

Chapter 7



Quality Assurance in the TIMSS 2007 Data Collection

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7.1 Overview

Considerable effort was made in developing standardized materials and survey operations procedures (see Chapter 6 for more information) in order to ensure the quality of the TIMSS data and make valid comparisons of student achievement across and also within the participating countries. In addition, the TIMSS & PIRLS International Study Center developed an ambitious international quality control program to document data collection activities in the participating countries. To implement this program, the IEA Secretariat, in cooperation with national centers, nominated an international Quality Control Monitor (QCM) in each of the participating countries.

The TIMSS & PIRLS International Study Center conducted an extensive 2-day QCM training on completing the tasks of the TIMSS 2007 international quality control program. The QCMs were introduced to the TIMSS 2007 survey operations procedures, and the design of the test booklets and background questionnaires. During the training, each QCM received the necessary materials for completing their tasks. The materials included a copy of the *TIMSS 2007 International Quality Control Monitor Manual* and *TIMSS 2007 National Quality Control Monitor Manual* (TIMSS & PIRLS International Study Center, 2006a, 2006b), Classroom Observation Record, *TIMSS 2007 Survey Operations Procedures Units 2–4 Manuals* (TIMSS & PIRLS International Study Center, 2006d, 2006e, 2006f), *TIMSS 2007 School Coordinator Manual* (TIMSS & PIRLS International Study Center, 2006c), and *TIMSS 2007 Test Administrator Manual* (TIMSS & PIRLS International Study Center, 2006g).

The major task of the international QCMs was to conduct site visits to a random sample of 15 schools per target grade during test administration in

their countries. Where necessary, the QCMs were permitted to recruit one or more assistants in order to efficiently cover the territory and testing timetable. A total of 248 international QCMs and their assistants were trained across the 62 countries (including the four provinces of Canada) that participated in TIMSS 2007. Altogether, these monitors observed 1,371 testing sessions, including 597 for grade 4 and 774 for grade 8. The results of the QCM observations are reported in Section 7.2.

In addition to the international and national quality control programs, the National Research Coordinators (NRCs) were asked to complete the *Survey Activities Questionnaire* (one per grade) about their experiences with the TIMSS 2007 survey operations procedures and the quality of the assessment materials. The main purpose of the questionnaire was to gather opinions and information to be used to further improve the quality of the survey activities and materials for future TIMSS cycles. Section 7.3 summarizes information that reflects the quality of the TIMSS 2007 survey materials and procedures within the participating countries.

7.2 Quality Control Observations of the TIMSS 2007 Test Administration

For each testing session observed, QCMs completed the TIMSS 2007 Classroom Observation Record. The observation record was organized into four sections, listed below, in order to facilitate accurate recording of the test administration's major activities.

Section A: Preliminary Activities of the Test Administrator

Section B: Test Administration Activities

Section C: Summary Observations

Section D: Interview with the School Coordinator and/or Test Administrator

7.2.1 Preliminary Activities of the Test Administrator

Section A of the Classroom Observation Record addressed the extent to which the Test Administrator had prepared for the testing session. QCMs were asked to note the following activities of the Test Administrator: checking the testing materials, reading the administration script, organizing space for the session, and arranging for the necessary equipment.

Exhibits 7.1 and 7.2 summarize the results for Section A. In nearly all testing sessions, Test Administrators observed the proper preparatory procedures. For those few deviations that occurred, QCMs provided reasonable explanations for all the discrepancies. For example, QCMs noted that the main reason some information on student test instruments did not correspond to the Student Tracking Form was that a student had left school and/or a new student had joined the class, which had not been documented on the list. The Test Administrators who did not have a watch with a second hand had a cell phone watch or a classroom clock available to monitor the time remaining in the test sessions. In general, QCMs observed no procedural deviations in test preparations that were severe enough to jeopardize the integrity of the test administration.

Exhibit 7.1 Percentages of QCM Responses for Preliminary Activities of the Test Administrator— Fourth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Had the Test Administrator verified adequate supplies of the test booklets?	97	2	1
Had the Test Administrator familiarized himself or herself with the test administration script prior to the testing?	94	4	2
Did the student identification information on the test booklets and student questionnaires correspond with the Student Tracking Form?	96	3	1
Was there adequate seating space for the students to work without distractions?	94	4	2
Was there adequate room for the Test Administrator to move around during the testing to ensure that student were following directions correctly?	98	2	0
Did the Test Administrator have a watch with a seconds hand (or stopwatch) for accurately timing the testing sessions?	96	3	1

Exhibit 7.2 Percentages of QCM Responses for Preliminary Activities of the Test Administrator– Eighth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Had the Test Administrator verified adequate supplies of the test booklets?	97	2	1
Had the Test Administrator familiarized himself or herself with the test administration script prior to the testing?	96	4	0
Did the student identification information on the test booklets and student questionnaires correspond with the Student Tracking Form?	96	3	1
Was there adequate seating space for the students to work without distractions?	97	3	0
Was there adequate room for the Test Administrator to move around during the testing to ensure that student were following directions correctly?	97	3	0
Did the Test Administrator have a watch with a seconds hand (or stopwatch) for accurately timing the testing sessions?	97	3	0

7.2.2 Assessment Session Activities

Section B of the Classroom Observation Record addressed the activities that took place during the actual assessment session and the administration of the *Student Questionnaire*. The achievement test was administered in two parts with a short break in between. The activities, such as following the Test Administrator script, distributing and collecting test booklets, and making announcements during the testing sessions were reported by the QCMs and are presented in Exhibits 7.3 through 7.8.

