



Chapter 7

Quality Assurance in the TIMSS 2003 Data Collection

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7.1 Overview

As part of its overall quality assurance efforts, TIMSS conducted an ambitious program of site visits to document the quality of the TIMSS 2003 data collection. Together with the IEA Secretariat and the national centers, the TIMSS & PIRLS International Study Center (ISC) identified and appointed one International Quality Control Monitor (QCM) in each country to observe data collection procedures at both national and classroom levels.

Quality Control Monitors had two major responsibilities: to interview the National Research Coordinator (NRC) about the survey operations and activities, and to conduct site visits to a random sample of 15 schools in the country at each grade assessed during test administration. The QCMs attended a two-day training session conducted by the ISC and the IEA Secretariat,¹ where they were introduced to the TIMSS 2003 survey operations procedures and instructed on how to conduct their interviews and site visit observations. At the training session, QCMs received a copy of the *TIMSS 2003 Manual for International Quality Control Monitors* (TIMSS, 2002a), which explained their duties in detail, and copies of the *Survey Operations Manual*

meeting the testing timetable. All together, these monitors and those trained by them observed 1147 testing sessions (755 for grade 8 and 392 for grade 4),³ and conducted interviews with the National Research Coordinator in each of the participating countries. Exhibit 7.1 indicates the dates of data collection and the number of site visits by QCMs in each country.

7.2 Observing the TIMSS Test Administration

When visiting the school, the QCM had to complete a Classroom Observation Record Form. This form was organized into four sections as follows:

- Preliminary activities of the Test Administrator
- Test session activities
- Summary observations
- Interview with the School Coordinator

7.2.1 Preliminary Activities of the Test Administrator

Exhibit 7.1 TIMSS 2003 International Quality Control Site Visits

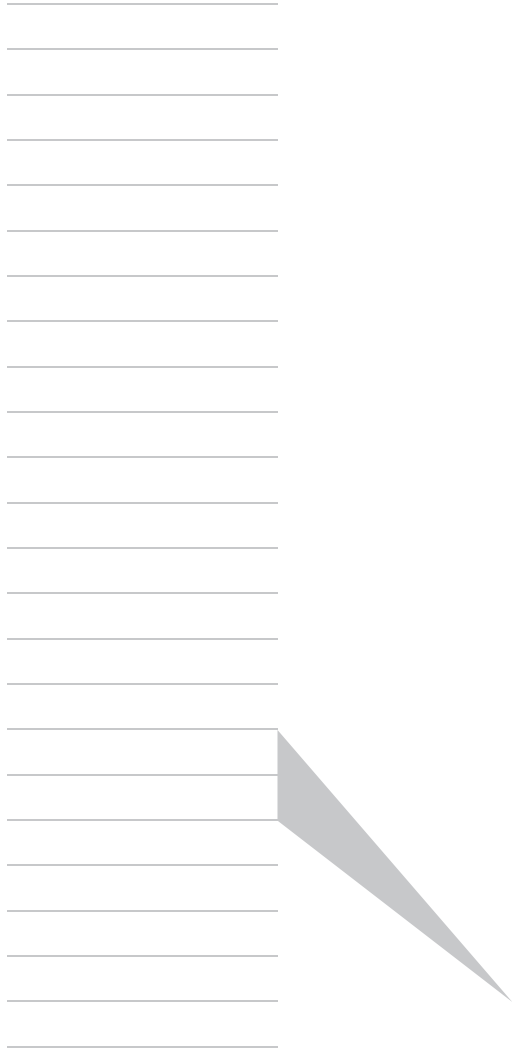


Exhibit 7.7 summarizes QCMs' observations from the second testing session for grade 4. In the large majority of sessions the Test Administrator kept to the time limits prescribed in the directions. About 60 percent of the Test Administrators stuck to the testing script for signaling a break. Of those who did make changes, most made minor changes such as paraphrasing the directions. Similar to grade 8, QCMs here also took the question about time for restarting literally. In about 40 percent of the sessions, the time spent to restart the testing session was the prescribed five minutes. For the rest, the session took up to 10 minutes longer to restart. Only about one-quarter of students requested additional time to complete the student questionnaire. In most cases, this request was granted.

