

## CHAPTER 7

# Translation and Translation Verification for TIMSS 2015

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### Introduction

This chapter describes the activities and procedures related to countries' preparation of national versions of the TIMSS assessment instruments, focusing on two major activities:

- Translation and adaptation of the international version of the TIMSS assessment instruments into national languages
- International verification of the national translations/adaptations

The TIMSS & PIRLS International Study Center develops the international versions of the TIMSS assessment instruments 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. To ensure that the translated national instruments are equivalent to the international versions, linguistic and assessment experts perform multiple rounds of review based on the international source version in English.

The translation and verification process aims to ensure high quality translations that are internationally comparable and adapted appropriately for each country's context and education system. As part of the TIMSS international quality assurance program, the translation verification process requires that each country's instruments undergo a formal external review of the translations and adaptations prior to the assessments.

All countries are required to follow standard, internationally agreed-upon procedures from the initial translation through final printing of their national instruments. 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.

At the international level, the IEA Secretariat arranges for each country's translated and adapted materials to undergo translation verification. The translation verifiers provide detailed feedback to improve the accuracy of the national instruments compared to the international instruments. When the verified materials are returned, the National Research Coordinators (NRCs) are tasked with reviewing the feedback of translation verification, revising their materials as needed, and updating their documentation for use during data processing and analysis.

The translation and translation verification processes of the assessment materials occur twice—first before the field test and then again before the assessment. The IEA Secretariat manages these processes, which consists of careful documentation of outcomes at the various stages of translation, adaptation, verification, and revision.

Prior to the field test and again before the assessment data collection, the same general verification procedures are followed, with the exception of items designed to measure trends from previous cycles. Trend items undergo a separate verification procedure to ensure consistency across assessment cycles.

The TIMSS assessment materials required to undergo translation verification are:

- 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)

The TIMSS procedural manuals and scoring guides for the constructed-response items typically are translated but not subject to the international verification procedure.

## Guidelines for Translation and Adaptation

The general purpose of translation and adaptation is to maintain the same meaning and level of difficulty as the international version while following the rules of the target language and the country's cultural context. This includes adapting the international versions in English to English usage in the context of each English speaking country; adapting the Arabic translations to each national education context; and adapting a translation developed by one country to another country's context.

In particular, translators and reviewers are asked to ensure that:

- The translation is at an appropriate level for the target population
- No information is omitted, added, or clarified in the translated text

- The translated text has the same meaning and uses equivalent terminology as the international version
- The translated text has the same register (language level and degree of formality) and level of difficulty as the international version
- Idiomatic expressions are translated appropriately, not necessarily word for word
- The translated text uses correct grammar, punctuation, qualifiers, and modifiers, as appropriate for the target language

After the field test, the TIMSS & PIRLS International Study Center provides NRCs with a list of changes to the international version that they can refer to while preparing their assessment instruments. This information minimizes the translation burden while highlighting the necessary changes to the translations before the assessment.

## The Target Language

Identifying the language of the assessment (the “target” language) for most countries is relatively straightforward, because there is a dominant language used in both the public and private sectors of society. However, some countries use more than one language of instruction in their educational systems. In such cases, countries translate the student instruments into several target languages to ensure that the assessment can be administered in the language used for teaching in schools. Where the language of instruction may differ from the language commonly used at home, countries may translate the home questionnaire into one or more additional languages (the languages most commonly spoken in the home). This enables parents or caregivers to use the language that they feel most comfortable employing when filling out the questionnaire.

## Scope of Translation and Verification in TIMSS 2015

For the TIMSS 2015 cycle at fourth and eighth grades, a total of 57 countries and seven benchmarking participants prepared 138 sets of achievement tests and 131 sets of background questionnaires in 43 languages.

The TIMSS 2015 assessment instruments were translated into 43 different languages, across 48 participating countries and seven benchmarking entities at the fourth grade, and 40 countries and seven benchmarking entities at the eighth grade. Of these participants, 22 countries and five benchmarking entities administered the instruments in more than one language (most commonly, the achievement test and student questionnaire).