Activities during the first part of the testing session are presented in Exhibits 7.3 and 7.4. One of the most important standardizations for the assessment administration was the fact that the test administrator's script was followed in all participating countries. QCMs reported that in almost all of their observations, the Test Administrators followed their script exactly when preparing students, distributing test materials, and reading directions and examples. Of the changes that were made, the majority were considered minor. Changes made to the script were most frequently additions, rather than revisions or deletions. In a very small percentage of all the sessions (5% for grade 4 and 4% for grade 8), the total testing time for Part 1 was not equal to the time allowed. In most sessions, this was because students had completed Part 1 before the allotted time had elapsed. When the allotted time was over, the Test Administrator instructed students to close their

test booklets and announced the break to be followed by Part 2 of the test. In 95 percent of the cases for fourth grade and in 96 percent of the cases for eighth grade, the Test Administrator made sure that students stopped working immediately. In most sessions, the room was then either secured or supervised during the break.

Exhibit 7.3 Percentages of QCM Responses for Assessment Session Part 1 – Fourth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Did the test administrator follow the test administrator's script exactly in each of the following tasks?			
Preparing the students	79	18 (<i>Minor changes</i>) 2 (<i>Major changes</i>)	1
Distributing the materials	90	7 (<i>Minor changes</i>) 2 (<i>Major changes</i>)	1
Reading the directions	71	26 (<i>Minor changes</i>) 2 (<i>Major changes</i>)	1
Reading the examples	79	18 (<i>Minor changes</i>) 2 (<i>Major changes</i>)	1
<i>If the Test Administrator made changes to the script, how would you describe them?</i>			
<i>Additions</i>	26	9	5 (<i>Not Answered</i>) 60 (<i>Not Applicable</i>)
<i>Revisions</i>	17	15	8 (<i>Not Answered</i>) 60 (<i>Not Applicable</i>)
<i>Deletions</i>	8	22	10 (<i>Not Answered</i>) 60 (<i>Not Applicable</i>)
Did the Test Administrator distribute the test booklets according to the booklet assignment on the Student Tracking Form?	97	2	1
Did the Test Administrator record attendance correctly on the Student Tracking Form?	94	1	5
Did the total testing time for Part 1 equal the time allowed?	95	5	0
Did the Test Administrator announce "you have 10 minutes left" prior to the end of Part 1?	93	7	0
Were there any other time remaining announcements made during Part 1?	20	79	1
At the end of Part 1, did the Test Administrator make sure all students had closed their booklets?	95	4	1
Was the total time for the break equal to or less than 30 minutes?	93	3	1
Were the booklets left unattended or unsecured during the break?	7	92	1

Exhibit 7.4 Percentages of QCM Responses for Assessment Session Part 1 – Eighth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Did the test administrator follow the test administrator's script exactly in each of the following tasks?			
Preparing the students	84	13 (<i>Minor changes</i>) 2 (<i>Major changes</i>)	1
Distributing the materials	91	6 (<i>Minor changes</i>) 1 (<i>Major changes</i>)	2
Reading the directions	77	18 (<i>Minor changes</i>) 3 (<i>Major changes</i>)	2
Reading the examples	83	12 (<i>Minor changes</i>) 3 (<i>Major changes</i>)	2
<i>If the Test Administrator made changes to the script, how would you describe them?</i>			
<i>Additions</i>	14	10	5 (<i>Not Answered</i>) 71 (<i>Not Applicable</i>)
<i>Revisions</i>	13	11	5 (<i>Not Answered</i>) 71 (<i>Not Applicable</i>)
<i>Deletions</i>	8	14	7 (<i>Not Answered</i>) 71 (<i>Not Applicable</i>)
Did the Test Administrator distribute the test booklets according to the booklet assignment on the Student Tracking Form?	98	1	1
Did the Test Administrator record attendance correctly on the Student Tracking Form?	95	2	3
Did the total testing time for Part 1 equal the time allowed?	95	4	1
Did the Test Administrator announce "you have 10 minutes left" prior to the end of Part 1?	94	6	0
Were there any other time remaining announcements made during Part 1?	17	82	1
At the end of Part 1, did the Test Administrator make sure all students had closed their booklets?	96	3	1
Was the total time for the break equal to or less than 30 minutes?	96	4	0
Were the booklets left unattended or unsecured during the break?	4	95	1

Exhibits 7.5 and 7.6 summarize the QCMs' observations during the second part of the testing session. Similar to the timing of Part 1, in a few classrooms, the testing session in Part 2 was shorter than allotted because students had finished the achievement test early. In only two cases, QCMs reported testing sessions of a minute longer.

About 66 percent of the fourth grade Test Administrators and 74 percent of the eighth grade Test Administrators kept to the testing script

for signaling a break before administering the student questionnaire. Of those who did make changes, in only 3 percent of the cases, those were reported as major changes. Most had made additions or other minor changes, such as paraphrasing the directions. In 14 percent of the fourth grade QCM observations and 20 percent of the eighth grade QCM observations, students requested additional time to complete the *Student Questionnaire*, which in all cases was granted. Note that the relatively high percentages of QCMs not responding to questions concerning the *Student Questionnaire* administration occurred because some schools chose to administer the questionnaire on a different date. In such cases, QCMs were not required to observe the questionnaire administration.

