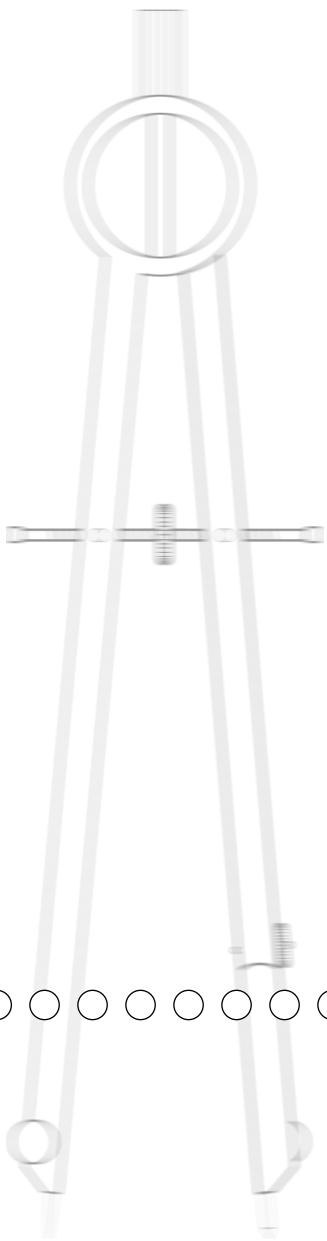


## Quality Control in the TIMSS Data Collection

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# 8

## Quality Control in the TIMSS Data Collection

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### 8.1 Overview

To verify that standardized procedures were followed across all participating countries, the International Study Center (ISC) instituted a program for quality assurance in data collection. In collaboration with the IEA Secretariat, one or more international Quality Control Monitors (QCMs) were recruited in each country to document data collection procedures at both the national and the school level.

Quality Control Monitors had two major responsibilities: to visit a sample of 15 schools in their country so as to observe the test administration, and to interview the National Research Coordinator (NRC) about the survey operations and activities. QCMs completed a *Classroom Observation Record* for each testing session that they observed, and an *Interview with the NRC Form* to record those interviews.

Monitors were trained in survey operations procedures and documenting findings at two-day training sessions conducted by the staff of the International Study Center. Three training sessions were held, with more than 20 monitors attending each session. During the training, QCMs were given an overview of the TIMSS 1999 survey operations procedures and instructed how to conduct their quality-control task. They received a *Manual for International Quality Control Monitors* (TIMSS, 1998), which explained their duties in detail, as well as copies of the TIMSS survey operations manual and manuals for school coordinators and test administrators.

In total, 71 Quality Control Monitors were recruited and trained. These monitors observed a total of 550 testing sessions and conducted interviews with the national research coordinator in each of the 38 participating countries.

## 8.2 Observing the TIMSS Test Administration

The classroom observation record was designed to allow the Quality Control Monitor to keep a simple and accurate record of the major activities relating to the test administration. The record had four sections:

1. Preliminary activities of the test administrator
2. Test session activities
3. General impressions
4. Interview with the school coordinator

### 8.2.1 Preliminary Activities of the Test Administrator

Section A of the classroom observation record dealt with preparations for the testing session. Monitors were asked to note whether the test administrator had checked the testing materials, read the administration script, organized space for the session, and arranged for the necessary equipment (pencils, timers, etc.).

Exhibit 8.1 summarizes the results for this section. It shows that in almost all cases, the preparatory testing procedures were followed. In the rare instances where deviations occurred, reasonable explanations were given. For example, of the 21 cases where QCMs reported that seals on student booklets were not intact, 15 were due to the use of plastic instead of a seal, a minor deviation that did not breach the security of the exam. In the few cases where it was reported that there was not enough room for students, QCMs noted that this was due to unavoidable circumstances (e.g., the test was administered in a small classroom in a very old school, the desks were too narrow, the room was configured such that students sat at round tables, etc.).

The absence of a visible wall clock was also considered more of an environmental limitation than a limitation of the implementation of the testing procedures. While more than half of the classrooms were missing a wall clock, QCMs frequently reported that students had their own watches or that the TA wrote the time remaining on the test on the board so that all students were aware of it. In general, QCMs observed no procedural deviations in preparations for the testing that were severe enough to compromise the integrity of the test administration.

