

CHAPTER 5

Systems and Instrument Verification for PIRLS 2021

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Overview

The TIMSS & PIRLS International Study Center developed the international version of the PIRLS 2021 assessment instruments, including the achievement test, context questionnaires, and procedural manuals, in English. Using the international version of the instruments as a source, participating countries translated and adapted the materials into their languages of instruction according to their cultural contexts. Consistent with previous PIRLS assessments, ensuring the international comparability of the data collected from national instruments was an essential process of PIRLS 2021. To ensure a fair basis for comparing reading achievement across countries, languages, and contexts, all participating countries followed internationally agreed-upon standardized procedures for preparing their national assessment instruments.

The PIRLS 2021 cycle marked the transition to digital administration of the PIRLS assessment, which also meant major reforms in international and national assessment instrument preparations and assessment instrument delivery methods. The digitalPIRLS 2021 assessment was delivered online or offline to students in about half of the participating countries. In addition to digital versions of the 18 text and item sets in the paper assessment, the digital assessment included five ePIRLS online informational reading tasks, three of which had been administered as part of ePIRLS 2016. Students receiving the achievement test in the digital format also received the PIRLS 2021 Student Questionnaire in this format for the first time. Preparing and checking the software and applications systems used by countries to translate, adapt, verify, and administer the instruments was a major undertaking for PIRLS 2021 participants, as well as for the staff from TIMSS & PIRLS International Study Center, IEA Amsterdam, and IEA Hamburg.

PIRLS 2021 utilized an assessment platform owned by RM (www.rm.com) to implement and translate the achievement instruments and student questionnaire and to deliver the assessment.

Once the development of the international version of these instruments was completed, RM's Assessment Master (AM) Online Translation System was used for national instrument translation, localization, and verification. The PIRLS Player delivered the assessment to students in the participating countries. As with the previous cycle of PIRLS, the online administration option for the school, teacher, and home questionnaires was facilitated by IEA's Online SurveySystem Software.

While about half of the participating countries administered PIRLS 2021 via the digital delivery system, the remaining countries administered PIRLS 2021 via paper instruments. In addition, countries administering the digital assessment prepared and administered paper booklets of their trend passages (bridge booklets) from PIRLS 2016 to a subsample of schools to “bridge” the two administration modes. Preparation of national paper instruments mirrored the [procedures of PIRLS 2016](#).

After translating and adapting the international source materials to the language(s) of instruction, each country's instruments underwent a formal review of the translations and adaptations by linguistic and assessment experts. The process included two stages for paper instruments and three stages for digital instruments: 1) translation verification, 2) layout and adaptations verification, and, for digital countries, 3) creation and review of national PIRLS Players for delivery of the assessment in the participating countries.

IEA Amsterdam managed the translation verification process, which involved external verifiers comparing the national to the international text and providing detailed feedback for the National Research Coordinators (NRCs) to improve the accuracy and comparability of the national translations. After reviewing the feedback, revising materials as needed, and documenting changes, NRCs submitted the instruments for layout and adaptations verification. The TIMSS & PIRLS International Study Center conducted layout and adaptations verification, where the verifiers checked that all national instruments matched the international format and that any national adaptations to the instruments did not unduly influence their international comparability.

In order to deliver the digital assessment to students across many countries with very diverse languages and cultures, PIRLS 2021 required an extensive localization process. This process ensured appropriate translation and adaptation, proper alignment and appearance, and system functionality of national instruments and PIRLS Players. The PIRLS Player production process involved staff from the TIMSS & PIRLS International Study Center, who collaborated with NRCs as well as staff from IEA Hamburg and RM.

The verification and localization processes were conducted once before the field test and then again prior to the main data collection. Before data collection, the process involved verifying any changes made to field test materials and checking the trend materials to document any changes. In the interest of measuring trends in student achievement over time, the overall process of instrument translation and verification is implemented each PIRLS cycle, helping to maintain the quality and consistency of assessment content across cycles.

Providing Instruments, Systems, and Support Materials to Countries for Translation and Adaptation

The TIMSS & PIRLS International Study Center provided National Research Coordinators (NRCs) with the appropriate (paper or digital) international version of the PIRLS instruments for translation, along with detailed manuals to assist in the translation, adaptation, and verification processes. In addition, IEA Amsterdam provided technical manuals and a webinar on the functions and features of the AM Online Translation System used by countries administering the digitalPIRLS assessment.

For the digitalPIRLS achievement and student questionnaire materials, NRCs received login details for accessing the AM Online Translation System and a manual on accessing and using the translation system, including guidelines for translation and adaptations as well as procedures for the instrument verification process. The TIMSS & PIRLS International Study Center also provided PDF versions of the international digital instruments for reference.

For administration of the paper achievement materials and paper context questionnaires, NRCs received electronic instrument production files in rich text format (RTF) and InDesign format, with full international PDF versions as reference. NRCs also were provided with a manual and videos on using the provided files, translation and adaptation guidelines, and procedures for instrument verification. In addition to the instrument files, National Adaptations Forms (NAFs) for documenting the translation and adaptations processes, were provided. Finally, additional InDesign support materials for right-to-left languages also were provided.

As part of the [PIRLS assessment design](#), each assessment “block” (PIRLS passage or ePIRLS task with their items) appears in at least two different booklets (including “digital booklets” or “block combinations”) along with a directions module and other instructional screens or pages. Therefore, the component parts of the booklets (e.g., passages/tasks, directions, and instructions) were prepared separately to facilitate translation by allowing countries to translate each component only once. Booklets were assembled after the translation process with the InDesign software for paper administration and within the AM system for digital administration.