Exhibit 7.5 Percentages of QCM Responses for Assessment Session Part 2 – Fourth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Was the time spent to restart the testing for Part 2 equal to or less than 5 minutes?	95	4	1
Was the total time for testing in Part 2 correct as indicated in the script?	94	5	1
Did the Test Administrator announce “you have 10 minutes left” prior to the end of Part 2?	87	13	0
Were there any other time remaining announcements made during Part 2?	19	80	1
Were the booklets collected and secured after the assessment session?	93	6	1
When the Test Administrator read the script to end the testing for Part 2, did he/she announce a break to be followed by the Student Questionnaire?	82	9	9
Did the Test Administrator accurately read the script to end the testing and signal a break?	66	21 (<i>Minor changes</i>) 3 (<i>Major changes</i>)	10
<i>If there were changes, how would you describe them?</i>			
<i>Additions</i>	14	7	3 (<i>Not Answered</i>) 76 (<i>Not Applicable</i>)
<i>Omissions</i>	8	11	5 (<i>Not Answered</i>) 76 (<i>Not Applicable</i>)
Did the Test Administrator distribute the Student Questionnaires and give directions as specified in the script?	79	7	14
Did the students ask for additional time to complete the questionnaire?	14	71	15
At the end of the session, prior to dismissing the students, did the Test Administrator thank the students for participating in the study?	80	7	13

Exhibit 7.6 Percentages of QCM Responses for Assessment Session Part 2 – Eighth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Was the time spent to restart the testing for Part 2 equal to or less than 5 minutes?	96	3	1
Was the total time for testing in Part 2 correct as indicated in the script?	94	6	0
Did the Test Administrator announce “you have 10 minutes left” prior to the end of Part 2?	95	5	0
Were there any other time remaining announcements made during Part 2?	13	86	1
Were the booklets collected and secured after the assessment session?	93	6	1
When the Test Administrator read the script to end the testing for Part 2, did he/she announce a break to be followed by the Student Questionnaire?	85	12	3
Did the Test Administrator accurately read the script to end the testing and signal a break?	74	18 (<i>Minor changes</i>) 3 (<i>Major changes</i>)	5
<i>If there were changes, how would you describe them?</i>			
<i>Additions</i>	10	7	4 (<i>Not Answered</i>) 79 (<i>Not Applicable</i>)
<i>Omissions</i>	11	6	4 (<i>Not Answered</i>) 79 (<i>Not Applicable</i>)
Did the Test Administrator distribute the Student Questionnaires and give directions as specified in the script?	85	8	7
Did the students ask for additional time to complete the questionnaire?	20	73	7
At the end of the session, prior to dismissing the students, did the Test Administrator thank the students for participating in the study?	85	9	6

Exhibits 7.7 and 7.8 provide observations on student compliance with instructions and the alignment of the scripted instructions with their implementation. The results show that in almost all of the sessions, students complied well or very well with the instructions to stop working. In most cases, the dismissal of students had been very orderly or somewhat orderly.

Exhibit 7.7 Percentages of QCM Responses for Student Cooperation at the End of the Assessment Sessions – Fourth Grade

Question	Very Well (%)	Well (%)	Fairly Well (%)	Not well at all (%)	Not Answered (%)
When the Test Administrator ended Part 1, how well did the student comply with the instruction to stop work?	84	13	2	0	1
When the Test Administrator ended Part 2, how well did the student comply with the instruction to stop work?	86	12	2	0	0

Question	Very orderly (%)	Somewhat orderly (%)	Not orderly at all (%)	Not Answered (%)
How orderly was the dismissal of the students?	69	17	1	13

Exhibit 7.8 Percentages of QCM Responses for Student Cooperation at the End of the Assessment Sessions – Eighth Grade

Question	Very Well (%)	Well (%)	Fairly Well (%)	Not well at all (%)	Not Answered (%)
When the Test Administrator ended Part 1, how well did the student comply with the instruction to stop work?	78	18	2	1	1
When the Test Administrator ended Part 2, how well did the student comply with the instruction to stop work?	76	19	3	1	1

Question	Very orderly (%)	Somewhat orderly (%)	Not orderly at all (%)	Not Answered (%)
How orderly was the dismissal of the students?	68	26	2	4

7.2.3 General Observations

Section C of the Classroom Observation Record referred to the general observations by QCMs during the testing sessions, including their overall impressions of the test administration, how well the Test Administrator monitored students, and any unusual circumstances that arose during the testing session (e.g., student refusal to participate, defective instrumentation, emergency situations, and cheating).

The results presented in Exhibits 7.9 through 7.12 show that, for most testing sessions, no problems were observed. In almost all cases, Test Administrators addressed students' questions adequately and as instructed in the *Test Administrator Manual*. In 10 percent of the cases, QCMs reported evidence of students attempting to cheat on the test. However, when asked to

explain the situation, QCMs generally indicated that students were merely looking around at their neighbors to see whether their test booklets were indeed different. Because the TIMSS 2007 test design involves 14 different booklets for each of the two target grades, students were unlikely to have the same booklet as their neighbors.

