

# TIMSS and PIRLS 2011 Results of the TIMSS and PIRLS 2011 Survey Activities Questionnaire

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The *Survey Activities Questionnaire* was designed to elicit information about NRC's experiences in preparing for and conducting the TIMSS 2011 and/or PIRLS or prePIRLS 2011 data collection. The questionnaire was composed of six sections and focused on the following:

- ◆ Identifying and selecting samples;
- ◆ Preparing survey instruments;
- ◆ Administering the assessment(s);
- ◆ Implementing the National Quality Control Program;
- ◆ Preparing for and scoring the constructed-response items; and
- ◆ Creating the data files.

All items in the *Survey Activities Questionnaire* included accompanying comment fields, in which NRC respondents were encouraged to explain their responses, provide additional information, and suggest improvements in the process.

To make data collection more efficient, a combined *TIMSS and PIRLS 2011 Survey Activities Questionnaire* was administered online and was completed by a total of 73 NRCs. The following sections summarize information gathered from the Survey Activities Questionnaire, reflecting the quality of the TIMSS 2011 and PIRLS/prePIRLS 2011 survey materials and procedures in the participating countries.

## Sampling Schools and Classes

The first section of the *Survey Activities Questionnaire* asked NRCs about the survey operations procedures for sampling both schools and classes within the sampled schools. As illustrated in Exhibit 1, nearly all of the countries responded that both Survey Operations Procedures Units 1 and 3 were clear and sufficient and did not report having problems selecting their samples using

the instructions provided by the TIMSS & PIRLS International Study Center. Only two countries did not select classes using the Windows® Within-school Sampling Software (WinW3S), provided by the IEA Data Processing and Research Center (IEA DPC). In these cases, the countries felt that using their own software would make the process more efficient, because of their extensive experience with their software.

**Exhibit 1: Survey Activities Questionnaire, Section One—Sampling (Number of NRC Responses)**

Question	Yes	No	Not Answered
Was the information provided in the “Survey Operations Procedures Unit 1 – Sampling Schools and Obtaining their Cooperation” clear and sufficient?	72	1	0
Were there any conditions or organizational constraints that necessitated deviations from the basic TIMSS and/or PIRLS sampling design described in the “Survey Operations Procedures Unit 1”?	10	63	0
Did you use the Within-School Sampling Software (WinW3S) to sample classes?	71	2	0
<i>Did you experience any problems or inconveniences when using the WinW3S software?</i>	24	47	0 (Not Answered) 2 (Not Applicable)
Was the information provided in the “Survey Operations Procedures Unit 3 – Contacting Schools and Sampling Classes” clear and sufficient?	69	3	1
Did you follow the procedures outlined in “Survey Operations Procedures Unit 3” for working with the schools to sample classes (e.g., using the appropriate tracking forms in the proposed order to obtain information from School Coordinators)?	56	17	0

Primarily due to the special requirements of administering TIMSS and PIRLS in the same year, some countries encountered organizational constraints in their systems that necessitated a modification to the sample design. For similar reasons, countries also may have experienced problems using the WinW3S software. In addition, in order to administer both TIMSS and PIRLS at the fourth grade, countries could choose from a range of sampling strategies. Most countries administered TIMSS and PIRLS to the same students, while some countries chose to administer the two assessments in the same schools but to different fourth grade classes, and other countries chose to administer the two assessments in different schools. In each case, Statistics Canada and/or

the IEA Data Processing and Research Center experts were consulted to ensure that the sampling design remained compatible with TIMSS/PIRLS standards. In several cases, no school sampling was necessary because the sample included the entire target population.

Finally, 17 NRCs applied some modifications to the procedures outlined in the Survey Operations Procedures Unit 3. For example, some NRCs did not use the Class Listing Forms because all classes at the target grade were tested or because a class level database was available at the ministry. Some countries did not use the fourth grade Teacher Tracking Forms because there was only one teacher per class. All modifications were reviewed and approved by the TIMSS & PIRLS International Study Center.

### **Translating, Adapting, and Producing Survey Instruments**

The second section of the *Survey Activities Questionnaire* asked NRCs about translating, adapting, assembling, and printing the test materials, as well as issues related to checking the materials and securely storing them. In the majority of cases, almost all of the NRCs reported applying corrections to their survey instruments as suggested by the verifier of the external translation verification as well as the verifier of the layout verification.

As reported in Exhibit 2, all of the NRCs answered that they were able to assemble the test booklets and questionnaires according to the instructions provided. However, 19 countries reported experiencing some problems using the survey instrument production materials. These problems mostly included the following: issues with fonts and special characters, use of an older version of Adobe InDesign, or use of CopyFlow Gold. One country reported problems with the format of the *Learning to Read Survey*. All of the identified problems were resolved either by the national center specialists or with assistance from the TIMSS & PIRLS International Study Center.