For the online administration of the school, teacher, and home questionnaires, IEA Hamburg provided its IEA Online SurveySystem Software, along with access information and a technical manual. Detailed instructions for using the system also were included in the Survey Operations Procedures manual provided by the TIMSS & PIRLS International Study Center.

Before data collection, the TIMSS & PIRLS International Study Center provided NRCs with a list of changes made to the international versions of the field test instruments for reference in preparing their assessment instruments for the main data collection. This information helped minimize the translation burden by highlighting the necessary changes to the translations before data collection.

Guidelines for Translation and Adaptation

The TIMSS & PIRLS International Study Center provided guidelines for translating and adapting the PIRLS 2021 instruments. The purpose of these guidelines was to ensure that when countries translated and adapted the PIRLS assessment instruments, the meaning and difficulty level of the national version of the instruments remained the same as the international version while following the rules of the target language and the country’s cultural context. Countries that shared or collaborated to produce a common translation and countries that borrowed a translation prepared by another country were required to revise and adapt the translation to their cultural context and language usage.

In accordance with the guidelines for translation and adaptation, translators and reviewers were asked to ensure that:

- The translated texts had the same register (language level and degree of formality) as the source texts.
- The translated texts had correct grammar and usage (e.g., subject/verb agreement, prepositions, verb tenses, etc.).
- The translated texts did not clarify or add more information to the source text.
- The translated texts had qualifiers and modifiers that were equivalent to the international version and appropriate for the target language.
- Idiomatic expressions were translated appropriately, using localized expressions rather than translating the source text word for word.
- Spelling, punctuation, and capitalization in the target texts were appropriate for the target language and the country’s national context.

Assessment Blocks to Measure Trends

Based on the PIRLS study design, about two thirds of the PIRLS 2021 assessment blocks (passages and their items) were carried over from the previous cycle for the purpose of measuring changes in student achievement over time. To ensure the quality of the trend measurement, the “trend blocks” had to be identical to the same blocks administered in the previous cycle. During the review of the trend translations, if a country determined that a change to the trend text was absolutely necessary due to a new specific grammar or language use rule or to correct a mistranslation, the change was documented for review during the verification process. Sometimes countries also noted a change to correct a minor spelling error or typo. Changes correcting a major error in the previous cycle’s instrument (e.g., missing text, swapped text, or similar error making an item impossible to answer) were extremely rare. However, when such a change was necessary, it was noted for the item data review, and the corresponding item was flagged for removal from the trend measurement. Any

other change to a trend block, whether documented by a country or found during the verification process, was requested to be reverted to match the version of the previous study cycle.

National Adaptations Documentation

Preparing each set of national instruments requires extensive documentation of the complete history of the adaptation, translation, and verification stages. National adaptation documentation was completed and reviewed during various stages of the instrument preparation process by the translators, reviewers, and NRCs. In addition to facilitating the translation and adaptation process, this documentation provided important records of each country's final instruments and was used by TIMSS & PIRLS International Study Center staff during [achievement item review](#). It was also used by the International Quality Control Monitors to review the implementation of verification feedback in the final printed assessment instruments (see [Chapter 4](#) and [Chapter 6](#)). National adaptations documentation also was referenced by IEA Hamburg during data processing to prepare national and international database files (see [Chapter 7](#)). The PIRLS 2021 National Adaptations Database (a supplement to the [PIRLS 2021 User Guide to the International Database](#)) contains a record of adaptations made to countries' questionnaire items as an aid to users of the data.

For countries administering PIRLS digitally, all national adaptations and verification comments to achievement materials were documented directly in the AM Online Translation System (see next section). For countries preparing paper instruments, the process for documenting the translation and adaptation process mirrored the [procedures of PIRLS 2016](#) and required the use of an Excel file called a National Adaptations Form (NAF) for each set of national instruments.

For preparing the PIRLS 2021 context questionnaires, NAFs were used to document digital and paper-based adaptations, including added national options and questions. NRCs prepared one NAF per language for the context questionnaires. For the digital student questionnaire, RM staff referenced the NAF for implementing any country-specific structural adaptations (added national or deleted international options or questions) in the AM System. Translation and adaptation verifiers used the NAFs to ensure the correct documentation and implementation of these changes in the system. During the process of translation and adaptation of paper instruments, the translators and reviewers completed the first version of the NAF, after which the NRC reviewed and consolidated all documentation. After each stage of international verification, the NAF was updated and revised with comments from the verifiers and the NRC.

When documenting an adaptation, the following information was recorded in the NAF: identifying information (location and/or question number), the adaptation itself, a back-translation in English of the adaptation, a brief explanation for the adaptation, and recoding instructions (if applicable). To enable easy identification and review, all required adaptations in the NAF were listed in angle brackets with a different font color and with yellow cell backgrounds. The NAF specified

designated areas for the documentation at each stage of instrument preparation and verification to maintain a complete record of the process.

Countries administering PIRLS digitally were also provided with Bridge Verification Forms for the paper bridge booklets. Because the bridge booklets were composed of each country's trend blocks and did not contain any new translations or adaptations, the Bridge Verification Forms were a simplified version of the full paperPIRLS NAF. These forms did not need to be filled out by NRCs but, rather, were used by the verifiers to document any deviations from trend and any layout issues noted during verification.

