

## CHAPTER 7

# Translation and Translation Verification for TIMSS Advanced 2015

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### Introduction

This chapter describes the activities and procedures related to the preparation of the national versions of the TIMSS Advanced 2015 instruments, focusing on two major activities:

- Translation and adaptation of the international version of the TIMSS Advanced 2015 instruments into national survey languages
- International translation verification of the national translations/adaptations

The TIMSS & PIRLS International Study Center is responsible for the development of the international version of the TIMSS Advanced 2015 instruments in English. After the release of the international source version, all participating countries are required to translate and/or adapt the international version into their language(s) of instruction. To ensure that the translated national instruments are equivalent to the international version, linguistic and assessment experts conduct a series of reviews based on the international source version in English.

The translation and translation verification processes aim to ensure that the national versions consist of high quality translations and are internationally comparable and adapted appropriately to every country's context and education system. The international source version comprises the achievement items and questionnaires. At the national level, all participating countries are required to translate and/or adapt the international source version according to the international guidelines for TIMSS Advanced 2015, conduct a review of their translation's quality and appropriateness, and document all national adaptations for reference at later stages in the process. It is also necessary for all participating countries to follow standard, internationally agreed-upon procedures from the initial translation through to the final printing of their national instruments. For countries whose survey language is English, national adaptations to the materials are also required to accommodate the variations used in different English-speaking countries.

At the international level, the IEA Secretariat is responsible for ensuring that every country's translated and adapted materials undergo international translation verification. As part of the international quality assurance program, the international translation verification process requires that all national instruments go through a formal external review of the translations and adaptations prior to the commencement of the assessment. The translation verifiers provide detailed feedback to improve the accuracy of the national instruments for every country, in comparison to the international instruments. When the verified materials are returned, the National Research Coordinators (NRCs) are tasked with reviewing the translation verification feedback, revising their materials as needed, and updating their documentation for use during data processing and analysis. The translation and translation verification processes occur twice—first before the field test and then before the commencement of data collection. The IEA Secretariat manages these processes, which entails the careful documentation of outcomes at the various stages of translation, adaptation, translation verification, and revision.

Prior to the field test and before the commencement of data collection, the same general international translation verification procedures apply for all items except those designed to measure trends from previous cycles. Trend items undergo a separate international translation verification procedure to ensure consistency across assessment cycles.

The TIMSS Advanced 2015 materials required to undergo translation verification are:

- Student achievement items (assembled in blocks of advanced mathematics items and blocks of physics items)
- Background questionnaires for school principals, teachers, and students
- Covers and directions (for each achievement booklet and background questionnaire)
- Online covers and directions (for countries administering the teacher and school questionnaires online)

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

## The Translation Process

The TIMSS & PIRLS International Study Center provides directions for translating the achievement items and questionnaires, and requests that a skilled and experienced translator translate the international instruments. To ensure that national versions of the TIMSS Advanced 2015 instruments are consistent with the international version, the assessment translation guidelines allow for national adaptations where necessary. Following translation of the international 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. Certain countries employ multiple translators and reviewers, either working together to complete the tasks on schedule, or working independently to provide two or more reviews. When countries use more than one translator, they must reconcile the translation differences to ensure the production of a single consistently translated set of materials. 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 national translations.

## 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(s) and considering the participant's cultural context. English-speaking countries are also required to adapt the international version to suit the varieties of English used in their national contexts. This also applies to countries using and adapting translations developed by other country participants.

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 in 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 national instruments. This information minimizes the translation burden while highlighting the necessary changes to the translations prior to commencement of 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 national educational systems. In such cases, countries translate the student instruments into several target

languages to ensure that they can be administered in the language of instruction used for teaching in schools.

## Scope of Translation and Verification in TIMSS Advanced 2015

For the TIMSS Advanced 2015 cycle, nine countries prepared ten national sets of assessment materials in eight languages. Exhibit 7.1 lists the TIMSS Advanced 2015 countries, the target languages identified for each country, and the instruments to be translated.

**Exhibit 7.1: Languages Used for the TIMSS Advanced 2015 Assessment Instruments**

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire - Advanced Mathematics	Teacher Questionnaire - Physics	School Questionnaire
France	French	●	●	●	●	●
Italy	Italian	●	●	●	●	●
Lebanon	English	●	●	●	●	●
	French	●	●	●	●	●
Norway	Norwegian	●	●	●	●	●
Portugal	Portuguese	●	●	●	●	●
Russian Federation	Russian	●	●	●	●	●
Slovenia	Slovene	●	●	●	●	●
Sweden	Swedish	●	●	●	●	●
United States	English	●	●	●	●	●

## 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, including special forms for documenting each step of the adaptation, translation, and translation verification processes. According to the TIMSS Advanced 2015 assessment design, all of the achievement item blocks appear in more than one booklet, and 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. In addition to the international instruments, NRCs receive detailed manuals and instructional videos that provide information on how to work with the electronic files, including guidelines for translation and adaptation, and instructions for booklet assembly.

## 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 Advanced 2015 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 in translating texts in the subject areas related to the TIMSS Advanced 2015 assessment (advanced mathematics and physics, respectively)

In addition to the above, reviewers are also expected to have experience, preferably as a school teacher, with students in the target grade. Reviewers are primarily responsible for evaluating the readability and accuracy of the translation for the target population.