Exhibits 7.1–7.3 list the TIMSS 2015 fourth grade, Numeracy, and eighth grade countries, the target languages identified for each country, and administered instruments. The most common languages used for the TIMSS 2015 assessment were English (21 countries) and Arabic (10 countries), with 22 countries administering all or parts of the assessment in two or more languages.

**Exhibit 7.1 Languages Used for the TIMSS 2015 Fourth Grade Assessment Instruments**

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Armenia	Armenian	●	●	●	●	●
Australia	English	●	●	●	●	●
Bahrain	Arabic	●	●	●	●	●
	English	●	●	●	●	●
Belgium (Flemish)	Dutch	●	●	●	●	●
Buenos Aires	Spanish	●	●	●	●	●
Bulgaria	Bulgarian	●	●	●	●	●
Canada	English	●	●	●	●	●
	French	●	●	●	●	●
Chile	Spanish	●	●	●	●	●
Chinese Taipei	Traditional Chinese	●	●	●	●	●
Croatia	Croatian	●	●	●	●	●
Cyprus	Greek	●	●	●	●	●
Czech Republic	Czech	●	●	●	●	●
Denmark	Danish	●	●	●	●	●
England	English	●	●	●	●	●
Finland	Finnish	●	●	●	●	●
	Swedish	●	●	●	●	●
France	French	●	●	●	●	●
Georgia	Georgian	●	●	●	●	●
Germany	German	●	●	●	●	●
Hong Kong (SAR)	English	●	●	●	●	●
	Traditional Chinese	●	●	●	●	●
Hungary	Hungarian	●	●	●	●	●
Indonesia	Bahasa Indonesian	●	●	●	●	●
Iran	Farsi	●	●	●	●	●
Ireland	English	●	●	●	●	●
	Irish	●	●	●	●	●
Italy	Italian	●	●	●	●	●
Japan	Japanese	●	●	●	●	●

**Exhibit 7.1 Languages Used for the TIMSS 2015 Fourth Grade Assessment Instruments (Continued)**

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Kazakhstan	Kazakh	●	●	●	●	●
	Russian	●	●	●	●	●
Korea	Korean	●	●	●	●	●
Kuwait	Arabic	●	●	●	●	●
	English	●	●	●	●	●
Lithuania <sup>1</sup>	Lithuanian	●	●	●	●	●
	Polish	●	●			
	Russian	●	●			
Morocco	Arabic	●	●	●	●	●
Netherlands	Dutch	●	●	●	●	●
New Zealand	English	●	●	●	●	●
Northern Ireland	English	●	●	●	●	●
	Irish	●	●	●	●	●
Norway	Bokmål	●	●	●	●	●
	Nynorsk	●	●	●	●	●
Oman	Arabic	●	●	●	●	●
	English	●	●	●	●	●
Poland	Polish	●	●	●	●	●
Portugal	Portuguese	●	●	●	●	●
Qatar	Arabic	●	●	●	●	●
	English	●	●	●	●	●
Russian Federation	Russian	●	●	●	●	●
Saudi Arabia	Arabic	●	●	●	●	●
	English	●	●	●	●	●
Serbia	Serbian	●	●	●	●	●
Singapore	English	●	●	●	●	●
	Traditional Chinese					●
	Tamil					●
	Malay					●
Slovak Republic	Slovak	●	●	●	●	●
	Hungarian	●	●			●

**Exhibit 7.1 Languages Used for the TIMSS 2015 Fourth Grade Assessment Instruments (Continued)**

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Slovenia	Slovene	●	●	●	●	●
Spain	Spanish	●	●	●	●	●
	Catalan	●	●	●	●	●
	Valencian	●	●	●	●	●
	Galician		●	●	●	●
	Basque	●	●	●	●	●
Sweden	Swedish	●	●	●	●	●
Turkey	Turkish	●	●	●	●	●
United Arab Emirates	Arabic	●	●	●	●	●
	English	●	●	●	●	●
	Arabic with some English text	●				
United States	English	●	●	●	●	●

1 In Lithuania, the fourth grade achievement test is administered in Polish (from Poland) and in Russian (from Russian Federation).