AM Online Translation System

For any international assessment, a translation system is a critical part of assessment instrument preparation, particularly for digital administration. The AM Online Translation system was used by multiple parties in PIRLS 2021, including NRCs and translators from participating countries, translation verifiers employed by IEA Amsterdam, and layout verifiers from the TIMSS & PIRLS International Study Center. In addition to its primary purpose of allowing countries to translate and adapt the digital achievement test and student questionnaire materials, the AM Online Translation system was used to facilitate the PIRLS 2021 verification process. The system ensured the appropriate workflow by assigning appropriate user rights at each of eight different stages. The final product of the translation system was a national "PIRLS Player" for each country and language that delivered the assessment to students.

The national instrument preparation process began with the release of a copy of the international English version of the achievement items into a separate language-specific folder for each country. This release was followed by a workflow consisting of a series of status indicators, set by the various parties involved in the process, that communicated the progress of the translation and verification process. These status indicators were defined by IEA Amsterdam and the TIMSS & PIRLS International Study Center as follows:

- **In Translation & Adaptation:** This was the default status. Upon receiving the translation system, all contents had status "In Translation & Adaptation."
- **Ready for Translation Verification:** National users (NRC, translator, reviewer) set this status. All contents had to be set to this status in order to submit materials for translation verification.
- **In Translation Verification:** IEA Amsterdam set all contents to this status for the duration of translation verification. This locked the system for national editing.
- **In NRC Translation Approval:** IEA Amsterdam set all contents to this status when translation verification was completed. This unlocked the system for countries to edit their materials and to respond to the translation verifier's feedback and finalize translations.

- **Ready for Layout Verification:** National users (NRC, translator, reviewer) set this status. All contents had to be set to this status in order to submit materials for layout and adaptations verification.
- **In Layout Verification:** The TIMSS & PIRLS International Study Center set all contents to this status for the duration of layout verification. This locked the system for national editing.
- **In NRC Layout Approval:** The TIMSS & PIRLS International Study Center set all contents to this status when layout verification was completed. This unlocked the system so that countries could edit their materials, respond to the layout verifier’s feedback, and finalize the materials.
- **Instrument Finalized:** The NRC assigned this status to finalized contents and then informed the TIMSS & PIRLS International Study Center that the materials were ready. The system was then locked for any further edits and the national PIRLS Player was created.

At each step, comments to document the process could be left by the user. Comments were labeled so as to indicate whether they concerned translation, layout, or a national adaptation. NRCs could also pose questions to reviewers or staff from TIMSS & PIRLS International Study Center and IEA Amsterdam.

A preview feature was available for all users to display content as it would appear within the PIRLS Player. This was especially useful during layout verification, as the preview allowed a comparison between the national player and the original (untranslated) international source version.

The AM Online Translation System was used for the field test and for the main data collection. After the field test, translations were carried over to the main data collection materials for each country and language. Countries were responsible for reviewing the materials and retranslating or newly translating the main data collection materials based on the provided international version and documentation. For countries that had participated in the optional ePIRLS 2016 assessment, translations were carried over from the previously used system to the AM Online Translation System. Countries were asked to closely review these translations, as transferring translations from one system to another had proven to be very challenging in the past. The transfer proved successful for PIRLS 2021.

IEA’s Online SurveySystem

Countries used IEA’s Online SurveySystem to prepare web-based versions of their national school, teacher, and home questionnaires. The SurveySystem software includes design, presentation, and monitoring components. The design component, known as the “Designer,” supports the

preparation of the online questionnaires, data management, and data output to IEA Hamburg. Through the Designer, countries can translate and adapt the international versions of the online questionnaires to their national language. To facilitate translation and adaptation, the Designer concurrently stored the original English question text and the translations or national adaptations. It also stored the variable names and data validation rules. If a national center decided not to administer a particular international question or option, it could be disabled in the Designer and would not be administered during the online questionnaire administration. The Designer also included an integrated preview function that allowed for a visual side-by-side comparison of the paper/PDF and online versions of the questionnaires. More information on Online SurveySystem is provided in [Chapter 4](#).

Scope of Translation and Verification in PIRLS 2021

For the PIRLS 2021 assessment cycle, a total of 57 countries and 8 benchmarking participants prepared 96 sets of achievement test materials and 100 sets of context questionnaires in 56 languages.¹ For digital administration, there were 28 participating countries and 5 benchmarking entities with 32 different languages. For paper administration, there were 31 participating countries and 1 benchmarking entity with 33 different languages.

For most countries, identifying the language of administration (i.e., target language) was straightforward, as there was a predominant language used for instruction in the country's education system. For countries having more than one language of instruction, the instruments were translated into different languages so that the test could be administered in the school's language of instruction. For countries where the language spoken at home varied from the language of instruction, the home questionnaire (addressed to parents or primary caregivers) was also translated into these home languages.

The most common target language was English (17 countries and 4 benchmarking entities), followed by Arabic (9 countries and 2 benchmarking entities), Russian (6 countries and 1 benchmarking entity), Albanian (3 countries), and French (3 countries and 2 benchmarking entities). Of these participants, 24 countries and 5 benchmarking entities administered their instruments in more than one language.

Exhibit 5.1 lists the PIRLS 2021 countries, the target languages identified for each country, and the instruments administered in each country and language.

¹ Counts may be inconsistent with Exhibit 5.1 due to omission of benchmarking entities that share instruments with the national country participant and did not require additional translation and layout verification. Chile prepared the assessment materials but was not able to conduct data collection due to the COVID-19 pandemic.

