

CHAPTER 2

Developing the TIMSS 2015 Context Questionnaires

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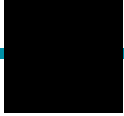
The primary purpose of the TIMSS context questionnaires is to study the home, community, school, and classroom contexts in which students learn mathematics and science. To this end, questionnaire data are collected from students, and their parents, teachers, and principals. National Research Coordinators (NRCs) from participating countries provide country-level data. The questionnaire data when analyzed in relation to TIMSS achievement yield insights into factors related to student achievement that can be relevant in developing educational policy.

The context questionnaire results form the basis for seven of the ten chapters of the TIMSS 2015 International Results reports. The descriptive data collected through the TIMSS Curriculum Questionnaires complement each country's chapter included in the *TIMSS 2015 E c clo edia*.

Development Process for the TIMSS 2015 Context Questionnaires

Developing the TIMSS 2015 context questionnaires was a collaborative process involving multiple rounds of reviews by staff at the TIMSS & PIRLS International Study Center, policy analysis experts on the TIMSS 2015 Questionnaire Item Review Committee (QIRC), and the NRCs from the pa

- Updating the context questionnaire framework for 2015
- Modifying and developing new context questionnaire items by staff at the TIMSS & PIRLS International Study Center
- Reviewing and revising the questionnaires by the QIRC and NRCs
- Administering the TIMSS 2015 field test
- Using the field test results to refine the questionnaires



Date(s)

Group and Activity

Together with TIMSS at the fourth and eighth grades, TIMSS 2015 included TIMSS Numeracy at the fourth grade and the TIMSS Advanced assessments in mathematics and physics at the final year of secondary school. Countries participating in TIMSS Numeracy administered the TIMSS 2015 fourth grade questionnaires. TIMSS Advanced, however, required separate questionnaires geared toward the context for learning of STEM-track students during their final year of schooling. Although the TIMSS eighth grade questionnaires served as a foundation for developing the TIMSS Advanced 2015 questionnaires, the TIMSS Advanced questionnaires included numerous differences from the TIMSS questionnaires. Additional information on developing the TIMSS Advanced questionnaires can be found in [Chapter 2](#) of *Method and Procedure in TIMSS Advanced 2015*.

Background of TIMSS 2015 Context Questionnaire Development

Similar to the development process for the TIMSS 2015 achievement booklets (see [Chapter 1](#)), questionnaire development balanced the dual purposes of maintaining continuity with previous assessments and evolving to reflect the current contexts for student learning. Therefore, the TIMSS 2015 questionnaires can be viewed as the latest evolution of six cycles of TIMSS questionnaires dating back to TIMSS 1995. In particular, the TIMSS 2015 questionnaires are built upon the successes of the TIMSS 2011 questionnaires, with modifications to align the questionnaires with more recent research and policy innovations.

A major methodological innovation in TIMSS 2011 was using context questionnaire scales to measure key educational research topics ([Martin, Mullis, Foy, & Arora, 2012](#)). TIMSS 2015 questionnaire development focused on writing items to strengthen the measurement properties of the TIMSS 2011 scales as well as developing new scales to measure emerging areas of educational research.

In 2011, the TIMSS and PIRLS cycles coincided, and 34 countries chose to administer both TIMSS and PIRLS to the same fourth grade students. Accordingly, the TIMSS 2011 and PIRLS 2011 questionnaires were developed in tandem (see [Method and Procedure in TIMSS and PIRLS 2011](#) for details). Overall, this joint development process produced a synergy that led to advancements in questionnaire development for both projects, and shared items across TIMSS and PIRLS 2011 allowed results to be compared across projects. TIMSS 2015 made an effort to maintain the consistency with PIRLS by holding the 1st meeting of the QIRC with its PIRLS equivalent—the Questionnaire Development Group (QDG). Also, TIMSS 2015 questionnaire development considered the suggested revisions to overlapping TIMSS/PIRLS questionnaire items made at PIRLS NRCs meetings.

The joint administration of TIMSS and PIRLS 2011 to the same students allowed data collected through the PIRLS home questionnaire to be linked with TIMSS questionnaire and achievement data. Consequently, the TIMSS 2011 reports for the first time included data collected

from parents on areas like early childhood numeracy activities, home resources for learning, and language use in the home. Given the wealth of information provided by the home questionnaire, the TIMSS 2015 NRCs decided that a TIMSS-specific home questionnaire, entitled the *Early Learning Survey*, should be developed and administered at the fourth grade.

Updating the TIMSS 2015 Context Questionnaire Framework

The [TIMSS 2015 Context Questionnaire Framework](#), Chapter 3 of the *TIMSS 2015 Assessment Framework*, provided the foundation for updating the TIMSS context questionnaires for 2015. The Framework chapter presents a review of a vast array of educational research that identifies key context questionnaire topics and gives the theoretical justification for asking about these topics within the 2015 questionnaires.

At the 1st NRC meeting in February 2013 in Hamburg, Germany, NRCs described topics they thought should be covered in the TIMSS 2015 questionnaires, including which TIMSS 2011 topics should be retained to measure trends. Taking into account feedback garnered in the meeting,

Staff at the TIMSS & PIRLS International Study Center worked with the TIMSS QIRC/PIRLS QDG at their joint meeting in June 2013 to recast a number of scales. For instance, the QIRC and QDG revamped the teacher job satisfaction scale to integrate insights gained from the *U ech Wo k E gage me Scale* (Schaufeli, Bakker, & Salanova, 2006). The questionnaire committees also revised the Confidence in Teaching Mathematics/Science scales, with item development influenced by the *Ohio S a e Teache Efficac Scale* (Tschannen-Moran & Hoy, 2001).

Although the PIRLS home questionnaire served as a foundation for the development of the TIMSS *Ea l Lea i g S e*, numerous new items needed to be developed to focus the TIMSS questionnaire on the contexts for learning mathematics and science. One new scale included in the *Ea l Lea i g S e* is the Parental Attitude toward Mathematics and Science scale—developed to assess parents’ feelings towards STEM fields.

Finally, updating questionnaires to “keep up with the times” was an essential part of the 2015 development process. Staff at the TIMSS & PIRLS International Study Center worked with the

Developing the TIMSS 2015 Curriculum Questionnaires

The TIMSS Curriculum Questionnaires complement the student, teacher, school, and home questionnaires by collecting information from NRCs about country-level contexts. The Curriculum Questionnaires cover each country's mathematics and science curricula, goals and standards for instruction, and other national or regional policies such as the preprimary education process and the teacher education process.

Similar to the other TIMSS 2015 questionnaires, the process for updating the TIMSS Curriculum Questionnaires started with the TIMSS 2015 Context Questionnaire Framework. Then, NRCs and the QIRC identified the information from the TIMSS 2011 Curriculum Questionnaires that they thought was useful to continue collecting.

Based on the framework, and the NRC and QIRC feedback, staff at the TIMSS & PIRLS International Study Center updated the TIMSS 2015 Curriculum Questionnaires for review by