**Exhibit 7.2 Languages Used for the TIMSS 2015 Numeracy Assessment Instruments**

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Buenos Aires	Spanish	●				
Bahrain	Arabic	●				
	English	●				
Indonesia	Bahasa Indonesian	●				
Iran	Farsi	●				
Jordan	Arabic	●	●	●	●	●
Kuwait	Arabic	●				
	English	●				
Morocco	Arabic	●				
South Africa	Afrikaans	●	●	●	●	●
	English	●	●	●	●	●

Note: Countries that participate in both TIMSS fourth grade and TIMSS Numeracy administer the TIMSS fourth grade background questionnaires for both assessments.

**Exhibit 7.3 Languages Used for the TIMSS 2015 Eighth Grade Assessment Instruments**

Country	Language	Instruments			
		Achievement Test	Student Questionnaire	Teacher Questionnaires	School Questionnaire
Armenia	Armenian	●	●	●	●
Australia	English	●	●	●	●
Bahrain	English	●	●	●	●
	Arabic	●	●	●	●
Botswana	English	●	●	●	●
Buenos Aires	Spanish	●	●	●	●
Canada	English	●	●	●	●
	French	●	●	●	●
Chile	Spanish	●	●	●	●
Chinese Taipei (Taiwan)	Traditional Chinese	●	●	●	●
Egypt <sup>1</sup>	Arabic	●	●	●	●
	English	●			
England	English	●	●	●	●
Georgia	Georgian	●	●	●	●
Hong Kong (SAR)	English	●	●	●	●
	Traditional Chinese	●	●	●	●
Hungary	Hungarian	●	●	●	●
Iran	Farsi	●	●	●	●
Ireland	English	●	●	●	●
	Irish	●	●	●	●
Israel	Arabic	●	●	●	●
	Hebrew	●	●	●	●
Italy	Italian	●	●	●	●
Japan	Japanese	●	●	●	●
Jordan	Arabic	●	●	●	●
Kazakhstan	Kazakh	●	●	●	●
	Russian	●	●	●	●
Korea	Korean	●	●	●	●
Kuwait	Arabic	●	●	●	●
	English	●	●	●	●

**Exhibit 7.3 Languages Used for the TIMSS 2015 Eighth Grade Assessment Instruments (Continued)**

Country	Language	Instruments			
		Achievement Test	Student Questionnaire	Teacher Questionnaires	School Questionnaire
Lebanon	English	●	●	●	●
	French	●	●	●	●
Lithuania <sup>2</sup>	Lithuanian	●	●	●	●
	Polish	●	●		
	Russian	●	●		
Malaysia	English	●			
	Malay	●	●	●	●
Malta	English	●	●	●	●
Morocco	Arabic	●	●	●	●
New Zealand	English	●	●	●	●
Norway	Bokmål	●	●	●	●
	Nynorsk	●	●	●	●
Oman	Arabic	●	●	●	●
	English	●	●	●	●
Qatar	Arabic	●	●	●	●
	English	●	●	●	●
Russian Federation	Russian	●	●	●	●
Saudi Arabia	Arabic	●	●	●	●
	English	●	●	●	●
Singapore	English	●	●	●	●
Slovenia	Slovene	●	●	●	●
South Africa	Afrikaans	●	●	●	●
	English	●	●	●	●
Sweden	Swedish	●	●	●	●
Thailand	Thai	●	●	●	●
Turkey	Turkish	●	●	●	●
United Arab Emirates	Arabic	●	●	●	●
	English	●	●	●	●
	Arabic with some English text	●			
United States	English	●	●	●	●