Exhibit 5.1: Languages used for the PIRLS 2021 Assessment Instruments

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Albania	Albanian	•	•	•	•	•
Australia	English	•	•	•	•	
Austria	German	•	•	•	•	•
Azerbaijan	Azerbaijani	•	•	•	•	•
	Russian	•	•	•		•
Bahrain	Arabic	•	•	•	•	•
	English	•	•	•	•	•
Belgium (Flemish)	Dutch	•	•	•	•	•
Belgium (French)	French	•	•	•	•	•
Brazil	Portuguese	•	•	•	•	•
Bulgaria	Bulgarian	•	•	•	•	•
Canada ¹	English	•	•	•	•	•
	French	•	•	•	•	•
Chile ²	Spanish (Castilian)	•	•	•	•	•
Chinese Taipei	Chinese	•	•	•	•	•
Croatia	Croatian	•	•	•	•	•
Cyprus	English	•	•	•	•	•
	Greek	•	•	•	•	•
Czech Republic	Czech	•	•	•	•	•
Denmark	Danish	•	•	•	•	•
Egypt	Arabic	•	•	•	•	•
England	English	•	•	•	•	
Finland	Finnish	•	•	•	•	•
	Swedish	•	•	•	•	•
France	French	•	•	•	•	•
Georgia	Georgian	•	•	•	•	•

Exhibit 5.1: Languages used for the PIRLS 2021 Assessment Instruments (Continued)

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
Germany	German	•	•	•	•	•
Hong Kong SAR	Chinese	•	•	•	•	•
Hungary	Hungarian	•	•	•	•	•
Iran, Islamic Rep. of	Farsi	•	•	•	•	•
Ireland	English	•	•	•	•	•
	Gaelic		•	•	•	•
Israel	Arabic	•	•	•	•	•
	Hebrew	•	•	•	•	•
Italy	Italian	•	•	•	•	•
Jordan	Arabic	•	•	•	•	•
Kazakhstan	Kazakh	•	•	•	•	•
	Russian	•	•	•	•	•
Kosovo	Albanian	•	•	•	•	•
Latvia	Latvian	•	•	•	•	•
	Russian	•	•			•
Lithuania	Lithuanian	•	•	•	•	•
	Polish	•	•			
	Russian	•	•			
Macao	Chinese	•	•	•	•	•
	English	•	•	•	•	•
	Portuguese	•	•	•	•	•
Malta	English	•	•	•	•	•
	Maltese	•	•			•
Montenegro	Montenegrin	•	•	•	•	•
Morocco	Arabic	•	•	•	•	•
Netherlands	Dutch	•	•	•	•	•

Exhibit 5.1: Languages used for the PIRLS 2021 Assessment Instruments (Continued)

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
New Zealand	English	•	•	•	•	•
	Maori	•	•	•	•	•
North Macedonia	Albanian	•	•	•	•	•
	Macedonian	•	•	•	•	•
Northern Ireland	English	•	•	•	•	•
Norway	Bokmål	•	•	•	•	•
	Nynorsk	•	•	•	•	•
Oman	Arabic	•	•	•	•	•
	English	•	•	•	•	•
Poland	Polish	•	•	•	•	•
Portugal	Portuguese	•	•	•	•	•
Qatar	Arabic	•	•	•	•	•
	English	•	•	•	•	•
Russian Federation	Russian	•	•	•	•	•
Saudi Arabia	Arabic	•	•	•	•	•
	English	•	•	•	•	•
Serbia	Serbian	•	•	•	•	•
Singapore	English	•	•	•	•	•
	Chinese					•
	Malay					•
	Tamil					•
Slovak Republic	Hungarian	•	•			•
	Slovak	•	•	•	•	•
Slovenia	Slovenian	•	•	•	•	•

Exhibit 5.1: Languages used for the PIRLS 2021 Assessment Instruments (Continued)

Country	Language	Instruments				
		Achievement Test	Student Questionnaire	Teacher Questionnaire	School Questionnaire	Home Questionnaire
South Africa	Afrikaans	•	•	•	•	•
	English	•	•	•	•	•
	isiNdebele	•	•			•
	isiXhosa	•	•			•
	isiZulu	•	•			•
	Sepedi	•	•			•
	Sesotho	•	•			•
	Setswana	•	•			•
	siSwati	•	•			•
	Tshivenda	•	•			•
	Xitsonga	•	•			•
Spain	Basque	•	•	•	•	•
	Catalan	•	•	•	•	•
	Galician	•	•	•	•	•
	Spanish (Castilian)	•	•	•	•	•
	Valencian	•	•	•	•	•
Sweden	Swedish	•	•	•	•	•
Turkiye	Turkish	•	•	•	•	•
United Arab Emirates	Arabic	•	•	•	•	•
	English	•	•	•	•	•
United States	English	•	•	•	•	
Uzbekistan	Karakalpak	•	•	•	•	•
	Russian	•	•	•	•	•
	Uzbek	•	•	•	•	•

1 Canada's instruments were used in the benchmarking provinces of Alberta, British Columbia, Newfoundland & Labrador, Ontario, and Quebec. Ontario's results were not reported due to insufficient data.

2 Chile prepared the assessment materials but was not able to conduct data collection due to the COVID-19 pandemic.

Translation and Translation Verification

When translating and adapting the instruments, all countries were required to follow the standard, internationally agreed-upon procedures for preparing their national instruments. Nationally, countries were responsible for translating and adapting the international assessment instruments according to the international guidelines for PIRLS, conducting a review of their national translation's quality and appropriateness, and documenting all national adaptations for reference at later stages. Although English-speaking countries did not need to translate the instruments, they adapted the instruments to accommodate their cultural contexts and variations in English.