In the few sessions where a defective test instrument was detected, the Test Administrator almost always replaced the instrument appropriately. In the very few cases where a student refused to take the test, it was because parental permission for participation was denied. In one case, a student refused to complete the second part of the test. In 15 percent of the observed fourth grade testing sessions and in 10 percent of the observed eighth grade testing sessions, a student left the room for an “emergency” during the testing session. In such cases, Test Administrators were instructed that they should collect the student’s test booklet, and give it back after he or she returned. However, in two cases, students did not return to the class at all, and in almost all the other cases, the student had already completed the test and, thus, it was not necessary to receive the test booklet back after returning to the classroom. In five cases, students became ill and did not return to the testing at all, and, in all the remaining cases, students were instructed to close their booklets and leave them on their tables while being out of the classroom.

QCMs reported no cases where students were not orderly and cooperative during the testing sessions for the fourth grade and only 1 percent for the eighth grade. There were very few cases where students’ orderliness or cooperation was less than perfect or very good. In all such cases, Test Administrators managed to control the situation. QCMs reported that the overall quality of all testing sessions was good, very good, or, in 58 percent of the cases for the fourth grade and 49 percent of the cases for the eighth grade, testing sessions were excellent.

Exhibit 7.9 Percentages of QCM Responses for General Observations – Fourth Grade

Question	Yes (%)	No (%)	Not Answered (%)
During the testing sessions did the Test Administrator walk around the room to be sure students were working on the correct section of the test and/or behaving properly?	97	3	0
Did the Test Administrator address students' questions appropriately?	96	2	2
Did you see any evidence of students attempting to cheat on the tests (e.g., by copying from a neighbor)?	10	90	0
Were any defective test books detected and replaced before the testing began?	2	97	1
Were any defective test books detected and replaced after the testing began?	2	94	4
<i>If any defective test books were replaced, did the Test Administrator replace them appropriately?</i>	3	0	1 (Not Answered) 96 (Not Applicable)
Did any students refuse to take the test either prior to the testing or during the testing?	2	97	1
<i>If a student refused, did the Test Administrator accurately follow the instructions for excusing the student (collect the test book and record the incident on the Student Tracking Form)?</i>	1	1	1 (Not Answered) 97 (Not Applicable)
Did any students leave the room for an "emergency" during the testing?	15	83	2
<i>If a student left the room for an emergency during the testing, did the Test Administrator address the situation appropriately (collect the test booklet, and if re-admitted, return the test booklet)?</i>	11	3	3 (Not Answered) 83 (Not Applicable)

Exhibit 7.10 Percentages of QCM Responses for General Observations – Eighth Grade

Question	Yes (%)	No (%)	Not Answered (%)
During the testing sessions did the Test Administrator walk around the room to be sure students were working on the correct section of the test and/or behaving properly?	96	3	1
Did the Test Administrator address students' questions appropriately?	97	2	1
Did you see any evidence of students attempting to cheat on the tests (e.g., by copying from a neighbor)?	10	89	1
Were any defective test books detected and replaced before the testing began?	4	95	1
Were any defective test books detected and replaced after the testing began?	5	92	3
<i>If any defective test books were replaced, did the Test Administrator replace them appropriately?</i>	6	1	1 (Not Answered) 92 (Not Applicable)
Did any students refuse to take the test either prior to the testing or during the testing?	3	96	1
<i>If a student refused, did the Test Administrator accurately follow the instructions for excusing the student (collect the test book and record the incident on the Student Tracking Form)?</i>	2	0	2 (Not Answered) 96 (Not Applicable)
Did any students leave the room for an "emergency" during the testing?	10	87	2
<i>If a student left the room for an emergency during the testing, did the Test Administrator address the situation appropriately (collect the test booklet, and if re-admitted, return the test booklet)?</i>	8	2	3 (Not Answered) 87 (Not Applicable)

Exhibit 7.11 Percentages of QCM Responses for Observations of Student Behavior – Fourth Grade

Question	Extremely (%)	Moderately (%)	Somewhat (%)	Hardly (%)	Not answered (%)	
To what extent would you describe the students as orderly and cooperative?	76	21	2	0	1	
	No, there were no late students (%)	No, they were not admitted (%)	Yes, but before testing began (%)	Yes, after testing began (%)	Not answered (%)	
Were any late students admitted to the testing room?	91	2	3	3	1	
	Excellent (%)	Very good (%)	Good (%)	Fair (%)	Poor (%)	Not answered (%)
In general, how would you describe the overall quality of the testing session?	58	29	9	2	0	2

Exhibit 7.12 Percentages of QCM Responses for Observations of Student Behavior – Eighth Grade

Question	Extremely (%)	Moderately (%)	Somewhat (%)	Hardly (%)	Not Answered (%)	
To what extent would you describe the students as orderly and cooperative?	65	29	4	1	1	
	No, There Were No Late Students (%)	No, They Were Not Admitted (%)	Yes, but Before Testing Began (%)	Yes, After Testing Began (%)	Not Answered (%)	
Were any late students admitted to the testing room?	87	2	4	5	2	
	Excellent (%)	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Not Answered (%)
In general, how would you describe the overall quality of the testing session?	49	33	12	4	0	2

7.2.4 Interview with the Test Administrator and/or School Coordinator

As the final step of each observation, the QCMs conducted an interview with the Test Administrator and/or School Coordinator. Details of the interview were recorded in Section D of the Classroom Observation Record. The interview addressed activities, such as shipment of assessment materials, arrangements for test administration, responsiveness of the NRC to queries, necessity for make-up sessions, and, as a validation of within-school sampling procedures, organization of classes in the school.