1 In Egypt, the eighth grade achievement test in English did not undergo Adaptation/Translation Verification.

2 In Lithuania, the eighth grade achievement test is administered in Russian (from Russian Federation).



## The Translation Process

The TIMSS & PIRLS International Study Center describes the procedures for translating the achievement items and questionnaires. Each country is responsible for having skilled and experienced translators translate the instruments. To ensure that national versions of the TIMSS instruments are consistent with the international version, the assessment translation guidelines allow for national adaptations where necessary. Following translation of the instruments, one or more qualified reviewers independently review the completed translations to ensure the nationally translated instruments are of the highest quality and student-level appropriate. Some countries employ multiple translators and reviewers, either working together to complete the tasks on schedule, or working independently to provide two or more views. When countries use more than one translator, the country must reconcile the translation differences to ensure that only a single consistently translated set of materials is produced. Similarly, when using more than one reviewer, countries are responsible for ensuring consistency of the reviews across the translated materials. When countries prepare translations in more than one language, professionals proficient in both languages should be involved to ensure equivalency across the translations.

## Translators and Reviewers

Countries are strongly advised to hire highly qualified translators and reviewers who are well suited to the task of working with the TIMSS materials.

Essential qualifications for translators and reviewers include:

- Excellent knowledge of English
- Excellent knowledge of the target language
- Experience in the country's cultural context
- Experience translating texts in the subject areas related to the TIMSS assessment (mathematics and science)

The reviewers primarily are responsible for assessing the readability and accuracy of the translation for the target population. In addition to excellent language skills and knowledge of the country's cultural context, they are expected to have experience with students in the target grade (preferably as a school teacher).

## Providing the Instruments for Translation and Adaptation

The TIMSS & PIRLS International Study Center provides NRCs with electronic files consisting of all materials to be translated, as well as special forms for documenting each step of the adaptation, translation, and verification processes. According to the TIMSS assessment design, most of the

achievement item blocks appear in more than one booklet, therefore the component parts of the booklets (blocks, covers, and directions) are prepared as separate files to facilitate translation. This approach allows countries to translate each component only once before assembling the booklets. The international instruments are accompanied by detailed manuals and instructional videos for NRCs that provide information on how to work with the electronic files, support materials for right-to-left languages, guidelines for translation and adaptation, and instructions for booklet assembly.

## Translation and Adaptation of the Achievement Test

While translating the TIMSS achievement test, one of the main challenges is finding appropriate terms and expressions in the target language(s) of each country that convey the same meaning and style of text as the international version. When adapting and translating expressions with more contextually appropriate terms, translators must ensure that the meaning and difficulty of the item remains the same as the international version. For example, it is important that adaptation/translation of an item does not simplify or clarify the text in such a way as to provide a hint or definition of the meaning of a question. Also, translators must ensure the consistency of adaptations and translations from item to item. Similarly, for multiple-choice items, translators are instructed to pay particular attention to the literal and synonymous matches of text in both the question stem and answer options; matches in the international version should be maintained in the translated national version.

Although NRCs are strongly encouraged to keep adaptations to a minimum, some adaptations are necessary in order to prevent students from facing unfamiliar contexts or vocabulary that could hinder their ability to read and understand the item. In some cases, changes to the instruments may be necessary to follow national conventions of measurement, mathematical notation (e.g., decimal separator, multiplication sign), punctuation, and expressions of date and time. For example, a reference to the working week as Monday to Friday might be adapted according to national customs; similarly, a word such as “flashlight” in American English would be adapted to “torch” in British English. In addition, names of fictional characters and places may be modified to similar names in the target language. When the names of fictional cities or towns are adapted, translators are advised against using real place names to prevent students’ responses from being influenced by their perception and knowledge of the names.

Some terms in the text are not to be changed or adapted beyond translation. Examples include proper names of actual people and places, as well as the fictional currency “zed” (which is used in the TIMSS items about money). To aid in the standardization of the most common adaptations across countries, the TIMSS & PIRLS International Study Center provides a list of specific examples of acceptable and unacceptable adaptations, including a list of measurement conversions.