**Exhibit 8.1 Preliminary Activities of the Test Administrator**

Question	Yes	No	N/A
Had the test administrator verified adequate supplies of the test booklets?	530 <sup>*</sup>	16 <sup>**</sup>	4
Had the test administrator familiarized himself or herself with the script prior to testing?	522 <sup>*</sup>	24 <sup>**</sup>	4
Were all the seals intact on the test booklets prior to distribution?	338	21	191 <sup>+</sup>
Did the Student Identification information on test booklet correspond with the Student Tracking Form?	525	18	7
Was there adequate seating space for the students to work without distractions?	530	19	1
Was there adequate room for the test administrator to move about the room during testing?	540	0	1
Did the test administrator have a stopwatch or timer for accurately timing testing sessions?	500	43	7
Did the test administrator have an adequate supply of pencils and other materials?	474	70	4
Was there a wall clock visible for the students to check their timing during the testing?	219	329	2

<sup>+</sup> Seals were not used on the booklets in these countries

<sup>\*</sup> Represents the number of respondents answering either Definitely Yes or Probably Yes

<sup>\*\*</sup> Represents the number of respondents answering either Definitely No or Probably No

**8.2.2 Test Session Activities**

Section B of the classroom observation record dealt with the test session activities themselves. These activities included the extent to which the test administrator followed the script, how the test booklets were distributed and collected, and the various announcements made during the testing session.

The achievement test was administered in two sessions, with a short break between. Exhibit 8.2 documents the activities associated with the first testing session and shows that at least 80% of the test administrators followed their script exactly when preparing the students, distributing the test materials, and beginning testing. In the rare instances where changes were made, they tended to be additions to the script.

Further examination of Exhibit 8.2 shows that only in about 60% of the sessions did the test administrator collect booklets one at a time at the end of the session, as prescribed in the directions. While this may seem surprising, it turns out that when the booklets were not collected singly from each student, students were instructed to close their test booklets and leave them on their

desk during the break. The room was then either secured or supervised during the break. In some instances, the administrators even gave the students adhesive tape and instructed them to apply the tape to the test before leaving the room.

When asked whether the break between sessions was 20 minutes long, QCMs tended to interpret the question quite literally. As a result only 41% of classrooms reported starting the test after a break that was “exactly” 20 minutes. The rest reported having breaks that lasted within a few minutes in either direction (break time ranged from 10 to 20 minutes).

## Exhibit 8.2 Testing Session 1

Question	Yes	No	N/A
Did the test administrator follow the test administrator's script exactly in each of the following sections?			
Preparing the students	444	92 (minor) 11 (major)	3
Distributing the materials	492	46 (minor) 7 (major)	5
Beginning testing	485	56 (minor) 4 (major)	5
If the test administrator made changes to the script, how would you describe them?			
Additions	81	140	329
Revisions	59	148	343
Deletions	26	173	351
Did the test administrator distribute test booklets one at a time to students?	527	18	5
Did the test administrator distribute the test booklets according to the booklet assignment on the <i>Student Tracking Form</i> ?	537	8	5
Did the test administrator record attendance correctly on the <i>Student Tracking Form</i> ?	534	8	8
Did the total testing time for session 1 equal the time allowed?	510	37	3
Did the test administrator announce "you have 10 minutes left" prior to the end of session 1?	507	41	2
Were any other "time remaining" announcements made during session 1?	48	458	8
At the end of session 1, did the test administrator collect the test booklets one at a time from students?	337	207	6
Was the total time for the break between session 1 and session 2 equal to 20 minutes?	229	309	12

Exhibit 8.3 summarizes QCMs' observations from the second testing session. Here too, QCMs took the question about time for restarting literally. In about half of the sessions, the time spent to restart the testing session was 5 minutes. For the rest, the session took up to 10 minutes longer to restart. More important, in the large majority of sessions, the test administrator kept to the time limits prescribed in the directions. Exhibit 8.3 also reveals that about 65% of the test administrators stuck to the testing script for signaling a break. Of those who did make changes, most made additions or other minor changes such as paraphrasing the directions.

A final statistic from Exhibit 8.3 worth noting is that almost two-thirds of students requested additional time to complete the student questionnaire. In most cases, this request was granted.

**Exhibit 8.3 Testing Session 2**

Question	Yes	No	N/A
Was the time spent to restart the testing in session 2 equal to 5 minutes?	270	270	10
Did the total testing time for session 2 equal the time allowed?	506	42	2
Did the test administrator announce "you have 10 minutes left" prior to the end of session 2?	502	45	3
Were any other "time remaining" announcements made during session 2?	62	481	
At the end of session 2, did the test administrator collect the test booklets one at a time from the students?	495	51	4
When the test administrator read the script for the end of testing session 2, did he or she announce a break to be followed by the <i>Student Questionnaire</i> ?	421	89	40
How accurately did the test administrator follow the script to end the testing and signal a break?	359 (no changes)	112 (minor) 12 (major)	67
If there were any changes, how would you describe them?			
Additions	33	139	378
Some minor changes	94	100	356
Omissions	33	138	379
At the end of the break, did the test administrator distribute the student questionnaires and give directions as specified in the script?	449	38	63
Did the students ask for additional time to complete the questionnaire?	338	156	56
At the end of the session, prior to dismissing the students, did the test administrator thank the students for participating in the study?	454	42	54

Exhibit 8.4 presents the results of the remaining questions asked about the test session activities. These questions dealt with topics such as student compliance with instructions, and the alignment between scripted instructions and their implementation.