The results presented in Exhibits 7.13 and 7.14 show that overall, School Coordinators considered the TIMSS 2007 administration in their schools a success. Mistakes that did occur tended to be minor and could easily be remedied. There were only a few cases where shipments of test materials had something missing, and, in all such cases, they were resolved before the testing date.

In order to better estimate the time needed to complete the *Teacher Questionnaires*, QCMs asked if the current estimate of 45 minutes was appropriate. From all cases where *Teacher Questionnaires* already were completed, 55 percent of the fourth grade School Coordinators and 65 percent of the eighth grade School Coordinators reported that the estimate of 45 minutes was about right. Twenty-one percent of the fourth grade School Coordinators and 15 percent of the eighth grade School Coordinators reported that the questionnaires took longer, and about 10 percent (per each grade) said that they took less time to complete.

In more than half of the cases, School Coordinators indicated that students were given special instructions, motivational talks, or incentives by a school official or the classroom teacher prior to testing.

In 11 percent of the observed fourth grade classes and 15 percent of the observed eighth grade classes, the School Coordinator anticipated that a make-up session was needed, and most of them were sure that they would be conducting one.

Because the sampling of classes requires a complete list of all classes in the school at the target grade, QCMs were asked to verify that the class list did indeed include all classes. This was more confusing for the eighth grade due to some very complicated ways of organizing courses in some of the countries. In spite of complicated course structures, almost all School Coordinators reported that the complete list of classes had been documented and all students appeared in one and only one of these classes. Additional comments from School Coordinators showed that some were very confused by the question itself, commenting that they sent a list of all classes to the national center, but only one or two classes were selected to participate. Therefore, a small percentage of them answered that there were students at the grade level who did not have a chance to participate.

A tribute to the planning and implementation of TIMSS 2007 was the fact that 90 percent of respondents said they would be willing to serve as a School Coordinator in future international assessments. Furthermore,

the results in Exhibits 7.15 and 7.16 suggest that the majority of School Coordinators believed the testing sessions went very well and that school staff members had mostly positive attitudes towards the TIMSS testing.

Exhibit 7.13 Receipt of Materials and Test Administration, Percentages of Responses from QCM Interviews with the Test Administrator and/or School Coordinator – Fourth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Prior to the assessment day did you have time to check your shipment of materials from your TIMSS National Coordinator?	86	12	2
Did you receive the correct shipment of the following items?			
School Coordinator Manual	89	4	7
Test Administrator Manual	93	5	2
Student Tracking Forms	99	1	0
Test booklets	95	4	1
Student Questionnaires	94	5	1
Teacher Questionnaires	98	1	1
School Questionnaire	98	2	0
Test Administration Form	97	1	2
Teacher Tracking Form	91	7	2
Envelopes or boxes addressed to the National Center for the purpose of returning the materials after the assessment	82	16	2
Was the National Coordinator responsive to your questions or concerns?	76	5	19
Was the estimated time of 45 minutes to complete the Teacher Questionnaires a correct estimate?	55	21 (<i>Took longer</i>) 10 (<i>Took less time</i>)	14
Were you satisfied with the accommodations (testing room) you were able to arrange for the testing?	98	1	1
Do you anticipate that a makeup session will be required at your school?	11	85	4
<i>If you anticipate a makeup session, do you intend to conduct one?</i>	10	0	5 (<i>Not Answered</i>) 85 (<i>Not Applicable</i>)
Did the students receive any special instructions, a motivational talk, or incentives to prepare them for the assessment?	53	46	1
Is this a complete list of the classes in this grade in this school?	93	4	3
To the best of your knowledge, are there any students in this grade level who are not in any of these classes?	4	93	3
To the best of your knowledge, are there any students in this grade level in more than one of these classes?	1	96	3
If there was another international assessment, would you be willing to serve as a School Coordinator?	90	7	3

Exhibit 7.14 Receipt of Materials and Test Administration, Percentages of Responses from QCM Interviews with the Test Administrator and/or School Coordinator – Eighth Grade

Question	Yes (%)	No (%)	Not Answered (%)
Prior to the assessment day did you have time to check your shipment of materials from your TIMSS National Coordinator?	82	12	6
Did you receive the correct shipment of the following items?			
School Coordinator Manual	85	5	10
Test Administrator Manual	87	7	6
Student Tracking Forms	94	2	4
Test booklets	90	5	5
Student Questionnaires	90	5	5
Teacher Questionnaires	94	2	4
School Questionnaire	94	1	5
Test Administration Form	90	5	5
Teacher Tracking Form	90	5	5
Envelopes or boxes addressed to the National Center for the purpose of returning the materials after the assessment	78	17	5
Was the National Coordinator responsive to your questions or concerns?	84	4	12
Was the estimated time of 45 minutes to complete the Teacher Questionnaires a correct estimate?	65	15 (<i>Took longer</i>) 9 (<i>Took less time</i>)	11
Were you satisfied with the accommodations (testing room) you were able to arrange for the testing?	94	3	3
Do you anticipate that a makeup session will be required at your school?	15	80	5
<i>If you anticipate a makeup session, do you intend to conduct one?</i>	12	1	7 (<i>Not Answered</i>) 80 (<i>Not Applicable</i>)
Did the students receive any special instructions, a motivational talk, or incentives to prepare them for the assessment?	61	37	2
Is this a complete list of the classes in this grade in this school?	89	6	5
To the best of your knowledge, are there any students in this grade level who are not in any of these classes?	5	92	3
To the best of your knowledge, are there any students in this grade level in more than one of these classes?	3	93	4
If there was another international assessment, would you be willing to serve as a School Coordinator?	90	6	4