**Exhibit 2: Survey Activities Questionnaire, Section Two—Translating, Adapting, and Producing Survey Instruments (Number of NRC Responses)**

Question	Yes	No	Not Answered
Was the information provided in the “Survey Operations Procedures Unit 4 – Preparing the Background Questionnaires and Achievement Booklets” clear and sufficient?	70	3	0
Did you encounter any problems using the survey instrument production materials (e.g., instrument production files, fonts, support materials) provided by the TIMSS & PIRLS International Study Center?	19	54	0
After the translation verification, did you correct your translations/adaptations as suggested by the verifier in the majority of cases?			
<i>TIMSS fourth-grade booklets</i>	53	0	1 (Not Answered) 19 (Not Applicable)
<i>TIMSS eighth-grade booklets</i>	46	0	1 (Not Answered) 26 (Not Applicable)
<i>PIRLS/prePIRLS booklets</i>	47	1	3 (Not Answered) 22 (Not Applicable)
<i>Background questionnaires</i>	70	1	2 (Not Answered) 0 (Not Applicable)
After the layout verification, did you correct your survey instruments as noted by the verifier in the majority of cases?			
<i>TIMSS fourth-grade booklets</i>	52	0	1 (Not Answered) 20 (Not Applicable)
<i>TIMSS eighth-grade booklets</i>	45	0	1 (Not Answered) 27 (Not Applicable)
<i>PIRLS/prePIRLS booklets</i>	47	1	3 (Not Answered) 22 (Not Applicable)
<i>Background questionnaires</i>	71	0	2 (Not Answered) 0 (Not Applicable)
Did you apply any quality control measures to check the achievement booklets and background questionnaires during the printing process (e.g., checking for missing pages, upside down pages, text too bright or too dark)?	69	4	0
Did you take measures to protect the security of the survey instruments during the translation, assembly, and printing process?	71	2	0
Did you detect any potential breaches in security of the survey instruments?	2	71	0
Did you encounter any problems preparing the Online SurveySystem files for administering the school and/or teacher questionnaires online?	4	11	0 (Not Answered) 58 (Not Applicable)

Nearly all of the countries conducted the recommended quality control checks during the process of printing the testing materials. The most common errors that countries detected and fixed during the printing process were pages that were missing or in the wrong order. Two countries expressed concerns about a breach of security due to the involvement of so many different people in the study, even though all were asked to sign a nondisclosure agreement. In one case, the courier lost the package with the materials and it has not been recovered.

### **Data Collection**

The third section of the *Survey Activities Questionnaire* addressed the extent to which NRCs detected errors in the testing materials during packaging for shipment to schools. As shown in Exhibit 3, a small number of errors were found in the materials. About half of such errors were discovered before distributing materials to schools and were successfully remedied. Errors found after distribution usually were very minor, and either were remedied by school coordinators or the provided replacement materials were used. In the few cases in which the translation or printing errors detected at this late stage could not be remedied, these were reported to the TIMSS & PIRLS International Study Center and no data for these problematic items were used.

**Exhibit 3: Survey Activities Questionnaire, Section Three—Data Collection (Number of NRC Responses)**

Question	Yes	No	Not Answered
Was the information provided in the “Survey Operations Procedures Unit 5 – Conducting the Data Collection” clear and sufficient?	70	2	1
Were any errors detected in any of the following assessment materials after they were sent to schools?			
<i>TIMSS achievement booklets</i>	19	44	1 (Not Answered) 9 (Not Applicable)
<i>TIMSS achievement booklet ID labels</i>	9	54	1 (Not Answered) 9 (Not Applicable)
<i>PIRLS/prePIRLS achievement booklets</i>	19	38	3 (Not Answered) 22 (Not Applicable)
<i>PIRLS/prePIRLS achievement booklet ID labels</i>	6	42	3 (Not Answered) 22 (Not Applicable)
<i>Student Questionnaire(s)</i>	8	64	1 (Not Answered) 0 (Not Applicable)
<i>Student Questionnaire ID labels</i>	5	67	1 (Not Answered) 0 (Not Applicable)
<i>Learning to Read Survey</i>	1	48	3 (Not Answered) 21 (Not Applicable)
<i>Learning to Read Survey ID labels</i>	2	47	3 (Not Answered) 21 (Not Applicable)
<i>Student Tracking Forms</i>	5	65	1 (Not Answered) 2 (Not Applicable)
<i>Teacher Questionnaires</i>	7	64	1 (Not Answered) 1 (Not Applicable)
<i>Teacher Tracking Forms</i>	0	68	1 (Not Answered) 4 (Not Applicable)
<i>School Questionnaire</i>	2	69	1 (Not Answered) 1 (Not Applicable)
<i>School Coordinator Manual(s)</i>	0	67	1 (Not Answered) 5 (Not Applicable)
<i>Test Administrator Manual(s)</i>	4	67	1 (Not Answered) 1 (Not Applicable)
<i>If any errors were detected, did you correct the error(s) before the testing began?</i>	24	28	0 (Not Answered) 21 (Not Applicable)
Does your country have a confidentiality policy that restricts putting student names on tracking forms and survey instrument covers?	15	58	0
Did you encounter any problems translating and/or adapting the School Coordinator Manual(s)?	4	69	0
Did you encounter any problems translating and/or adapting the Test Administrator Manual(s)?	5	67	1
Were School Coordinators appointed from within the participating schools?	59	13	1

