3 years, since 2000	Every 4 years, sine 1995	Every 5 years, since 2001

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Last assessment	2018	2019	2016
Purpose	Evaluates education systems by assessing to what extent students at the end of compulsory education can apply their knowledge to real-life situations and be equipped for society	Measures trends in maths and science achievement - Describes educational context, including home support, students' attitudes, curriculum, teachers' training, classroom activities	Measures trends in reading comprehension - Investigates the experiences young children have at home and school in learning to read
Focus	Skills-based	Curriculum-based	Curriculum-based
Organization	Organisation for Economic Cooperation and Development (OECD)	International Association for the Evaluation of Educational Achievement (IEA)	International Association for the Evaluation of Educational Achievement (IEA)
Countries	79 countries in 2018	64 countries and 8 benchmarking systems in 2019	61 countries in 2016
Test length	120 minutes, plus 15 minutes background questionnaire	72 minutes at grade 4, 90 minutes at grade 8, plus 15 minutes background questionnaire	80 minutes, plus 15 minutes background questionnaire
Number of learners assessed	More than 5,000 learners in each country/jurisdiction	At least 4,000 learners in each country/jurisdiction	About 3,500- 4,000 learners in each country/jurisdiction

Source: Education Brief 7: International surveys: PISA, TIMSS, and PIRLS (updated)

Due to the fact that more and more countries are participating in the international comparative assessments such as PISA, TIMSS, and PIRLS, ensuring linguistic and cultural equivalence across the various national versions of the assessment instruments has become an increasingly crucial challenge.

In all international assessments conducted over the years by PISA, TIMSS, PIRLS, there have been used a variety of instruments, such as tests and questionnaires which are translated or adapted in many local languages. The PISA, TIMSS and PIRLS procedural manuals and scoring guides for the constructed-response items have been translated but are not subject to the international verification procedures.

The translation process of international educational assessment instruments and its quality control is designed based on the findings, evidence and conclusions of many researches. Different bodies established by IEA and OECD, and professional institutions and organizations are responsible for the translation issues.

cApStAn has been in charge of translation verification of all national versions of PISA survey instruments since 2000.

The IEA Secretariat manages the international translation process of TIMSS and PIRLS materials, while the translation verification process is a coordination with an external translation verification company, cApStAn, Linguistic Quality Control (based in Brussels, Belgium). In TIMSS 2003, cApStAn was asked to verify the translation version of a selection of countries for which linguistic quality control had highlighted some problems in the past. In TIMSS 2007, the number of national versions entrusted to cApStAn grew larger and, in TIMSS 2011, TIMSS 2015, and TIMSS 2019 all national versions were verified by cApStAn.

The materials of all three programs are translated by translation teams, composed of national translators, reconcilers and verifiers.

PISA develops two parallel source versions of the test and questionnaires, one in English and the other in French both of which are recommended to be used. TIMSS develops assessment instruments in English. The Arabic international source version is produced in cooperation with the IEA. PIRLS reading assessment, background questionnaires, and procedural manuals are developed in English. So, the instruments written in English and French must be translated into instruction language of the participating countries. All tests and questionnaires are subject to translation, adaptation and verification procedures.

Table 2. Language of source version

PISA	TIMSS	PIRLS
<p>The Consortium develops two parallel source versions of the test and questionnaires, one in English and the other in French. It is recommended that countries use the English source version for one of the translations into the national language; and the French source version for the other.</p>	<p>The international versions of the TIMSS assessment instruments are developed in English. Then the Arabic international source version is produced in cooperation with the IEA Secretariat. After the release of the international source versions, all the participating countries are required to translate and/or adapt the international versions into their language(s) of instruction.</p>	<p>The PIRLS reading assessment, background questionnaires, and procedural manuals are developed in English. Using this English international version, participants translate the materials into their target language(s) and adapt them to be appropriate for their cultural context.</p>

PISA, TIMSS & PIRLS have similar aims of translation procedures. All programs have developed and are implementing the standardized translation, adaptation and verification procedures.