Exhibit 7.7 Testing Session 2 – Fourth Grade

Question	Yes	No	N/A
Was the time spent to restart the testing with Session 2, 5 minutes?	169	215	7
Was the total time for testing in Session 2 correct as indicated in the Administrators' script?	372	10	9
Did the Test Administrator announce "you have 10 minutes left" prior to the end of Session 2?	367	15	11
Were there any other time remaining announcements made during Session 2?	48	333	10
At the end of Session 2, did the Test Administrator collect the test booklets one at a time from each student?	322	59	10
When the Test Administrator read the script to end the testing for Session 2, did the Test Administrator announce a break to be followed by the Student Questionnaire?	301	40	50
How accurately did the Test Administrator read the script to end the testing and signal a break?	242	84 (minor changes) 10 (major changes)	53
If there were changes, how would you describe them?			
Additions	29	68	294
Some minor changes	66	54	271
Omissions	25	77	289
At the end of the break, did the Test Administrator distribute the Student Questionnaires and give directions as specified in the script?	288	42	61
Did the students ask for additional time to complete the questionnaire?	96	243	52
At the end of the session, prior to dismissing the students, did the Test Administrator thank the students for participating in the study?	304	35	52

Responses to the remaining questions focusing on the test session activities for eighth grade are summarized in Exhibit 7.8. These questions dealt with topics such as student compliance with instructions and the align-

ment of the scripted instructions with their implementation. Exhibit 7.8 shows that in almost all of the sessions, the students complied well or very well with the instructions to stop testing. In addition, in at least 70 percent of the sessions, breaks were conducted exactly or nearly exactly as directed

Exhibit 7.9 presents the results of the remaining questions that focused on the test session activities for grade 4. Similar to the eighth grade, Exhibit 7.9 shows that in almost all the sessions the students complied well or very well with the instructions to stop testing. In addition, in at least two-thirds of the sessions breaks were conducted exactly or nearly exactly as directed in the script. When this was not the case, it was mostly due to differences in the amount of time allocated for the break. It is also notable that calculators were *not* allowed in almost all testing sessions.

Exhibit 7.9 Test Session Activities – Fourth Grade

Question	Very Well	Well	Fairly Well	Not well at all	N/A
When the Test Administrator ended Session 1, how well did the students comply with the instruction to stop work (close their booklets and put their pencils down)?	311	56	7	1	16
When the Test Administrator ended Session 2, how well did the students comply with the instruction to stop work (close their booklets and put their pencils down)?	317	58	6	0	10

7.2.3 Summary Observations

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

The results presented in Exhibit 7.10 for grade 8 show that in almost all sessions the testing took place without any problems. In the few sessions where problems arose due to defective instrumentation, the Test Administrator replaced the instruments appropriately. In less than five percent of sessions, QCMs reported evidence of students attempting to cheat on the

Exhibit 7.11 presents QCMs' summary observations for fourth grade. Similar to eighth grade, in almost all sessions the testing took place without any problems. In the few sessions where problems arose due to defective instrumentation, the Test Administrator replaced the instruments appropriately. In less than four percent of the sessions, QCMs reported evidence of students attempting to cheat on the exam. Like at grade 8, when asked to explain the situation, QCMs indicated that students were merely looking around at their neighbors to see whether their test booklets were indeed different. The QCMs

7.2.4 Interview with the School Coordinator

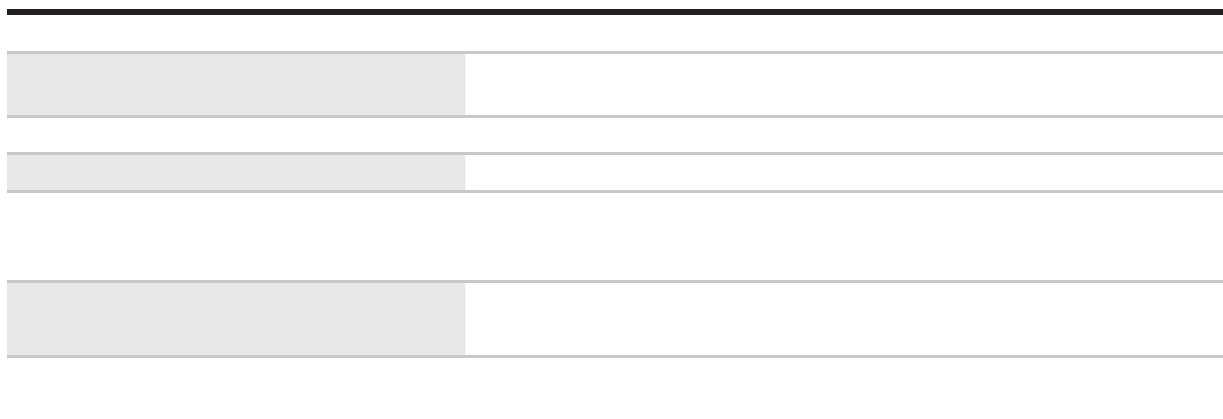
The QCM recorded details of the interview with the School Coordinator in Section D of the Classroom Observation Record. The interview addressed the shipment of assessment materials, arrangements for the test administration, the responsiveness of the NRC to queries, the necessity for make-up sessions, and, as a validation of within school sampling procedures, the organization of classes in the school.