Participating countries could share or collaborate to produce a common translation that reduced the time and workload allocated for the instrument's preparation. Countries that followed these procedures still needed to adapt the instruments to their national context following the TIMSS & PIRLS International Study Center guidelines.

Translators and Reviewers

All countries and benchmarking participants were advised to hire highly qualified translators and reviewers well suited to the task of working with the PIRLS materials. The essential qualifications for both roles included:

- Excellent knowledge of English
- Excellent knowledge of the target language
- Experience of the country's cultural context
- Experience in translating literary texts, preferably at the level of the target grade.

The primary responsibility of the reviewer was 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, reviewers were expected to have experience with students in the target grade, preferably as a school teacher.

In cases where multiple translators or reviewers were needed to facilitate the process, NRCs were responsible for maintaining the consistency of the translations within and across instruments. Countries that administered the assessment in more than one language were advised to employ translators and reviewers that were highly proficient in these multiple languages to ensure the consistency of the translations and adaptations across different language versions.

Translating and Adapting the Achievement Instruments

One of the main challenges in translating PIRLS texts and items 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 contextually

appropriate terms, translators ensured that the meaning and difficulty of the text remained the same as the international version. In particular, it was important that the translators did not simplify or clarify the text in such a way as to provide a hint or definition of the meaning of a question. Translators also ensured the consistency of adaptations and translations from item to item. Translators were also instructed to pay particular attention to the literal and synonymous matches of text in the question stem and in the answer options for selected-response items. Any matches in the international version were maintained in the translated national version.

Although NRCs were strongly advised to keep adaptations to a minimum, some adaptations were necessary in order to prevent students from facing unfamiliar contexts or vocabulary that could hinder their ability to read and understand the text or item. In some cases, it was necessary to make changes to follow national conventions of measurement, punctuation, and expressions of date and time, as well as idiomatic expressions. 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 could be adapted to “torch” in British English. In addition, fictional names of characters and places could be modified to similar names in the target language. When adapting the names of fictional cities or towns, translators were instructed not to use real names of places so as to prevent student responses from being influenced by their perceptions and knowledge of the real locations.

Some terms within the PIRLS texts were not to be adapted or changed beyond translation. Examples included proper names of actual people and places. To aid in the standardization of common adaptations across countries, the TIMSS & PIRLS International Study Center provided a list of specific examples of acceptable and unacceptable adaptations.

For the ePIRLS tasks, consisting of simulated webpages, special attention was needed to ensure that the translations and adaptations were appropriate and consistent with website terminology.

Translating and Adapting the Context Questionnaires

Translation procedures for the questionnaires differed from that for the achievement texts and items. Participating countries were required to adapt some terms to ensure that questions were appropriate for the national context and education system. In the international version, terms requiring adaptation were listed in angle brackets containing a description of what country-specific information was needed. For example, <language of test> and <fourth grade> would be adapted to the actual language and grade in which the assessment is administered—in the Netherlands, these terms would be replaced by their equivalents, “Nederlands” (Dutch) and “groep 6” (grade 4). Items assessing levels of education used the current version of the International Standard Classification of Education (ISCED) system, ISCED 2011 (UNESCO Institute for Statistics, 2012), and required adaptation to the nationally equivalent educational terms for each participating country.

The guidelines for translation and adaptation provided to countries contained detailed descriptions of each required adaptation, including the intent of each adaptation to help translators convey the intended meaning with an appropriate national term or expression. Translators also were instructed to focus on the clarity and appropriateness of the language for each addressed target group (parents, schools, teachers, or students).

For PIRLS 2021, the main difficulties encountered in adapting the questionnaires involved terminology, specific educational contexts, and, for a few countries, consistency across multiple languages of administration. In particular, the onset of the COVID-19 pandemic prior to scheduled data collection made identifying the month of test administration and the target grade more difficult as countries adjusted their schedules in response to school closings.

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

International Translation Verifiers

After the instruments were translated and adapted, they were submitted to IEA Amsterdam for translation verification. For PIRLS 2021, the international translation verifiers were responsible for reviewing and documenting the quality of the national instruments and their comparability to the international instruments. The required qualifications for international translation verifiers were as follows:

- 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

IEA Amsterdam, in collaboration with cApStAn Linguistic Quality Control, trained the international translation verifiers and provided them with a comprehensive set of instructional materials to support their work. For PIRLS 2021, web-based seminars were used to provide verifiers with information about PIRLS, the assessment instruments, and the verification procedures. Each verifier received a set of materials including 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 documenting deviations from the international version.

For the verification of data collection instruments, verifiers received a document listing the revisions implemented after the field test to the international instruments and the NAFs used during the field test. Verifiers of the bridge booklets also received a Bridge Verification Form for documenting any changes to the instruments from previous cycles.

Translation Verification

The instructions and training given to the verifiers emphasized the importance of maintaining the same meaning and difficulty level in the translations and adaptations as in the international versions of the PIRLS 2021 assessment instruments. Verifiers were also instructed to ensure that translations and adaptations were adequate and consistent within and across national instruments. The translation verification process involved the following:

- Checking the accuracy, linguistic correctness, and comparability of the translated and adapted achievement passages and questionnaires
- Documenting any deviations between the national and international versions, including additions, deletions, mistranslations, or changes of wording
- Suggesting alternative translations/adaptations to improve the accuracy and comparability of the national instruments (where applicable).