PISA Translation and Adaptation Guidelines (2000, 2003, 2006, 2009, 2012, 2015, 2018, and 2021) highlight the equivalence of national versions as a requirement, which means that the translation of materials must meet demanding quality standards in each of the national versions. It is crucial to ensure that the translation process does not introduce biases likely to distort international comparisons. Ebbs & Korsnakova (2015) declare that the aim of the translation and verification processes of TIMSS & PIRLS is to ensure that translations are of high quality, are internationally comparable and adapted appropriately for each country’s context and education system. All countries are required to follow standards, internationally agreed-upon procedures from the initial translation through final printing of their national instruments.

Translation standards of PISA, TIMSS, and PIRLS are presented in the table 3.

Table 3. Translation standards

PISA	TIMSS	PIRLS
Assessment instruments, and manuals are translated into the instruction language in order to be linguistically equivalent to the international source versions.	The translation is at an appropriate level for the target population	Translated passages should have the same register (language level and degree of formality) as the source text.
In order to collect internationally comparable data in the study, the equivalence of national versions is a requirement, which means that the translation of materials must meet stringent quality standards in each of the national versions. It is crucial to ensure that the translation process does not introduce biases likely to distort international comparisons	No information is omitted, added, or clarified in the translated text	Translated passages should have correct grammar and usage: subject/verb agreement, prepositions, verb tenses, etc.
.To comply with PISA translation standards, it is required that the national versions of all test and questionnaire instruments used in the assessment are developed through a double translation and reconciliation procedure.	The translated text has the same meaning and uses equivalent terminology as the	Translated passages should neither clarify nor omit text from the source text, nor should information be added

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	international version	that is not given in the source text.
<p>Comparability can be ensured by avoiding:</p> <ul style="list-style-type: none"> • Making the comprehension of texts, graphics or tables used as stimulus in the varioustest units more difficult (or easier); • Unintentionally modifying the difficulty of the questions asked to the student, through a formulation that changes the type of mental/cognitive strategy required or the item construct; • Introducing ambiguities that could impair some of the variables collected through the background questionnaires (because of lack of comparability across countries); or • Adapting manuals to the national context in ways that extensively change the datacollected (e.g. when adaptations result in undesired changes in the sampling, testadministration or coding procedures) 	<p>The translated text has the same register (language level and degree of formality) and level of difficulty as the international version</p>	<p>Translated passages should contain equivalent qualifiers and modifiers, in the order appropriate for the target language.</p>
	<p>Idiomatic expressions are translated appropriately, not necessarily word for word</p>	<p>Idiomatic expressions should be translated appropriately, not necessarily word for word.</p>
	<p>The translated text uses correct grammar, punctuation, qualifiers, and modifiers, as appropriate for the target language</p>	<p>Spelling, punctuation, and capitalization in the target text should be appropriate for the target language and the country/cultural context.</p>

With Hambleton’s report as a guide, TIMSS 1995 established the basis for all IEA’s translation procedures (Korsnakova & Dept, 2020). The later developments related to TIMSS and PIRLS translation procedures are influenced and conceptualized based on the research reports and on in the reports presented on assessment results.

IEA has implemented different translation procedures over time. Ferrer (2011) highlighted three careful steps: (1) comparative curricular analysis, and creation of the conceptual frameworks and specification tables; (2) cooperative procedures like collaborative item development, and multiple discussion and review stages; and (3) rigorous procedures for (back) translation of the items into the different languages of the participating countries. (Cit. from Korsnakova, P. & Dept, S. 2020).

The PISA Translation and Adaptation Guidelines are based on existing literature on international test adaptation (Hambleton, 1994; Hambleton and Patsula, 1998 and 1999; Jeanrie and Bertrand, 1999, Hambleton, 2002), on similar guidelines developed for previous IEA studies (O’Connor and Malak, 2000; Kelly and Malak, 2001), and on

experience acquired through the verification of the PISA materials (PISA 2021).

Adaptations, also known as “free translations” performed when the translator substitutes cultural realities or scenarios for which there is no reference in the target language. Adaptations are equivalents. When comparing translation and adaptation, we are comparing two ways of communicating a message. In many cases it is impossible to translate a text without making an adaptation, as a “literal” translation of the message would cause a loss of all or part of the meaning for the target audience. It is important to know when to adapt a message and when an expression might have a more appropriate equivalent for a given situation. This raise the quality of translation. PISA, TIMSS and PIRLS has developed and are using their adaptation procedures and guidelines.