The results show that in almost all of the sessions, the students complied well or very well with the instructions to stop testing. In addition, in about 70% of the sessions, breaks were conducted exactly or nearly the same as directed in the script. Where this was not the case, it was mostly due to differences in the amount of time allocated for the break.



Exhibit 8.4 Test Session Activities

Question	Very well	Well	Fairly well	Not well	N/A
When the test administrator ended session 1, how well did the students comply with the instructions to "stop work"?	446	90	9	0	5
When the test administrator ended session 2, how well did the students comply with the instructions to "stop work"?	463	74	9	1	3
	<b>Exactly</b>	<b>Nearly the same</b>	<b>Somewhat differently</b>	<b>Not well</b>	<b>N/A</b>
Was the first break conducted as directed by the script?	382	95	53	1	19
Was the second break conducted as directed by the script?	347	44	41	21	97
	<b>Exactly</b>	<b>Longer</b>	<b>Shorter</b>	<b>N/A</b>	
How did the actual break time compare with the recommended time in the script?	258	75	102	115	
How does the total time allocated for the administration of the <i>Student Questionnaire</i> compare with the time specified in the script?	152	307	13	78	
	<b>Very orderly</b>	<b>Somewhat orderly</b>	<b>Not orderly at all</b>	<b>N/A</b>	
How orderly was the dismissal of students?	361	132	12	45	

### 8.2.3 General Impressions

Section C of the QCM survey dealt with the Quality Control Monitor's general observations and overall impressions of the test administration. It covered topics such as how well the test administrator monitored the behavior of the students during the testing, and any unusual circumstances that may have come up during the session (e.g., cheating, emergency situations, student refusal to participate, defective instrumentation).

Examination of the results presented in Exhibit 8.5 shows that in almost all sessions, the testing took place without any problems. In the few sessions where problems arose due to defective instrumentation, the instruments were replaced appropriately by the test administrator about half of the time.

It is worth noting that in roughly 10% of sessions, QCMs reported seeing evidence of students attempting to cheat on the test. However, when asked to expand on this, QCMs generally indicated that students were merely looking around at their neighbors to see whether their test booklets were indeed different. Because the TIMSS test design involves 8 different booklets distributed among the students, students usually did not have the same booklet as their neighbors, so any students who may have tried to copy a neighbor's answers would have been frustrated by the test design. The QCMs reported that on the rare occasions when they observed serious efforts to cheat, the test administrator intervened in the situation and prevented cheating.

**Exhibit 8.5 Summary Observations of the QCM**

Question	Yes	No	N/A
During the testing situation 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?	530	13	7
In your opinion, did the test administrator address students' questions appropriately?	532	7	11
Did you see any evidence of students attempting to cheat on the tests (e.g., by copying from a neighbor)?	45	503	2
Were any defective booklets detected and replaced before the testing began?	8	540	2
Were any defective booklets detected and replaced after the testing began?	9	521	20
If any defective test booklets were replaced, did the test administrator replace them appropriately?	14	13	523
Did any students refuse to take the test either prior to the testing or during the testing?	15	526	9
If a student refused, did the test administrator accurately follow the instructions for excusing the student (collect the test booklet and record the incident on the <i>Student Tracking Form</i> )?	16	4	527
Did any students leave the room for an "emergency" during the testing?	42	500	8
If yes, did the test administrator address the situation appropriately (collect the booklet, and if the student was readmitted, return the test booklet and record time out of the room on the test booklet)?	19	20	508

Finally, Exhibit 8.6 indicates that in almost all of the testing sessions, QCMs found the behavior of students to be orderly and cooperative. Where it was less than perfect, the test administrator was almost always able to control the students and the situation. For the great majority of sessions, QCMs reported that the overall quality of the sessions was either excellent or very good.