During the verification prior to the data collection, verifiers checked that all revisions made to the international instruments after the field test had been implemented and that, unless otherwise documented, the adaptations from the field test had been maintained in the data collection instruments.

Verifiers provided feedback on the quality of the translated and adapted materials directly in the instruments, through the AM Online Translation System, or in the accompanying NAFs. When correcting the text of the assessment items and questionnaires, the verifiers were instructed to add notes to their interventions specifying the reason for the revision.

All verifier comments were accompanied by a code to help NRCs understand the severity and type of deviation of the translated text from the international version (see Exhibit 5.2). Translation verifiers were also instructed to review all adaptations and check whether the adaptations were correctly documented and implemented for review by the NRC and the TIMSS & PIRLS International Study Center.

Exhibit 5.2: Translation Verification Feedback Codes for PIRLS 2021

Code 1	Indicates a major change or error that affects the meaning or difficulty of the text. Examples include mistranslations, change in the meaning or difficulty of a text, the omission or addition of information, incorrect order of questions or response options, and/or incorrectly implemented national adaptations.
Code 1?	If in any doubt, verifiers are instructed to use Code 1? so that the error was referred to the TIMSS & PIRLS International Study Center for further consultation. Examples include undocumented or incorrect adaptations.
Code 2	Indicates a minor change or error that does not affect the comprehension of the text. Examples include spelling or grammar errors.
Code 3	Used by verifiers to suggest an alternative wording for an otherwise appropriate translation.
Code 4	Indicates that an adaptation was implemented as suggested by the NRC. This adaptation still had to be reviewed and accepted by the TIMSS & PIRLS International Study Center.

Verification of the Trend Assessment Blocks

For countries that had participated in previous PIRLS assessments, the international verification procedures included a “trend check” of the achievement instruments to ensure that the trend texts and items had not changed from one study cycle to the next. For digitalPIRLS countries that administered bridge booklets, this included a check of the bridge booklets against the national trend versions.

As part of the trend check process, translation verifiers checked the trend texts and items used in the current PIRLS cycle against those administered in the previous cycle and documented any differences in content or wording.

The verifiers were instructed to record any discrepancies found in the trend items in the AM Online Translation System, NAF, or Bridge Verification Form, as appropriate. NRCs were required to carefully review all discrepancies and discuss any proposed changes with the TIMSS & PIRLS International Study Center.

Review of International Translation Verification Feedback

Upon completion of international translation verification, the NRCs were responsible for responding to the translation verifiers’ feedback by accepting, modifying, or rejecting suggested changes to the adapted and/or translated text elements. Some of the typical errors identified by verifiers during translation verification included mistranslations, omissions/additions of text, inconsistent translations, disagreements in gender, and minor linguistic or grammatical errors. The constructive feedback from the verifiers aided NRCs in revising the materials and in improving the quality of their national versions in line with the translation guidelines for PIRLS 2021.

Layout and Adaptations Verification

Following translation verification, all national instruments were required to undergo layout and adaptations verification by the TIMSS & PIRLS International Study Center. This is the final external review of each participating country's assessment instruments and corresponding documentation. During layout and adaptations verification, staff at the TIMSS & PIRLS International Study Center reviewed all national instruments to ensure international comparability of adaptations and layout structure as well as proper documentation of any national adaptations.

In particular, layout verification focused on the following:

- Reviewing the national achievement materials and context questionnaires against the international versions for layout and functionality
- Reviewing national adaptations to the achievement materials and context questionnaires with respect to how they might affect the international comparability of the data
- Reviewing the online questionnaires against their corresponding paper versions (where applicable)
- Reviewing trend materials, including the bridge booklets, against the previous national versions for consistency across cycles.

Layout and Adaptations Verification of the Achievement Test Materials

The primary goal of the layout and adaptations verification of the achievement test materials is to ensure that students in different countries experience the assessment instruments in the same way. Thus, the national versions of the assessment booklets were checked against the international version to identify any deviations from the international format or from the international functionality. For digital achievement materials, layout and adaptations verification was conducted directly in the AM Online Translation System using the preview mode. This allowed verifiers to compare each national screen to the international version. For paper booklets, layout and adaptations verification was conducted by comparing printed versions of each set of national booklets to printed versions of the international booklets.

Due to differences in languages, the national assessment texts and items varied slightly across countries in length and format. The international versions, however, were designed with this in mind. For digital materials, the layout of the passages over multiple screens was designed to minimize scrolling in longer languages. In addition, specific layout adjustments were made to the national versions in order to accommodate the text as needed, including special characters, longer languages, and country-specific requirements for the right-to-left layout languages. For paper materials, extra space was provided in the margins of the pages to facilitate the use of longer text and different paper sizes (letter versus A4) without necessitating extensive changes to the layout of each page.

During layout verification of the digital materials, the verifiers reviewed the layout and functionality of all texts, questions, directions, system screens, and enjoyment surveys. The verifiers checked the materials for comparability to the international versions as well as for the following: on-screen readability, no or minimal scrolling, question sequence, response format, text format, and graphics. For languages using right-to-left scripts, the verifiers checked that no elements were incorrectly altered and that conventions for graphics were implemented consistently throughout all of the screens and items. For the ePIRLS tasks, it was especially important to check the functionality of the hyperlinks and pop-up windows. Any layout or functionality issues which could not be adjusted via the translation system were reported to RM staff to be fixed prior to creating the national players.