Question	Yes	No	Not Answered
Did you hold formal training session(s) for School Coordinators?	44	28	1
Were Test Administrators trained by School Coordinators within the participating schools?	37	35	1
If you administered PIRLS/prePIRLS and TIMSS at the fourth grade to the same students, did all schools follow the assessment administration order as identified on the Student Tracking Forms?	28	9	0 (Not Answered) 36 (Not Applicable)
Did Test Administrators document any problems or special circumstances that occurred frequently during the assessment administration (please refer to the completed Test Administration Forms)?	27	46	0
If you administered school and/or teacher questionnaires online, did the principals or teachers in your country encounter any problems responding to the online questionnaires?	7	6	0 (Not Answered) 59 (Not Applicable)

A small number of NRCs reported difficulties translating the School Coordinator Manual and/or the Test Administrator Manual. Primarily, problems arose when the manual(s) had to be reorganized or adapted, either because schools were familiar with a particular system or because the procedures had been modified (e.g., no Class Listing Forms or Teacher Tracking Forms were used).

In 59 countries, School Coordinators were appointed within the participating schools; in 37 of these countries, Test Administrators were trained by the School Coordinators. In the remaining countries, School Coordinators and/or Test Administrators either were from the national center or were contracted externally. In most countries, the National Research Coordinators organized training sessions for School Coordinators. In some, mostly larger countries, training was conducted either online or in a written form via extended manuals.

Among the problems documented by Test Administrators during assessment administration were the following: loud noises outside the classroom, many students asking questions, too much or not enough time, and problems arranging special accommodation for some students.

### National Quality Control Program

The fourth section of the *Survey Activities Questionnaire* addressed the national quality assurance program that each country implemented during data collection. As part of the national quality assurance activities, NRCs were instructed to send National Quality Control Observers to 10 percent of the participating schools in order to observe the test administration and

document compliance with prescribed procedures. Primarily due to very tight budgets, some countries sent national monitors to less than 10 percent of the participating schools and some did not observe any actual testing sessions.

As shown in Exhibit 4, when applicable, almost all of the national centers used the National Quality Control Monitor Manual, provided by the TIMSS & PIRLS International Study Center, in order to conduct their quality assurance program. The on-site quality control observations were conducted either by an external agency, members of the national center, or in some cases, other professionals, such as inspectors, retired teachers, mathematics and science supervisors, or ministry representatives. Among the few documented problems detected by the national monitors were difficult items and long testing time for some students; in one case, an unprepared Test Administrator was mentioned.

**Exhibit 4: Survey Activities Questionnaire, Section Four—National Quality Control Program  
(Number of NRC Responses)**

Question	Yes	No	Not Answered
Did you conduct a national quality control program that observed the data collection in the participating schools?	61	10	2
Did you use the National Quality Control Monitor (NQCM) Manual and the Classroom Observation Record(s) provided by the TIMSS & PIRLS International Study Center to conduct your national quality control program?	59	2	2 (Not Answered) 10 (Not Applicable)
Did your national quality control monitors (NQCMs) document any major problems or special circumstances that occurred frequently during the assessment administration?	4	58	1 (Not Answered) 10 (Not Applicable)

### Preparing for and Scoring the Constructed Response Items

Section Five of the *Survey Activities Questionnaire* asked NRCs about their experiences in preparing for scoring the constructed response items. The scoring process was an ambitious effort, requiring recruitment and training of scoring staff to score student responses, including independent double scoring to verify scoring reliability.