Exhibit 7.15 Overall Impressions, Percentages of Responses from QCM Interviews with the Test Administrator and/or School Coordinator – Fourth Grade

Question	Very Well, No Problems (%)	Satisfactorily, Few Problems (%)	Unsatisfactorily, Many Problems (%)	Not Answered (%)
Overall, how would you say the session went?	85	14	0	1

	Positive (%)	Neutral (%)	Negative (%)	Not Answered (%)
Overall, how would you rate the attitude of the other school staff members towards the survey?	73	22	3	2

	Worked Well (%)	Needs Improvement (%)	Not Answered (%)
Overall, do you feel the School Coordinator Manual worked well or does it need improvement?	83	8	9

Exhibit 7.16 Overall Impressions, Percentages of Responses from QCM Interviews with the Test Administrator and/or School Coordinator – Eighth Grade

Question	Very Well, No Problems (%)	Satisfactorily, Few Problems (%)	Unsatisfactorily, Many Problems (%)	Not Answered (%)
Overall, how would you say the session went?	82	16	1	1

	Positive (%)	Neutral (%)	Negative (%)	Not Answered (%)
Overall, how would you rate the attitude of the other school staff members towards the survey?	75	21	2	2

	Worked Well (%)	Needs Improvement (%)	Not Answered (%)
Overall, do you feel the School Coordinator Manual worked well or does it need improvement?	82	8	10

7.3 Survey Activities Questionnaire

The *Survey Activities Questionnaire* was designed to elicit information about NRCs experiences in preparing for and conducting the TIMSS 2007 data collection, with a focus on identifying and selecting samples, translating the test instruments, assembling and printing the test materials, packing and shipping the test materials, scoring constructed-response items, entering and verifying data, implementing the national quality assurance program, and

suggesting improvements in the process. To make this data collection more efficient, the questionnaire was administered to the NRCs online.

This section reports information gathered from the *Survey Activities Questionnaire*, reflecting the quality of the TIMSS 2007 survey materials and procedures in the participating countries.

7.3.1 Sampling

The first part of the *Survey Activities Questionnaire* asked questions about sampling schools and classes within the sampled schools. Exhibits 7.17 and 7.18 show that nearly all countries did not have problems selecting their samples using the manuals provided by the TIMSS & PIRLS International Study Center. Only two countries did not use the Windows® Within-school Sampling Software (WinW3S) provided by the IEA Data Processing and Research Center (DPC) to select classes. In these cases, countries chose to use their own software, because they felt their experience using this software would make the process more efficient.

A small number of NRCs encountered organizational constraints in their systems that necessitated a deviation from the sample design. In each case, the Statistics Canada sampling expert was consulted to ensure that the altered design remained compatible with TIMSS standards. In one of the cases that requested a deviation in their sampling design (Qatar), no school sampling was necessary because the TIMSS sample included the entire target population.

Exhibit 7.17 Numbers of NRC Responses to the Survey Activities Questionnaire—Sampling – Fourth Grade

Question	Yes	No	Not Answered
Were you able to select your sample of schools and classes within schools using the manuals provided by the TIMSS & PIRLS International Study Center?	36	0	3
Did you use the Windows Within-School Sampling Software provided by the IEA Data Processing and Research Center to sample classes within schools?	34	2	3
Were there any conditions or organizational constraints that necessitated deviations from the basic TIMSS sampling design?	9	27	3

Exhibit 7.18 Numbers of NRC Responses to the Survey Activities Questionnaire—Sampling – Eighth Grade

Question	Yes	No	Not Answered
Were you able to select your sample of schools and classes within schools using the manuals provided by the TIMSS & PIRLS International Study Center?	44	0	4
Did you use the Windows Within-School Sampling Software provided by the IEA Data Processing and Research Center to sample classes within schools?	44	0	4
Were there any conditions or organizational constraints that necessitated deviations from the basic TIMSS sampling design?	10	34	4

7.3.2 Translating the Test Instruments

Exhibits 7.19 and 7.20 provide NRCs answers to questions about translating the test instruments. In translating the survey instruments, NRCs generally reported using their own staff or a combination of their staff and outside experts. Almost all NRCs reported that they had gone through the process of external translation verification of the assessment items and background questionnaires organized by the IEA Secretariat. Dubai, United Arab Emirates, reported that they used the survey instruments from Qatar that had already gone through the process of verification.

Exhibit 7.19 Numbers of NRC Responses to the Survey Activities Questionnaire – Translating the Test Instruments – Fourth Grade

Question	Own Staff	Outside Translator(s)	Outside Reviewer(s)	Combination	Not Answered
Did you use your own staff or outside experts to translate the mathematics assessment items?	12	5	1	15	6
Did you use your own staff or outside experts to translate the science assessment items?	12	5	1	15	6
Did you use your own staff or outside experts to translate the background questionnaires?	16	6	1	10	6

	Yes	No	Not Answered
Did you go through the process of external translation verification of the assessment items by the IEA?	32	1	6
Did you go through the process of external translation verification of the background questionnaires by the IEA?	33	1	5

Exhibit 7.20 Numbers of NRC Responses to the Survey Activities Questionnaire – Translating the Test Instruments – Eighth Grade