## Blocks of Achievement Items Designated to Measure Trends

According to a carefully specified design, a substantial number of blocks (about 60%) are carried over to the next cycle (see [Chapter 1: Developing the TIMSS Advanced 2015 Achievement Items in \*Methods and Procedures in TIMSS 2015\*](#)) for the purpose of measuring changes in student achievement over time. To ensure the quality of the trend measurement, these “trend blocks” must be administered in exactly the same way in every cycle. For countries that previously participated in TIMSS 2011 and/or TIMSS 2007, the translations of the trend blocks used in the previous assessment(s) were compared against the 2015 assessment translation.

If a country determines that changes to the trend blocks are absolutely necessary (e.g., in order to correct a mistranslation discovered in a previous translation), the changes are carefully documented and reviewed. Items with changes may not be included in the trend analyses for that participant.

The preparation of the trend blocks for countries not participating in the trend comparison follows the same general procedure for preparation as the newly developed assessment blocks for the current cycle.

## Translation and Adaptation of the Questionnaires

The translation of the questionnaires differs from the assessment items in that participating countries are required to adapt some terms, and to ensure that questions are appropriate for the national context and education system. The terms requiring adaptation are listed in angle brackets in the international version with their country-specific information. For instance, <language of test> and <fourth grade> would be adapted to the name of the actual language and grade in which the assessment is being administered—for example, in Singapore, these terms would be replaced by equivalents “English” and “Primary 4”. Some terms related to specific aspects of teaching and learning also are designated for adaptation—<in-service/professional development> should be adapted to the local term that denotes the supplemental training provided to teachers during their professional careers (e.g., in Lithuania this would be “qualification development”). Items assessing levels of education use the current version of the International Standard Classification of Education (ISCED) system, ISCED 2011 (UNESCO Institute for Statistics, 2012), and require adaptation to the nationally equivalent educational terms for each participating country.

The guidelines for translation and adaptation provide countries with detailed descriptions of the intent of each required adaptation to clarify the meaning of the terms used and to enable the translators to select the appropriate national term or expression to convey the intended meaning. For TIMSS 2015, the main difficulties encountered in adapting the questionnaires involved specific educational contexts, administration of the assessment at different grade levels than the internationally-defined target, and, for some countries, multiple languages of administration.

Countries are permitted to add a limited number of national interest questions to the questionnaires. To avoid influencing responses to the international questions, NRCs are advised to place any national interest questions at the end of the corresponding module or questionnaire, and to ensure these adopt the same format as the rest of the questionnaire. All national interest questions must be documented and approved by the TIMSS & PIRLS International Study Center before inclusion in the questionnaires.

## The National Adaptation Forms

NRCs must prepare one National Adaptation Form (NAF) for each language and set of instruments. The NAF is an Excel document formatted to contain the complete translation, adaptation, and verification history of each set of national instruments. All national adaptations should be documented in the NAF. During various stages of the instrument preparation process, the form is completed and reviewed.

During the process of translation and adaptation for a set of national instruments, the first version of the NAF is filled out in collaboration with the translator(s), reviewer(s), and NRC. The translator and reviewer document the initial adaptations made to the instruments, which the NRC then reviews and consolidates. The NAF is updated and revised after each round of international verification, with comments from verifiers and the NRC.

Documenting an adaptation in the NAF requires recording the following information: identification of what is being adapted (location and/or question number), an English back translation of the adaptation, and recoding instructions (if applicable). For ease of use and documentation of the different stages of verification, the NAF includes designated areas for each item, respondent, and instrument.

The NAF is an important record of each country's final instruments, as it contains information used throughout the different stages of translation and verification. The International Quality Control Monitors also use the NAF after data collection to review the implementation of verification feedback (see [Chapter 6: Survey Operations Procedures in TIMSS 2015](#) and [Chapter 9: Quality Assurance for TIMSS 2015](#) in *Methods and Procedures in TIMSS 2015*). The NAF is referenced when adding national data to the international database and during data analysis.

## International Translation Verification

The national translations of the instruments are required to undergo international translation verification. The IEA Secretariat manages the international translation verification process in coordination with an external translation verification company, cApStAn Linguistic Quality Control (based in Brussels, Belgium).

