

Translation and Translation Verification

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Introduction

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

- ◆ Translation and adaptation of the international version of the TIMSS and PIRLS tests and questionnaires into national survey languages; and
- ◆ International verification of the national translations/adaptations.

The TIMSS & PIRLS International Study Center develops the international versions of the TIMSS and PIRLS assessment instruments in English, which participating countries translate and adapt into their languages of instruction. Since high quality translations are crucial to the quality of the TIMSS and PIRLS data, the national instruments are subject to multiple rounds of review by linguistic and assessment experts in order to ensure their equivalence with the international version.

The overarching aim of the translation and verification process is to produce high quality translations that are internationally comparable, yet appropriately adapted for each country's context and education system. As part of the TIMSS and PIRLS international quality assurance programs, translation verification means that each country's instruments undergo a formal, external review of the translations and adaptations prior to implementing the assessments.

The TIMSS and PIRLS assessment materials that require translation verification include:

- ◆ Student achievement test items (blocks of items for TIMSS and reading passages and items for PIRLS and pre PIRLS);
- ◆ Background questionnaires for students, parents (PIRLS and prePIRLS only), teachers, and school principals;
- ◆ Covers and directions (for each achievement booklet and background questionnaire); and

- ◆ Online covers and directions (for teacher and school questionnaires, online data collection only).

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

The translation and translation verification process occurs twice—first for the field test and then for the assessment itself. The translation/adaptation verification procedure is managed by the IEA Secretariat; the entire process is facilitated by careful documentation of outcomes at the various stages of translation, verification, and revision.

Scope of Translation and Verification in 2011

The 2011 cycle of TIMSS and PIRLS represented a significant joint effort in instrument preparation, with record numbers of countries and languages, as well as new challenges in translation/adaptation and verification. Fully 69 countries and 15 benchmarking participants prepared 215 sets of achievement tests and 170 sets of background questionnaires at the fourth and eighth grades, in a total of 58 languages.

The most common languages for the TIMSS assessment were English (19 countries) and Arabic (13 countries), with 21 countries administering all or parts of the assessment in two or more languages. The most commonly used languages for PIRLS were also English (16 countries) and Arabic (7 countries). In PIRLS, 17 countries administered the test and/or questionnaires in more than one language. (Please click [TIMSS 2011](#) or [PIRLS/prePIRLS 2011](#) to view the languages and instruments used for the main data collection in each country.)

As with other aspects of TIMSS and PIRLS in 2011, the alignment of data collection for the two projects required a coordinated approach to the background questionnaires preparation. Countries participating in both studies with the same students conducted a single translation of the fourth-grade questionnaires. Adapting the questionnaires to specific educational contexts was quite complex, particularly for countries that administered TIMSS or PIRLS in multiple languages or at a different grade than the internationally defined target grade, or that participated in both prePIRLS and PIRLS at different grades. Verifiers received detailed instructions and information on each country's participation configuration to ensure appropriate review and relevant feedback on the national materials.

TIMSS 2011 Arabic Translation

Beginning with TIMSS 2007, the TIMSS & PIRLS International Study Center also provided the TIMSS tests and questionnaires in an Arabic-language version, which was used as a basis for adaptation by countries administering the assessment in Arabic. The translation was developed through an extensively collaborative process between teams of expert translators and reviewers familiar with the terminology used in specific school subjects in different Arabic-speaking countries. This process ensured that the translation was accurate and could be adequately adapted for the varying country contexts.

The preparation of instruments in Arabic was carried out through a collaborative process of translation and review managed by the IEA Secretariat, in cooperation with Brantra (an independent translation agency based in Brussels, Belgium) and staff at the TIMSS & PIRLS International Study Center and IEA Data Processing and Research Center.

Primary work on the Arabic translation of the TIMSS 2011 field test instruments was conducted by a group of skilled translators from different Arabic-speaking countries. The translators prepared an initial translation of the international English version of the TIMSS 2011 fourth and eighth grade field test instruments (student achievement test and questionnaires for students, teachers, and school principals). Following translation, a panel of experts with considerable collective experience in the specific school subjects at the target grades reviewed and revised the translation, paying particular attention to the conformity of terminology with usage in school textbooks in a variety of Arabic-speaking countries. Next, the panel compiled a comprehensive list of explanatory notes, identifying any translation and adaptation issues for further attention and highlighting where certain terms might necessitate adaptation for the national context. After the field test and prior to the TIMSS 2011 assessment, the Arabic translation was reviewed and updated, as necessary, by the same teams of translators and reviewers. To facilitate this work, the translators were provided with a list of changes made to the international version as a result of the field test, which needed to be implemented in the Arabic translation.