Question	Own Staff	Outside Translator(s)	Outside Reviewer(s)	Combination	Not Answered
Did you use your own staff or outside experts to translate the mathematics assessment items?	15	4	0	24	5
Did you use your own staff or outside experts to translate the science assessment items?	15	4	0	24	5
Did you use your own staff or outside experts to translate the background questionnaires?	19	6	1	17	5

	Yes	No	Not Answered
Did you go through the process of external translation verification of the assessment items by the IEA?	41	2	5
Did you go through the process of external translation verification of the background questionnaires by the IEA?	41	2	5

7.3.3 Assembling and Printing the Test Instruments

The NRCs were asked to answer some questions about assembling and printing the test materials, as well as issues related to checking the materials and securely storing them. The results in Exhibits 7.21 and 7.22 show that all NRCs answered that they were able to assemble the test booklets according to the instructions provided, and only one country did not go through the process of external layout verification of the test booklets by the TIMSS & PIRLS International Study Center. Nearly all countries conducted the recommended quality control checks during the printing process. The most common errors that countries detected during the printing process were missing pages and wrong page order. The NRCs were able to fix all of the systematic errors before sending the tests for administration.

All countries reported that they followed procedures to protect the security of the tests during assembly and printing. One country was concerned that there could be a breach of security because so many different people were involved in the study, even though they all were asked to sign a nondisclosure agreement.

Exhibit 7.21 Numbers of NRC Responses to the Survey Activities Questionnaire – Assembling and Printing the Test Instruments – Fourth Grade

Question	Yes	No	Not Answered
Were you able to assemble the test booklets according to the instructions provided by the TIMSS & PIRLS International Study Center?	34	0	5
Were you able to assemble the background questionnaires according to the instructions provided by the TIMSS & PIRLS International Study Center?	34	0	5
Did you go through the process of external layout verification of the survey instruments by the TIMSS & PIRLS International Study Center?	32	2	5
Did you conduct the quality assurance procedures for checking the survey instruments during the printing process?	32	1	6
<i>If errors were detected, what was the nature of the errors?</i>			
<i>Poor print quality</i>	7	26	6
<i>Pages missing</i>	7	26	6
<i>Page order</i>	9	24	6
<i>Upside down pages</i>	2	30	7
Did you follow procedures to protect the security of the survey materials during the assembly and printing process?	33	0	6
Did you discover any potential breaches of security?	0	33	6

Exhibit 7.22 Numbers of NRC Responses to the Survey Activities Questionnaire – Assembling and Printing the Test Instruments – Eighth Grade

Question	Yes	No	Not Answered
Were you able to assemble the test booklets according to the instructions provided by the TIMSS & PIRLS International Study Center?	43	0	5
Were you able to assemble the background questionnaires according to the instructions provided by the TIMSS & PIRLS International Study Center?	43	0	5
Did you go through the process of external layout verification of the survey instruments by the TIMSS & PIRLS International Study Center?	42	1	5
Did you conduct the quality assurance procedures for checking the survey instruments during the printing process?	40	3	5
<i>If errors were detected, what was the nature of the errors?</i>			
<i>Poor print quality</i>	7	35	6
<i>Pages missing</i>	18	24	6
<i>Page order</i>	17	25	6
<i>Upside down pages</i>	9	33	6
Did you follow procedures to protect the security of the survey materials during the assembly and printing process?	43	0	5
Did you discover any potential breaches of security?	1	42	5

7.3.4 Packing and Shipping the Testing Materials

Some questions in the questionnaire addressed the extent to which NRCs detected errors in the testing materials as they were packed for shipping to School Coordinators. As shown in Exhibits 7.23 and 7.24, a few errors were found in the materials. All errors that were discovered before distribution were remedied. In cases where errors were found after distribution, they usually were very minor and could be remedied by school coordinators. In more severe cases, the provided replacement materials were used.

Exhibit 7.23 Numbers of NRC Responses to the Survey Activities Questionnaire – Packing and Shipping the Testing Materials – Fourth Grade

Question	No Errors, or Not Used	Errors Found Before Distribution	Errors Found After Distribution	Errors Found Before And After Distribution	Not Answered
In packing the assessment materials for shipment to schools, did you detect any errors in any of the following items?					
Test booklets	15	5	11	3	5
Student Questionnaires	26	4	3	1	5
Student Tracking Forms	30	0	3	1	5
Test Booklet ID labels	29	2	2	1	6
Student Questionnaire ID labels	29	2	2	0	6
Sequencing of Booklets or Student Questionnaires	24	3	6	1	5
Teacher Questionnaires	32	1	1	0	5
Teacher Tracking Forms	29	1	3	0	6
School Questionnaires	32	1	1	0	5
Test Administrator Manual	32	0	2	0	5
School Coordinator Manual	32	0	2	0	5
Return Labels	32	0	1	0	6
Self-addressed postcards for test dates	31	0	0	0	8

Exhibit 7.24 Numbers of NRC Responses to the Survey Activities Questionnaire – Packing and Shipping the Testing Materials – Eighth Grade

Question	No Errors, or Not Used	Errors Found Before Distribution	Errors Found After Distribution	Errors Found Before And After Distribution	Not Answered
In packing the assessment materials for shipment to schools, did you detect any errors in any of the following items?					
Test booklets	20	7	13	4	4
Student Questionnaires	34	7	3	0	4
Student Tracking Forms	40	1	2	1	4
Test Booklet ID labels	38	3	2	1	4
Student Questionnaire ID labels	39	3	2	0	4
Sequencing of Booklets or Student Questionnaires	32	4	6	2	4
Teacher Questionnaires	41	3	0	0	4
Teacher Tracking Forms	41	2	0	1	4
School Questionnaires	41	3	0	0	4
Test Administrator Manual	41	1	1	1	4
School Coordinator Manual	42	1	0	1	4
Return Labels	41	0	2	0	5
Self-addressed postcards for test dates	40	0	0	0	8