## Translation Verifiers

For TIMSS, the international translation verifiers are responsible for reviewing and documenting the quality and comparability of the national instruments to the international instruments. The required qualifications for verifiers include:

- Fluency in English
- Mother tongue proficiency in the target language
- Formal credentials as translators working in English
- University-level education and (if possible) familiarity with the subject area
- Residency in the target country, or close contact with the country and its culture

The IEA Secretariat trains all international translation verifiers, and supplies verifiers with a comprehensive set of instructional materials to support their work. For TIMSS 2015, verifiers were trained through web-based seminars and were provided with information about TIMSS and the assessment instruments. Each verifier received a document containing the description of the adaptation and translation guidelines, the relevant manuals and instruments, and a document with the directions and instructions for reviewing the national instruments and registering deviations from the international version. During the verification of the final assessment instruments, verifiers were given a list of changes to the international instruments made after the field test and also were able to access the relevant national field test NAF.

## The Translation Verification Process

The instructions and training given to the verifiers emphasize the importance of maintaining the same meaning and difficulty level in the translations and adaptations as in the international versions, and ensuring that translations and adaptations are adequate and consistent within and across national instruments. 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 additions, deletions, and mistranslations
- Suggesting an alternative translation/adaptation to improve the accuracy and comparability of the national instruments

Verifiers provided feedback from translation verification in both the set of instruments and the associated NAF. Verifiers were asked to correct the text of the assessment items and questionnaires and/or to add notes specifying errors using either “Sticky Notes” in Adobe PDFs or “Track Changes” and “New Comment” functions in Microsoft Word. During translation

verification, some of the typical errors identified by the verifiers included mistranslations, omissions/additions of text, inconsistent translations (mathematical symbols, adaptation of ISCED levels, literal versus synonymous matches), adaptations of names (fictional versus real), gender agreement, and grammar. Some of the domain-specific concepts in mathematics and science (e.g., “line of symmetry”) were a particular challenge to translate for some languages. With the documented comments and suggestions from the verifiers, NRCs were able to revise and improve their national versions.

All comments viewed by the verifiers as deviations in the adaptation/translation were entered into the NAF. All verifier comments were accompanied by a code to help NRCs understand the severity and type of deviation of the translated text with the international version. Any adaptations reported in the NAF must also be reviewed by the verifier and commented on for their adequacy.

### Codes Used in Verification Feedback

To help establish the quality and comparability of the translated/adapted instruments, the international translation verifiers aim to provide meaningful feedback to the NRCs, TIMSS & PIRLS International Study Center staff, and other members of the study consortium. To standardize the verification feedback across countries, verifiers are asked to assign a code to each intervention, indicating the nature and severity of the issue identified. These codes are accompanied by explanatory information, along with corrections or suggestions for improvement, if applicable. The criteria for coding are as follows:

**CODE 1** indicates a major change or error. Examples include the omission or addition of a question or answer option; incorrect translation that changes the meaning or difficulty of the item or question; and incorrect order of questions or answer options in a multiple-choice question.

If in any doubt, verifiers are instructed to use **CODE 1?** so that the error can be referred to the TIMSS & PIRLS International Study Center for further consultation.

**CODE 2** indicates a minor change or error, such as a spelling or grammar error that does not affect comprehension.

**CODE 3** indicates that while the translation is adequate, the verifier has a suggestion for an alternative wording.

**CODE 4** indicates that an adaptation is acceptable and appropriate. For example, a reference to winter for a country in the Southern Hemisphere is changed from January to July.

## Verification of the Trend Assessment Blocks

For all countries assessing trends, the international verification procedure includes a ‘trend check’ for the achievement instruments to ensure that the trend items have not been changed. This involves:

- Checking that each of the trend items for the current cycle remain identical to the trend items as they were administered in the previous cycle
- Documenting any differences in content

The verifiers were instructed to record any discrepancies found in the trend items in the NAF. NRCs are instructed to carefully review all discrepancies and are instructed to discuss any proposed changes with the TIMSS & PIRLS International Study Center.