Exhibit 5 indicates that almost all of the NRCs understood the scoring procedures as explained in the Survey Operations Procedures Unit 6—Scoring the Constructed Response Items, provided by the TIMSS & PIRLS International Study Center. Because English was used for the cross-country reliability scoring task, some countries were unable to participate. Countries on the Southern



Hemisphere timeline were not asked to participate because most of them (i.e., those testing in English) supplied student responses for this activity. For those countries that did not participate in the previous cycle of TIMSS and/or PIRLS, the question on Trend-reliability Scoring Procedures did not apply.

**Exhibit 5: Survey Activities Questionnaire, Section Five—Preparing for and Scoring the Constructed-response Items (Number of NRC Responses)**

Question	Yes	No	Not Answered
Was the information provided in the “Survey Operations Procedures Unit 6 – Scoring the Constructed-response Items” clear and sufficient?	71	2	0
Did you encounter any problems using the scoring training materials, provided by the TIMSS & PIRLS International Study Center?	12	61	0
Did you create national scoring training materials in addition to the international scoring training materials?	32	41	0
Did you scan the achievement booklets for electronic image scoring?			
<i>TIMSS booklets</i>	11	46	0 (Not Answered) 16 (Not Applicable)
<i>PIRLS/prePIRLS booklets</i>	11	34	4 (Not Answered) 24 (Not Applicable)
Did you encounter any problems during the Trend Reliability Scoring?			
<i>Procedural problems</i>	15	41	0 (Not Answered) 17 (Not Applicable)
<i>Technical, software related problems</i>	16	36	4 (Not Answered) 17 (Not Applicable)
Did you have to provide additional scoring training to any of your scorers after scoring the qualification set of student responses provided with the Trend Scoring Reliability Software (TSRS)?	27	29	0 (Not Answered) 17 (Not Applicable)
Did all your scorers participate in scoring student responses of the trend items?	36	19	1 (Not Answered) 17 (Not Applicable)
Did you encounter any problems during the Cross-country Reliability Scoring?			
<i>Procedural problems</i>	10	50	2 (Not Answered) 11 (Not Applicable)
<i>Technical, software related problems</i>	10	50	2 (Not Answered) 11 (Not Applicable)
Did all your scorers participate in the Cross-country Reliability Scoring?	16	45	1 (Not Answered) 11 (Not Applicable)

## Creating the Data Files

The last section of the Survey Activities Questionnaire addressed data entry and quality control activities. As shown in Exhibit 6, most countries hired temporary data entry staff to enter data manually. Some NRC's expressed a wish for a more automated data entry process, especially in WinW3S, and a number of countries used optical scanning instead of manual data entry. Similar to the sampling stage, problems encountered using the WinW3S software and/or the Windows Data Entry Manager (WinDEM) software were related to the special circumstance of concurrently administering TIMSS and PIRLS/prePIRLS.

All but two countries reported applying all required data quality checks. For these two countries, optical scanning and quality checks were completed at the IEA Data Processing Research Center, where no major problems were reported.

**Exhibit 6: Survey Activities Questionnaire, Section Six—Creating Data Files (Number of NRC Responses)**

Question	Yes	No	Not Answered
Was the information provided in the "Survey Operations Procedures Unit 7 – Creating the Data Files" clear and sufficient?	69	3	1
Did you encounter any problems entering test administration information and exporting your WinW3S database(s)?	16	56	1
Who primarily entered the data for your country?			
<i>National center staff</i>	15	-	1
<i>Temporarily hired data entry staff</i>	26	-	0
<i>An external data entry firm</i>	11	-	0
<i>Combination of the above</i>	13	-	0
<i>Other</i>	7	-	0
Did you use manual (key) data entry to create the data files for your country?			
<i>TIMSS achievement booklets</i>	55	7 (Optical Scanning)	0 (Not Answered) 11 (Not Applicable)
<i>PIRLS / prePIRLS achievement booklets</i>	38	9 (Optical Scanning)	5 (Not Answered) 21 (Not Applicable)
<i>Background questionnaires</i>	63	7 (Optical Scanning)	1 (Not Answered) 2 (Not Applicable)
Did you encounter any problems using the Windows Data Entry Manager software (WinDEM)?	15	58	0

Question	Yes	No	Not Answered
If you entered data manually, did you enter 5% of each survey instrument twice as a quality control measure?	52	10	0 ( <i>Not Answered</i> ) 11 ( <i>Not Applicable</i> )
Did you apply all the data quality checks described in the “Survey Operations Procedures Unit 7 – Creating the Data Files” before submitting your data to the IEA Data Processing and Research Center?	70	2	1
Have you stored all achievement booklets and background questionnaires in a secure storage area until the original documents can be discarded?	71	1	1