Table 4. Adaptation procedures

PISA	TIMSS	PIRLS
An adaptation is an intentional deviation from the source version(s) made for cultural reasons or to conform to local usage. The NPMs will be asked to document any national adaptations they need or wish to implement in the materials by describing them in specially designed forms	At the national level, countries are responsible for translating and/or adapting the international assessment materials and questionnaires according to the international guidelines for TIMSS, conducting a review of their translations’ quality and appropriateness, and documenting all national adaptations for reference at later stages. Even for countries whose survey language is English, national adaptations to the materials are required to accommodate the variations used in different English-speaking countries. Similarly, countries that use the Arabic international source version provided for the TIMSS assessment are expected to implement necessary adaptations to conform to each country’s national usage and context.	The equivalence of materials across countries is a key aspect of the PIRLS assessment. However, it also is important to consider the cultural spectrum of the participating systems, and allow for adaptations that are appropriate for their situations. NRCs were encouraged to keep these to a minimum and to only make changes that were vital to students’ understanding of the text. These alterations included changes in vocabulary, expressions, and names of people and places.

Analysing adaptation approaches used by IEA, Korsnakova, P. & Dept, S. (2020) report in their research that IEA studies have adopted the decentralized approach where the NSCs are responsible for translating and adapting the instruments into their language(s) of instruction and activities covered in the documents include: 1) translating and/or

adapting the study instruments; 2) documenting national adaptations made to the study instruments; 3) international verifications (translation, adaptation and layout); and 4) finalizing the national instruments for administration.

The international verification consists of three steps: adaptation verification, translation verification, and layout verification. The order in which these verification steps are conducted has changed over the years.

PISA, TIMSS and PIRLS have foreseen the materials that must be verified.

Table 5. Translated assessment materials to be verified

PISA	TIMSS	PIRLS
Test units Questionnaires Layout/presentation of the booklets (final optical check)	Student achievement items (assembled in blocks of items) Background questionnaires for school principals, teachers, parents, and students Covers and directions (for achievement booklets and paper versions of context questionnaires) Online covers and directions (only for online data collection of home, teacher, and school questionnaires)	Reading assessment passages, items, and directions; Questionnaires for students, teachers, school, and home; Manuals for preparing for the Assessment within schools, and administering the assessment; and Scoring guides for constructed-response items, where necessary.

Table 6. International verification procedures

PISA	TIMSS	PIRLS
As part of the quality control procedures implemented in PISA, all participating countries will be requested to submit their national versions for verification against the English and French source versions by a team of independent verifiers with native command of the respective PISA languages and who have been	The translation verification process involves: •Checking the accuracy, linguistic correctness, and comparability of the translation and adaptations of the achievement items and questionnaires •Documenting any deviations between the national and international versions, including	The main task of the translation verifiers was to evaluate the accuracy of the translation and adequacy of the national adaptations. • The translation has not affected the meaning or difficulty of the text. • The test questions have not been made easier or more difficult when translated/adapted.

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<p>specially appointed and trained by the Consortium.</p> <p>In assessment materials the focus is on level of difficulty, while in questionnaire the focus is on unambiguous formulation, on clarity</p>	<p>additions, deletions, and mistranslations</p> <ul style="list-style-type: none"> • Suggesting an alternative translation/adaptation to improve the accuracy and comparability of the national instruments 	<ul style="list-style-type: none"> • No information has been omitted or added in the translated text. • No question related to the passage was omitted. • The questionnaires contain all and correct questions. • The order of questions and response options to questions are the same as in the international version.
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Although the sophisticated translation, adaptation, review, and verification procedures have progressively generated a maximizing comparability and have increased the reliability and validity of the assessment instruments, researchers conclude that there is still need for improvement.

Four conclusions following this analysis are: 1) PISA, TIMSS and PIRLS have developed and implemented an advanced translation methodology, including translation approaches, standards and procedures; adaptation and verification criteria and guidelines that are a baseline for the quality of translation; 2) PISA, TIMSS and PIRLS have enriched and further developed translation in education field; 3) PISA, TIMSS and PIRLS, based on sharing experiences and research findings, are moving from different translation procedures to the similar ones, especially in terms of translation verification; 4) PISA, TIMSS and PIRLS have contributed to the building of translation teams, supporting a high standard of professionalism; 5) PISA, TIMSS and PIRLS have produced quality assessment instruments that ensure the comparability of the international student assessment.

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