Production files of the Arabic achievement booklets and background questionnaires are prepared using the Middle Eastern Version of Adobe InDesign. The TIMSS & PIRLS International Study Center imported the Arabic translations from Word/RTF into InDesign using CopyFlow Gold and applied fonts, styles, and graphics. The instruments then underwent a thorough review by staff at the TIMSS & PIRLS International Study Center to

ensure that translations had been placed correctly and the layout resembled the international version.

The Target Language

For most countries, identifying the language of the assessment (the “target” language) is relatively straightforward. This is typically the dominant language used in both the public and private arenas of society. Some countries, however, use more than one language of instruction in their education systems. Accordingly, such countries translate the student instruments into several target languages to ensure the assessment can be administered to students in the language in which they are taught in school. In some countries, the language of instruction differs from the language used at home. In these cases, countries translate the parents’ questionnaire into one or more additional languages (the languages most commonly spoken in the home), to allow parents to fill out the questionnaire in the language they feel most comfortable using.

Overview of the Translation and Verification Process

The basic approach to translation within each country is to have a skilled and experienced translator translate the achievement items and questionnaires according to the directions provided by the TIMSS & PIRLS International Study Center. Assessment translation guidelines aim to ensure that national versions of the TIMSS and PIRLS instruments are consistent with the international version, yet allow for national adaptations where necessary. Each country then has their translation independently reviewed by a highly qualified reviewer to make sure the translated instruments are student-level appropriate and of the highest quality. Of course, some countries need to employ multiple translators and reviewers either to complete the tasks on schedule, to work together, or to provide two or more independent views. In any case, it is very important that countries reconcile translation differences so that there is ultimately a single consistently translated set of materials to be reviewed. Similarly, countries using more than one reviewer are responsible for ensuring consistency of reviews across the translated materials. Further, it is recommended that countries preparing translations in more than one language involve professionals proficient in both languages to ensure translations are equivalent across languages.

From translation through final printing, all countries are required to follow standard, internationally agreed-upon procedures for preparing instruments

in their assessment language(s). These procedures entail responsibilities at both the national and international level. At the national level, countries are responsible for translating and/or adapting the international achievement tests and questionnaires according to TIMSS and PIRLS international guidelines, conducting an internal review of their appropriateness and quality, and documenting their adaptations for reference at later stages. Even for those countries whose survey language is English, adaptations are required to suit the variation of English used in the national context. Similarly, countries using the provided Arabic translation for the TIMSS assessment are expected to implement adaptations as necessary to conform to national usage and context.

At the international level, each country's translated and adapted materials undergo translation verification at the IEA Secretariat. The verifiers provide detailed feedback to improve the accuracy and comparability of the instruments. Following each round of verification, NRCs are tasked with reviewing the feedback, revising their materials as needed, and updating their documentation for use during data processing and analysis.

The same general procedures are followed prior to the field test and then again before assessment data collection, with the exception of a separate verification procedure for items designed to measure trends from previous cycles. (Please click to view the [TIMSS and PIRLS 2011 Schedule of Instrument Translation and Translation Verification](#).)

Translation and Adaptation of the Instruments

The TIMSS & PIRLS International Study Center provides NRCs with electronic files containing all of materials to be translated, as well as a special form for documenting each step of the translation and verification process. Because most of the achievement item blocks appear in more than one booklet, according to the TIMSS and PIRLS assessment designs, the component parts of the booklets (blocks, covers, and directions) are prepared as separate files to facilitate translation. This necessitates countries translate each component only once before assembly into booklet form. Detailed manuals and instructional videos accompany the international instruments, providing NRCs with information on how to work with the electronic files, support for right-to-left languages, and guidelines on translation and booklet assembly.

Translators and Reviewers

Countries are responsible for hiring highly qualified translators and reviewers who are well suited to the task of working with the TIMSS and PIRLS materials.

Essential qualifications for translators include:

- ◆ Excellent knowledge of English;
- ◆ Excellent knowledge of the target language;
- ◆ Experience in the country’s cultural context; and, if possible,
- ◆ Experience translating texts in the subject areas related to the TIMSS and PIRLS assessments (mathematics, science, and literary texts, respectively).

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

NRCs often need to hire several translators and reviewers per target grade and language in order to distribute the work, but are responsible for maintaining the consistency of the translations within and across instruments. Countries administering the assessment in more than one language are strongly advised to involve professionals competent in the various languages to ensure the consistency of the adaptations across the different language versions.

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 is also the case for: countries that adapt the English, international version of the TIMSS and PIRLS instruments to usage in their particular context; countries that adapt the Arabic translation to their national context; and countries that adapt the translation developed by another country to their national 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; and
- ◆ The translated text uses correct grammar, punctuation, qualifiers, and modifiers, as appropriate for the target language.

After the field test, NRCs are provided with a list of changes to the international version for reference while preparing their assessment instruments. This minimizes the translation burden but also highlights necessary changes to the translations before the assessment.