## TIMSS 2015 Arabic International Source Version

As has been the practice since 2007, an Arabic version of the TIMSS 2015 instruments was made available to all Arabic-speaking countries to use as a starting point for their national assessment materials preparation. The international instruments that were translated into Arabic were the TIMSS Numeracy and the TIMSS 2015 fourth and eighth grade field test instruments (student achievement test and questionnaires for students, home, teachers, and school principals).

The initial translation of the TIMSS 2015 field test into Arabic was produced according to the guidelines for translation and the translation process design. The translation was produced by two teams of expert translators, from BranTra (an independent translation agency based in Brussels, Belgium). Each team consisted of a pair of translators and one reviewer. One team worked on the TIMSS Numeracy and the TIMSS 2015 fourth grade instruments, and the other team on the TIMSS 2015 eighth grade instruments. Every translator produced a separate translation that, upon completion, was compared and reviewed against the other translations, with only the best translations being selected by the reviewer for use in the field test instruments. The resulting draft source instruments underwent multiple review stages, with an emphasis on assessing the content and terminology used in specific school subjects at the target grades in a variety of Arabic-speaking countries.

Upon completion of the content review (also involving the most experienced NRCs from countries interested in using this source version), the materials were reviewed and reconciled based on the comments, suggestions and changes. The reconciled translation of the assessment materials was then sent to the TIMSS & PIRLS International Study Center for production.

The same groups of translators and reviewers reviewed and updated the Arabic translation of the TIMSS assessment after the field test and prior to the TIMSS 2015 assessment data collection. To aid the translators and reviewer in updating the Arabic translation, the TIMSS & PIRLS International Study Center provided a list of changes made to the international version after the field test.

The TIMSS & PIRLS International Study Center used the World Tools Plugin to convert the production InDesign files to a right-to-left format for the Arabic achievement booklets and background questionnaires. The TIMSS & PIRLS International Study Center imported the Arabic translation from rich-text format (RTF) documents into InDesign using the program CopyFlow Gold. After the translation was imported, the TIMSS & PIRLS International Study Center applied fonts, styles, and graphics to the instruments and thoroughly reviewed the documentation to ensure that the translations and layout resembled the international English version. Before the release of TIMSS 2015 assessment in Arabic to participating countries, an additional optical check was performed to verify the layout of the Arabic version and eradicate any remaining errors or issues that occurred during the import process. The multiple stages of translation and review of the Arabic version ensured that the translation was an adequate starting point for interested countries to begin the adaption process for their country contexts.

## Outcomes and Summary for TIMSS 2015

To ensure high quality and international comparability of the national instruments prepared by participating countries, the 2015 cycle of TIMSS incorporated stringent procedures for translation and translation verification, similar to previous cycles. NRCs were provided with a comprehensive set of guidelines that contained information covering their responsibilities, from appointing highly skilled and experienced translators to ensuring the accuracy of the documentation of national adaptations recorded in the NAFs. After the initial completion of the national versions, countries were to perform an internal review that was followed by the international verification of the adaptations and translation performed by well-trained and experienced verifiers.

During the translation verification processes of the assessment, verifiers made comments and suggestions on errors, from typographical errors and inconsistent translations, to omissions/additions of text and mistranslations. This important feedback aided the NRCs in revising and improving the quality of their national versions in line with the translation guidelines for TIMSS 2015. Additionally, during the verification of the assessment materials, verifiers commented on the great care taken by the NRCs in implementing the field test verification feedback, improving the quality of the translations. Overall the documentation of national adaptations in the NAFs and feedback from the results of the assessment translation verification indicated that the TIMSS 2015 national instruments were of very high quality.

The verification outcomes confirm that countries rigorously implemented the guidelines, documentation, and policies and procedures (including submission of materials and review of post-verification materials).

## References

UNESCO Institute for Statistics. (2012). *ISCED: International Standard Classification of Education*. Retrieved from <http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>