Verifiers entered their comments regarding layout deviations or errors, as well as any concerns of international incomparability, directly in the translation system. Comments from the verifiers included a reference to the text element, a classification of the comment (whether it was related to an adaptation or layout issue), and a button to “accept” or “reject” the comment. Following the completion of layout and adaptations verification, the NRCs were asked to review the verifier’s feedback and accept or reject each comment. If the NRC rejected a comment, they were required to provide an explanation for not accepting the suggested change. Errors that could not be fixed by the NRC or staff at the TIMSS & PIRLS International Study Center were reported to RM staff for correction.

Layout and adaptation verification of paper booklets mirrored [procedures of PIRLS 2016](#). Verifiers reviewed the pagination, page breaks, headers, footers, stop signs, question sequence, scoring boxes, response options, text formats, and graphics. For countries with right-to-left layout languages, this included ensuring that no elements were incorrectly altered in adjusting the alignment and that conventions for graphics were implemented consistently throughout all booklets. Any layout deviations or errors, as well as any concerns of international incomparability of the national adaptations, were documented by the verifiers in the NAFs. Following the layout and adaptations verification, the NAFs containing the verifiers’ comments were sent back to the National Research Coordinators for consideration. The NRCs were asked to confirm that each suggested change was implemented or to provide an explanation for not implementing the suggested change.

Layout and Adaptations Verification of the Context Questionnaires

As with the achievement instruments, the context questionnaires were checked against the international versions to identify any potential layout issues and to ensure the international comparability of the questionnaire data. During layout verification, the verifiers took into consideration any national adaptations documented by the NRCs. Instances of internationally incomparable adaptations or errors, along with recommendations for recoding or rewording, were recorded by the verifiers in the NAFs.

In an effort to make the questionnaires general enough for international analyses but appropriate for each intended audience, participating countries were required to adapt certain phrases and designations in the text of the questionnaires. For example, items asking about levels of education were expressed in terms of the current version of the *International Standard Classification of Education ISCED 2011* (UNESCO, 2012) and required adaptation to the nationally equivalent educational terms by each participating country. These items were compared to the ISCED level classifications during layout and adaptations verification, and if they were deemed internationally incomparable, suggestions were made by the verifier to revise or recode their education categories.

The verifiers ensured that all items requiring adaptations were accompanied by back translations in English. The documentation for these universally adapted questionnaire items was intended for later use in the National Adaptations Database. The database is a compilation of each country's questionnaire adaptations and was used during data processing by IEA Hamburg (see [Chapter 7](#)). The information included in the database is reported as a supplement to the [PIRLS 2021 User Guide to the International Database](#).

Countries administering PIRLS 2021 digitally prepared the student questionnaire via the AM Online Translation System. If a country needed to implement any structural adaptations, such as removing or adding questions, options, or answer categories, these were communicated to the TIMSS & PIRLS International Study Center for review in separate NAFs. Approved structural adaptations were submitted to RM to apply to the national version of the student questionnaire. During layout verification, any issues identified were communicated and documented using the comment system in the translation system.

For countries that chose to administer the home, teacher, and/or school questionnaires online using the IEA Online SurveySystem, layout and adaptations verification of the online questionnaires was conducted in the system's environment. Where countries administered any of the questionnaires both on paper and online, the verifiers compared the paper version to the corresponding online version to ensure consistency across the two forms. Feedback for both online and paper questionnaires was entered into the questionnaire NAFs and sent back to the NRCs for consideration. The NRCs were asked to confirm that each suggested change was implemented or provide an explanation for not implementing the suggested change.

Layout and Adaptations Verification of the Trend Materials

For countries that had previously participated in PIRLS 2016 or PIRLS 2011, the national PIRLS 2021 trend blocks (trend texts and items) were also reviewed against the versions from the last cycle in which the country participated. During layout verification of trend materials, the verifiers ensured that the layout structure and adaptations in the national PIRLS 2021 instruments were consistent with countries' trend versions and documented any inconsistencies in the NAF for

NRCs' review. In the event a country needed to make a change to their trend materials due to an error in previous cycles or a change in curriculum, the TIMSS & PIRLS International Study Center documented approval of the change or requested more information in the “trend check” section of the NAF.

For the digital achievement materials, the change in mode of administration from paper to digital necessitated slight changes in order to accommodate the digital form of administration. During layout and adaptations verification, the verifiers ensured that all conventions and adaptations in the PIRLS 2021 materials were consistent with the trend versions and documented and accounted for any changes beyond adjustments for digital administration.

As part of the verification of trend materials, the paper bridge booklets were reviewed alongside the corresponding national trend passages from the previous cycle. Verifiers also ensured that the pagination, page breaks, headers, footers, graphics, covers, and directions of each bridge booklet matched the international versions of the PIRLS 2021 bridge booklets.

Review of Final Translations and Adaptations

Upon completion of layout and adaptations verification, the NRCs were responsible for finalizing their national PIRLS 2021 instruments. This included making any necessary adjustments to the materials and responding to all the feedback from the layout and adaptation verifiers. For the materials in the AM Online Translation System, NRCs also checked that corrections done by RM had been applied correctly and were satisfactory. Once the materials were reviewed and finalized, NRCs were required to submit their materials to the TIMSS & PIRLS International Study Center for a final review. In the final review of the digital achievement materials in the translation system, the layout verifiers checked that all issues had been addressed, all comments had been answered, and all materials had been set to the status “Instrument Finalized.” This status indicated that no further changes would be made to the materials and the country was now ready to receive their first draft national PIRLS 2021 Player.