## Translation and Adaptation of the Achievement Test

While translating the TIMSS Advanced achievement test, it can be challenging to select appropriate terms and expressions in the target language(s) of each country that convey the same meaning and style of the text used in the international source version. When adapting and translating expressions with more contextually appropriate terms, translators must ensure that the meaning or difficulty of the item remains the same as in the international source 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. Translators must also ensure the consistency of adaptations and translations from item to item and across the materials. Similarly, for multiple-choice items, translators are instructed to pay particular attention to the literal and synonymous matches of the text in both the question stem and answer options, maintaining matches between international version and the translated national version.

NRCs are strongly encouraged to keep adaptations to a minimum, but some adaptations are necessary in order to prevent students from facing unfamiliar vocabulary or contexts that could hinder their ability to read and understand the item. At times, changes to the instruments may be required in order to follow national conventions of measurement, mathematical notation (e.g., decimal separator, multiplication sign), punctuation, and expressions of date and time. For example, 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 applicable in the target language. When the names of fictional cities or towns are adapted, translators are advised not to use 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, such as the proper names of actual people and places, as well as the fictional currency “zed” (which is used in the TIMSS Advanced 2015 items pertaining to 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 number of blocks (approximately 33%) are carried over to the next cycle (see [Chapter 1: Developing the TIMSS Advanced 2015 Achievement Items](#)) 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 during every cycle. For countries that previously participated in TIMSS Advanced 2008, the translations of the trend blocks used in the previous assessment(s) were compared against the 2015 assessment translations.

If a country determines that changes to the trend blocks are unequivocally required (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 country.

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 differ from the assessment items in that participating countries are required to adapt some terms, and to ensure that questions are appropriate within 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 <twelfth grade> would be adapted to the name of the actual language and grade in which the assessment is being administered. In Lebanon, these terms would be replaced by equivalents “English” and “Third secondary year”. 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. 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. Countries are permitted to add a limited number of national interest questions to the questionnaires. To avoid influencing the responses to 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. Please note that all national interest questions must be documented and approved by the TIMSS & PIRLS International Study Center before their inclusion in the questionnaires.

## The National Adaptation Form

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

When documenting an adaptation, the following information is recorded in the NAF: 1) identifying information (location and/or question number), 2) an English back translation of the adaptation, and 3) recoding instructions (if applicable). All locations of required adaptations are listed in the NAF with yellow cell backgrounds and with the terms in a different font color and in angle brackets to enable easy identification and review. For ease of use and documentation of the different stages of translation and translation verification, the NAF includes designated areas for each item, respondent, and instrument. After each round of international translation verification, the NAF is updated and revised with commentary from the international translation verifier and the NRC. The NAF is an important record of each country's final instruments, as it contains information used throughout the different stages of translation, adaptation, and translation verification.

In addition, the International Quality Control Monitors (IQCMs) also use the NAF after data collection to review the implementation of translation verification feedback (see the [Survey Operations Procedures](#) and [Quality Assurance](#) chapters). The NAF is referenced when adding national data to the international database and during data analysis.

## International Translation Verification

After the international instruments are translated and internally reviewed by countries, the national translations of the instruments are then submitted for 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 Advanced 2015, the international translation verifiers are responsible for reviewing and documenting the quality of the national instruments and their comparability 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, supplying them with a comprehensive set of instructional materials to support their work. For TIMSS Advanced 2015, international translation verifiers were trained through web-based seminars and provided with information about TIMSS Advanced 2015 and the assessment instruments. Each international translation verifier received a document containing 1) the description of the adaptation and translation guidelines, 2) the relevant manuals and instruments, and 3) 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, international translation verifiers were given a list of changes to the international instruments made after the field test, and given access to the relevant national field test NAFs.

## The International Translation Verification Process

The instructions and training given to the international translation 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 instruments and the NAFs. Verifiers are 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. Some of the typical errors identified by verifiers during translation verification include mistranslations, inconsistent translations (mathematical symbols, adaptation of ISCED levels, literal versus synonymous matches), omissions/additions of text, adaptations of names (fictional versus real), gender agreement, and grammar. After reviewing the documented comments and suggestions from the verifiers, NRCs revise and improve their national versions.

Translation verifiers record all comments viewed as major deviations or deviations in adaptations in the NAF. All verifier comments contain a code to help NRCs understand the severity and the type of deviation of the translated text with regard to the international version. In addition, verifiers review and comment on all adaptations reported in the NAF.

### 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 are equivalent to the trend items administered in the previous cycle
- Documenting any differences in content

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

## Outcomes and Summary for TIMSS Advanced 2015

In accordance with previous cycles of TIMSS Advanced, stringent procedures for translation, adaptation, and translation verification were implemented to ensure the production of high quality translations and internationally comparable TIMSS Advanced 2015 instruments. In addition, the TIMSS & PIRLS International Study Center provided the NRCs with comprehensive guidelines containing information about the NRC’s responsibilities, including the importance of employing highly skilled and experienced translators and reviewers for instrument production.

After the completion of the international translation verification processes (field test and data collection), NRCs reviewed the feedback from the translation verifiers. The feedback contained commentary and suggestions on errors in the texts, ranging from grammar and typographical errors to additions/deletions of text and mistranslations. Based on this important feedback and in agreement with the translation guidelines for TIMSS Advanced 2015, NRCs revised and improved the quality of their national versions.

The outcomes and feedback from translation verification confirm that countries followed the guidelines and procedures (including submission of materials and review of post-verification materials) to produce high quality and internationally comparable instruments for the TIMSS Advanced 2015 cycle.

## References

UNESCO Institute for Statistics. (2012). *ISCED: International standard classification of education*. Retrieved January 20, 2016, from <http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>.