7.3.5 Scoring Constructed-response Items

The *Survey Activities Questionnaire* collected information from NRCs about preparation for scoring and scoring the constructed-response items. The scoring process was an ambitious effort, requiring recruiting and training scoring staff to score student responses including independent double scoring to verify scoring reliability. Exhibits 7.25 and 7.26 indicate that almost all NRCs understood the procedures of within-country reliability scoring, trend-reliability scoring, and cross-country reliability scoring, as explained in the manuals provided by the TIMSS & PIRLS International Study Center. Three countries had time-, money-, and language-related (English was used for this activity) problems completing the cross-country reliability scoring task. Countries on the Northern Hemisphere timeline did not participate in the cross-country reliability scoring activity, because most of them (the ones testing in English) supplied student responses used by all the other countries.

Note that the question on trend-reliability scoring procedures did not apply to countries that did not participate in TIMSS 2003.

Exhibit 7.25 Numbers of NRC Responses to the Survey Activities Questionnaire – Scoring Constructed-response Items – Fourth Grade

Question	Own Staff	Teachers	University Students	Combination of the Above	Other	Not Answered
Who primarily scored your constructed-response mathematics assessment items?	2	11	4	13	5	4
Who primarily scored your constructed-response science assessment items?	2	11	5	12	5	4

Question	Yes	No	Not Answered
Did you understand the procedure of reliability scoring, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	34	1	4
Did you understand the trend-reliability scoring procedure, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	19	4	<i>Not Applicable</i>
Did you understand the cross-country reliability scoring procedure, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	25	6	8

Exhibit 7.26 Numbers of NRC Responses to the Survey Activities Questionnaire – Scoring Constructed-response Items – Eighth Grade

Question	Own Staff	Teachers	University Students	Combination of the Above	Other	Not Answered
Who primarily scored your constructed-response mathematics assessment items?	2	15	2	14	11	4
Who primarily scored your constructed-response science assessment items?	2	15	2	14	11	4

Question	Yes	No	Not Answered
Did you understand the procedure of reliability scoring, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	42	1	5
Did you understand the trend-reliability scoring procedure, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	28	4	<i>Not Applicable</i>
Did you understand the cross-country reliability scoring procedure, as explained in the manuals provided by the TIMSS & PIRLS International Study Center?	31	7	10

7.3.6 Data Entry and Verification

Exhibits 7.27 and 7.28 report that most countries entered the data from a percentage of test booklets twice as a verification procedure. The estimated proportion of booklets to be entered twice ranged from 5 to 30 percent.

Only one NRC reported having concerns about establishing a secure storage area for the returned tests after data entry.

Exhibit 7.27 Results of the Survey Activities Questionnaire – Data Entry and Verification – Fourth Grade

Question	Yes	No	Not Answered
Did you enter a percentage of test booklets twice as a verification procedure?	20	14	5
Did you use the Windows Data Entry Manager software provided by the IEA Data Processing Center and Research to enter your test instrument data?	30	5	4
Were the returned tests stored in a secure area after scoring and data entry until the original documents could be discarded?	35	0	4

Question	Own Staff	External Data Entry Firm	Combination of the Above	Other	Not Answered
Who primarily entered the TIMSS data for your country?	11	6	8	9	5

Exhibit 7.28 Results of the Survey Activities Questionnaire – Data Entry and Verification – Eighth Grade

Question	Yes	No	Not Answered
Did you enter a percentage of test booklets twice as a verification procedure?	27	16	5
Did you use the Windows Data Entry Manager software provided by the IEA Data Processing Center and Research to enter your test instrument data?	40	3	5
Were the returned tests stored in a secure area after scoring and data entry until the original documents could be discarded?	41	1	6

Question	Own Staff	External Data Entry Firm	Combination of the Above	Other	Not Answered
Who primarily entered the TIMSS data for your country?	17	9	10	7	5

7.3.7 National Quality Assurance Program

As part of the national quality assurance activities, NRCs were required 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. The last section of the *Survey Activities Questionnaire* addressed preparation for and implementation of the national quality assurance program.

As shown in Exhibits 7.29 and 7.30, almost all 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.

Exhibit 7.29 Numbers of NRC Responses to the Survey Activities Questionnaire – National Quality Assurance Program – Fourth Grade

Question	An External Agency	Members of the National Center	A Combination of the Above	Other	Not Answered
Who did the classroom observations?	2	9	9	15	4

Question	Yes	No	Not Answered
When conducting your own quality assurance program, did you use the National Quality Control Monitor Manual provided by the TIMSS & PIRLS International Study Center?	34	1	4

Exhibit 7.30 Numbers of NRC Responses to the Survey Activities Questionnaire – National Quality Assurance Program – Eighth Grade

Question	An External Agency	Members of the National Center	A Combination of the Above	Other	Not Answered
Who did the classroom observations?	4	10	12	16	6

Question	Yes	No	Not Answered
When conducting your own quality assurance program, did you use the National Quality Control Monitor Manual provided by the TIMSS & PIRLS International Study Center?	39	3	6

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