Translation and Adaptation of the Achievement Test

One of the main challenges of translating the TIMSS and PIRLS achievement tests is finding appropriate terms and expressions in the target language that convey the same meaning and style of text as the international version. When replacing expressions with more contextually appropriate terms, translators must ensure that the replacement does not affect the meaning or difficulty of the item. For instance, it is important that words pertinent to the content of an item are not simplified or clarified in such a way as to provide a hint or definition of the concept in question. Further, translators must ensure consistency of replacement. That is, if a word is changed in a reading passage, it should also be changed in any item that uses the word. Similarly, for multiple-choice items, translators are instructed to pay particular attention to the correspondence of text in the question stem and answer options, which should be maintained as in the international version.

NRCs are strongly encouraged to keep adaptations to a minimum, but in some cases adaptations are necessary so that students are not faced with unfamiliar contexts or vocabulary that could hinder their ability to read the passage or item. Changes may be necessary in order to follow national conventions of measurement, mathematical notation (e.g., decimal separator, multiplication sign), expressions of date and time, and punctuation. Also, a reference to the workweek as Monday to Friday might be altered according to national custom, or “apartment” in American English might be adapted to “flat” in British English. In addition, names of fictional characters and places may be changed to names in the target language of similar complexity. When adapting the names of fictional cities or towns, translators are advised not to use real place names; this prevents students’ responses from being influenced by their knowledge or perceptions of them.

Certain terms are not to be changed beyond translation, such as proper names of actual people and places, as well as the fictional currency “zed” (which is used in the TIMSS items about money). To help standardize the most common adaptations across countries, the TIMSS & PIRLS International Study Center prepares specific examples of acceptable and unacceptable adaptations, including a list of measurement conversions.

Translation and Adaptation of the Questionnaires

In contrast to the achievement test, the questionnaires include a number of terms that require adaptation by participating countries, to ensure that questions are appropriate for the education system and national context. NRCs replace the terms designated in angle brackets in the international version with their country-specific information. For example, <fourth grade> and <language of test> would be adapted to the name of the actual grade and language in which the achievement test is being administered—for example, with “Primary 4” and “English” in Singapore. In addition to these kinds of overarching adaptations, some terms related to specific aspects of teaching and learning are also designated for adaptation. For instance, NRCs adapt <in-service/professional development> with the term that denotes the supplemental training provided to teachers during their professional careers—for example, “qualification development” in Lithuania. Items asking about levels of education use the current version of the International Standard Classification of Education (ISCED) system, ISCED 1997, and also require adaptation to the equivalent educational terms for each country.

The translation and adaptation guidelines provided to countries include a detailed description of the intention of each required adaptation in order to clarify the terms used and help translators select the appropriate word or expression to convey the intended meaning. For adaptations related to ISCED levels, NRCs are instructed to consult UNESCO’s manual on the ISCED 1997 classification scheme.

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

Trend Assessment Blocks of Items

For the purpose of measuring changes in student achievement over time, certain achievement blocks are carried over from one cycle to the next (see Instrument Development in TIMSS and PIRLS). It is imperative to the quality of the trend measurement that these “trend blocks” from the previous cycle are administered in exactly the same way. Countries that participated in TIMSS 2007, TIMSS 2003, PIRLS 2006, and/or PIRLS 2001 were required to use the exact same translations of the trend blocks in 2011 that they had used in the previous assessment.

If a country determines that changes to the trend blocks are absolutely necessary (for instance, in order to correct an error discovered in an earlier translation), the changes are carefully documented and reviewed. The changed item, however, is not included in the trend analyses for that participant.

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

The National Adaptation Form

The National Adaptation Form (NAF) is designed in Excel format to contain the complete translation, adaptation, and verification history of each set of national instruments. The form is completed and reviewed at various stages of the instrument preparation process.

NRCs are required to document all national adaptations in the NAF, and to prepare one NAF for each language and set of instruments. The first version of the NAF is filled out during translation and adaptation in a collaborative effort among the translator(s), reviewer(s), and NRC. The translator and reviewer document the adaptations made, which the NRC subsequently reviews and consolidates. After each round of international verification, an updated version of the NAF is prepared that includes comments from the verifiers and the NRC.

The information collected about national adaptations includes identifying information (question number and/or location), a back translation of the adaptation in English, and recoding instructions (if applicable). Where adaptations are required, they are listed in the NAF in angle brackets for easy visibility and review. The NAF includes designated areas for each instrument, item, and respondent so that at all stages the verification outcomes are clearly labeled and easy to interpret.

Because they are used throughout translation and verification, the NAFs are an important record of each country’s final instruments. After data

collection, the NAFs are used by the International Quality Control Monitors to review the implementation of verification feedback (see Survey Operations and Quality Assurance in TIMSS and PIRLS). NAFs also are referenced when adding national data to the international database and during data analysis.