For paper-based instruments, the TIMSS & PIRLS International Study Center checked that all issues had been addressed, all comments in the NAFs had been answered, and all of the compiled booklets and questionnaires had been submitted. Once the TIMSS & PIRLS International Study Center confirmed the materials were finalized, the country was permitted to begin printing the paper-based instruments.

In the final review of the online home, teacher, and/or school questionnaires, the TIMSS & PIRLS International Study Center checked that all issues had been addressed, that all comments in the NAFs had been answered, and that PDF versions of the final questionnaires had been submitted. Once the TIMSS & PIRLS International Study Center confirmed these materials had been finalized, NRCs communicated with IEA Hamburg to activate the questionnaires for online administration.

National PIRLS Player Production

After approval of the national translations and adaptations of digital achievement instruments and the student questionnaire in the AM Online Translation System, a customized national version of the PIRLS Player that delivers the assessment to students was produced in each language of instruction for each country. The national PIRLS Player production process involved several extensive verification checks to ensure proper functioning of the instruments and delivery software. This required the involvement of several parties, including NRCs, staff from the TIMSS & PIRLS International Study Centers, staff from IEA Hamburg, and staff from RM.

As the first step of the process, IEA Hamburg produced a draft PIRLS Player for each country-language combination. NRCs were provided a country-language specific URL allowing them to access the online version of their national Player, the application files necessary for installing the USB version, and the NRC testing login credentials needed for their reviews. NRCs were instructed to review each unique assessment block and ensure that all translations and content appeared correctly and that the items and interface navigation functioned as expected. If countries identified any errors in their national content, such as a mistranslation or layout issue, or experienced any issues with the Player software during their review, they were asked to report this feedback with screenshots to the TIMSS & PIRLS International Study Center. Staff at the TIMSS & PIRLS International Study Center reviewed NRCs feedback alongside the respective national Players, verified or replicated the issues identified, and applied fixes where possible. Issues that could not be easily resolved were submitted to programmers at RM through software request tickets.

As NRCs reviewed their national content, staff at IEA Hamburg reviewed the data saving functions for each national Player. This process involved applying standardized semi-automated data saving tests to check that achievement items captured data properly and to ensure consistency with the international player saving specifications. Staff also conducted thorough checks of all national adaptations, including country-specific variables, to the student questionnaire. For any data saving issues identified, IEA Hamburg submitted software tickets to RM staff.

After all issues were resolved, countries received a new version of their national PIRLS Player for a second review that mirrored the procedures followed for the first draft Player review. If no further issues were identified in the updated Player, this version was considered final and ready to be used for the PIRLS 2021 field test or main data collection.

Outcomes and Summary for PIRLS 2021

PIRLS 2021 followed stringent procedures for translation, adaptation, and verification. Through the cooperation of NRCs and staff from IEA Amsterdam, IEA Hamburg, and the TIMSS & PIRLS International Study Center, the translation and verification processes facilitated the production of national versions of the PIRLS 2021 instruments that accommodated national languages and

context while maintaining international comparability. The TIMSS & PIRLS International Study Center provided countries and benchmarking entities with comprehensive guidelines and procedural manuals outlining the various steps of instrument preparation and verification.

The feedback from translation verification helped NRCs improve the quality and comparability of their national instruments. Similarly, the feedback from the layout verification provided NRCs with explanations for the adjustments requested and helped ensure the international comparability of instruments across countries. Ultimately, the stringent procedures applied in PIRLS 2021 resulted in high quality instruments that allowed for comparisons in student achievement across all participating countries and benchmarking entities.

Impact of COVID-19 Pandemic on National Instrument Preparations

The COVID-19 pandemic impacted every aspect of the PIRLS 2021 study cycle, including the national instrument preparation. Some countries had to revise their school and teacher questionnaires multiple times. With the thorough work and flexibility of NRCs and continued collaboration with the TIMSS & PIRLS International Study Center and IEA, countries overcame the challenges derived from the COVID-19 pandemic and followed the rigorous guidelines, policies, and procedures in producing high-quality national instruments for PIRLS 2021.

At the onset of the pandemic, before data collection was scheduled to begin, the TIMSS and PIRLS International Study Center requested that the countries who needed to delay their test administration make several modifications to the content and procedures for the PIRLS 2021 School and Teacher Context Questionnaires. Furthermore, postponement of data collection to the beginning of the fifth grade in fourteen Northern Hemisphere countries created some complications for administration of some questionnaires. Although the reading assessment was completed by fifth grade students in the delayed countries, PIRLS 2021 still aimed to capture the most relevant data available about students' fourth grade educational experiences, which necessitated revisions to the school and teacher questionnaires.

For the school questionnaire, delayed countries were asked to include notes in the questionnaire directions prompting principals to keep in mind the 2020-2021 school year when completing the questionnaire.. It was also requested that this emphasis on the 2020-2021 school year be added explicitly to school questionnaire items concerning the COVID-19 pandemic. For the teacher questionnaire, delayed countries had three administration options: 1) locate the fourth grade teachers of fifth grade students and administer the questionnaire to them, 2) administer the questionnaire to students' fifth grade teachers, or 3) not administer the questionnaire. Countries that located students' fourth grade teachers were asked to include a note at the beginning of the questionnaire prompting teachers to consider the students they had taught during the 2020-2021 school year. These are documented in the National Adaptations Supplement to the [PIRLS 2021 User Guide to the International Database](#).

Reference

UNESCO. (2012). *International Standard Classification of Education (ISCED) 2011*. Montreal, Quebec: UNESCO Institute of Statistics. <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>