The results presented in Exhibit 7.12 for the eighth grade show that TIMSS 2003 was an administrative success in the eyes of School Coordinators. In more than 70 percent of the cases, school officials received the correct shipment of the test materials. Mistakes that did occur tended to be minor and could be remedied prior to testing. Furthermore, about 85 percent of School Coordinators reported that the NRCs were responsive to their questions or concerns, and that the relations were cordial and cooperative. About half of the School Coordinators reported that they were able to collect the completed Teacher Questionnaires prior to student testing. Of the rest, the

Exhibit 7.12 QCM Interviews with the School Coordinator – Eighth Grade (...Continued)

	Very well, no problems	Satisfactorily, few problems	Unsatisfactorily, many problems	N/A
Overall, how would you say the session went?	61¢	94	4	41
	Positive	Neutral	Negative	N/A
Overall, how would you rate the attitude of the other school staff members towards the TIMSS testing?	54¢	15¢	1¢	37
	Worked well	Needs improvement	N/A	
Overall, do you feel the TIMSS School Coordinator Manual worked well or does it need improvement?	584	3¢	13¢	

Similar to the eighth grade, the administrative success of TIMSS 2003 at the fourth grade is exemplified by the results of the QCM interviews with School Coordinators, presented in Exhibit 7.13. School Coordinators received the correct shipment of the test materials in most cases. In cases where shipment errors occurred, they tended to be minor and were remedied prior to



A small number of NRCs encountered organizational constraints in their systems that necessitated deviations from the sample design. In each case, a sampling expert was consulted to ensure that the altered design remained compatible with the TIMSS standards. Sixty percent of NRCs reported that the sampling procedures were not unduly difficult to implement, while nearly 40 percent found the process somewhat difficult. Nevertheless, all but two NRCs managed to deliver school and student samples of high quality for the data collection.⁶

Exhibit 7.14 Interview with the NRC – Sampling

Question	Yes	No	N/A
Were you able to select a sample of schools and students within schools using the Survey Operations Manual and the Sampling Manual provided by the TIMSS International Study Center?	44	6	0
Did you use the Within-School Sampling Software provided by the TIMSS International Study Center to select classes or students?	40	9	1
Were there any conditions or organizational constraints that necessitated deviations from the basic sampling TIMSS design?	8	42	0

7.3.3 Translating the Instruments

Section C of the NRC interview dealt with translation and adaptation of the assessment instruments and manuals. Exhibit 7.16 shows that most NRCs were about evenly split between those who reported little difficulty in translating and adapting the test booklets and questionnaires and those who reported that this was somewhat or very difficult. Most NRCs, however, reported little difficulty in translating the Test Administrator and School Coor-

7.3.8 Quality Assurance Sample

As part of their national quality assurance activities, NRCs were required to send National Quality Control Observers to a 10 percent sample of the schools to observe the test administration and document compliance with prescribed procedures. These site visits were in addition to the visits to 15 schools conducted by the International Quality Control Monitors.

At the time of the NRC interviews, 64 percent of the NRCs had selected their 10 percent quality assurance sample for site visits. Two NRCs reported that an external agency would conduct the observations, 24 reported that a member of their staff would do so, and 12 reported that a combination of staff and external agency people would conduct the observations. Eight NRCs reported that other professionals, such as inspectors, retired teachers, mathematics and science supervisors or university professors, would be recruited to conduct the on-site observations.

Exhibit 7.20 Interview with the NRC – Data Entry and Verification

Question	Yes	No	N/A
Have you selected the data entry staff?	37	11	2
If yes, have you conducted training sessions for the data entry staff?	21	17	12
Do you plan to key enter a percentage of test booklets twice as a verification			

References

TIMSS (2002a), *TIMSS 2003 Manual for International Quality Control Monitors*, prepared by the TIMSS & PIRLS International Study Center, Chestnut Hill, MA: Boston College.

TIMSS (2002b),