International Translation Verification

Once the instruments are translated and internally reviewed, the translations of the covers and directions, achievement blocks, and questionnaires are submitted for international translation verification. This process is managed by the IEA Secretariat in coordination with an external translation verification company, cApStAn Linguistic Quality Control (based in Brussels, Belgium).

Translation Verifiers

The international translation verifiers for TIMSS and PIRLS are responsible for documenting the quality and comparability of the national instruments. Their required qualifications 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; and
- ◆ Residency in the target country, or close contact with the country and its culture.

The international translation verifiers receive training and a comprehensive set of instructional materials to support their work. During in-person and web-based training seminars, verifiers are provided with information about TIMSS and PIRLS and their instruments. They receive a description of the translation and adaptation procedures accompanied by the relevant manuals and instruments, and detailed instructions on their tasks of reviewing the instruments and registering deviations from the international version. Verifiers of the final assessment instruments also obtain access to the relevant national field test NAFs and a list of changes to the international instruments after the field test.

The Translation Verification Process

Instructions for verifiers emphasize the importance of maintaining the same meaning and difficulty level in the translated text, and ensuring the adequacy

and consistency of adaptations within and across instruments. The translation verification process involves:

- ◆ Checking the accuracy, linguistic correctness, and comparability of the translation and adaptations of the achievement tests and questionnaires;
- ◆ Documenting any deviations between the national and international versions, including additions, deletions, and mistranslations; and
- ◆ Suggesting an alternative translation/adaptation to improve the accuracy and comparability of the national instruments.

The feedback from translation verification is provided in both the instruments and the NAF. Verifiers are asked to correct and/or note specific errors directly in the text of the tests and questionnaires (using the “Track Changes” function in Microsoft Word or “Sticky Notes” in Adobe PDF, depending on the format of the submitted instruments). Key comments on deviations in the translation/adaptation are entered in the NAF. To help NRCs understand the comparability of the translated text with the international version, all comments are accompanied by a code to indicate the severity and type of deviation. In addition, verifiers are required to review any adaptations reported by the NRC in the NAF, and to provide an evaluation of their adequacy.

Codes Used in Verification Feedback

The international translation verifiers aim to provide meaningful feedback to help NRCs, TIMSS & PIRLS International Study Center staff, and other members of the study consortium understand the quality and comparability of the translated/adapted instruments. 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 and 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 of a question or answer option; incorrect translation resulting in the answer being suggested by the question; incorrect translation that changes the meaning or difficulty of the passage or question;

incorrect order of questions or answer options in a multiple-choice question.

In case of 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 if needed.

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

CODE 3 is used when the verifier considers the translation adequate, but suggests an alternative wording.

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

Verification of the Trend Assessment Blocks

Because it is essential that the trend items not be changed, the international verification procedure for the main data collection instruments includes a ‘trend check’ for all countries participating in trend comparisons. This involves:

- ◆ Checking the identicalness of each of the trend items for the current cycle with the trend items as they were administered in the previous cycle; and
- ◆ Documenting any differences in content.

A special form is provided for verifiers to describe any discrepancies found and the nature of the change. Their feedback is provided to NRCs for careful review, along with the instruction to discuss any proposed changes with the TIMSS & PIRLS International Study Center.

Outcomes and Summary for TIMSS and PIRLS 2011

Like its predecessors, the 2011 cycle of TIMSS and PIRLS incorporated stringent procedures for translation and translation verification to ensure the high quality and international comparability of the instruments prepared by participating countries. Comprehensive guidelines informed NRCs of their responsibilities in this process, from appointing skilled and experienced translators, to ensuring the NAF’s accuracy as a record of all national adaptations. In addition to the internal review carried out by each country, instruments underwent a rigorous international verification of the translations and adaptations by well-trained and experienced verifiers.

In general, countries complied very well with the requirements for translation verification, including the procedures for submission, documentation, and review (post-verification).

Some typical errors identified for improvement during translation verification included mistranslations, inconsistencies (literal vs. synonymous matches, adaptation of ISCED levels, mathematical symbols), omissions/additions, adaptations of names (fictional vs. real), style (gender agreement, formality), and grammar. Of particular challenge were some domain-specialist concepts in mathematics and science (e.g., “line of symmetry”) and idiomatic expressions in the reading passages (e.g., “it looked good enough to eat”). Through a collaborative approach, facilitated by documentation and guidance from the verifiers, NRCs were able to find accurate and appropriate translations.

Results from translation verification indicate that the national instruments were of very high quality overall, striking a good balance between faithfulness and fluency, and accompanied by well-prepared and complete documentation. This was particularly evident during the verification of the final assessment; verifiers reported that countries' translations had been prepared with great care, benefitting from the detailed feedback provided during the field test verification.