**Exhibit 8.6 Summary Observations of Student Behavior**

Question	Extremely	Moderately	Somewhat	Hardly at all	N/A
To what extent would you describe the students as orderly and cooperative?	395	136	14	4	1
	<b>No, no late students</b>	<b>No, not admitted</b>	<b>Yes, before testing began</b>	<b>Yes, after testing began</b>	<b>N/A</b>
Were any late students admitted to the testing room?	485	11	23	23	8
	<b>Excellent</b>	<b>Very good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
In general, how would you describe the overall quality of the testing session?	280	184	66	14	3
	<b>Definitely Yes</b>	<b>Some effort was made</b>	<b>Hardly any effort was made</b>	<b>N/A</b>	
If the students were not cooperative and orderly, did the test administrator make an effort to control the students and the situation?	151	19	1	379	

#### 8.2.4 Interview with the School Coordinator

In Section D of the classroom observation record the QCM recorded details of the interview with the school coordinator. Issues addressed included shipping of assessment materials, satisfaction with arrangements for the test administration, the responsiveness of the NRC to queries, necessity for make-up sessions, and, as a check on within-school sampling activities, the organization of classes in the school.

The results presented in Exhibit 8.7 show that TIMSS 1999 was an administrative success in the eyes of the school coordinators. In 80% or more 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, more than 80% of school coordinators reported that the NRCs were responsive to their questions or concerns, and that 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 vast majority reported that they were missing only one or two questionnaires and were expecting them to be turned in shortly.

It was estimated that the teacher questionnaires would take about 60 minutes to complete. About 55% of the school coordinators indicated that the estimate of 60 minutes was about right, while about 30% reported that the questionnaires took longer and about 15% that they took less time to complete.

Finally, it is worth noting that in about 53% of the cases, school coordinators indicated that students were given special instructions, motivational talks, or incentives prior to testing. A more in-depth analysis of the results revealed that of the 292 cases involved, 208 reported that students received motivational talks by a school official, 64 reported that students received special instructions about the test beyond what was written in the TIMSS 1999 manuals (sometimes in the form of test preparation based on the released items from TIMSS 1995), and just 13 indicated that students received incentives for participation such as extra credit in their classes.

## Exhibit 8.7 Interview with the School Coordinator

Question	Yes	No	N/A
Prior to the test day did you have time to check your shipment of materials from your TIMSS national coordinator?	453	66	31
Did you receive the correct shipment of the following items?			
Test booklets	473	50	27
Test administrator manual	454	50	46
School coordinator manual	433	59	58
Student tracking forms	466	37	47
Student questionnaires	472	51	27
Teacher questionnaires	507	15	28
School questionnaires	506	17	27
Test administration form	465	50	35
Teacher tracking form	363	117	70
Student-teacher linkage form (if applicable)	163	197	190
Envelopes or boxes addressed to the national center for the purpose of returning the materials after the assessment	371	126	52
Was the national coordinator responsive to your questions or concerns?	452	33	64
Were you able to collect completed <i>Teacher Questionnaires</i> prior to the test administration?	267	252	30
It was expected that the <i>Teacher Questionnaire</i> would require about 60 minutes to complete. In your opinion, was that estimate correct?	259	141 (longer) 68 (less time)	82
Were you satisfied with the accommodations (testing room) you were able to arrange for the testing?	522	20	8
Do you anticipate that makeup sessions will be required at your school?	36	485	29
If yes, do you intend to conduct one?	55	91	404
Did the students receive any special instructions, motivational talk, or incentives to prepare them for the assessment?	292	242	16
Were students given any opportunity to practice on questions like those in the tests before the testing session?	45	494	11
Is this a complete list of the mathematics classes in this grade in this school?	453	45	52
To the best of your knowledge, are there any students in this grade level who are <i>not</i> in any of these mathematics classes?	27	469	54
To the best of your knowledge, are there any students in this grade level in more than one of these mathematics classes?	21	477	52
If there were another international assessment, would you be willing to serve as a school coordinator?	492	42	16

Perhaps the biggest tribute to the successful planning and implementation of TIMSS 1999 was the fact that about 90% of respondents said that if there were to be another international assessment that they would be willing to serve as the school coordinator. Furthermore, the results shown in Exhibit 8.8 suggest that practically all of the school coordinators thought the testing sessions went well, and that many thought that staff members in their school felt positive about the TIMSS 1999 testing.

**Exhibit 8.8 Interview with the School Coordinator (continued)**

Question	Very well	Satisfactory	Unsatisfactory	N/A
Overall, how would you say the session went?	449	86	3	12
	Positive	Neutral	Negative	N/A
Overall, how would you rate the attitude of the other school staff members towards the TIMSS testing?	375	150	17	8
	Worked well	Needs improvement	N/A	
Overall, do you feel the TIMSS 1999 school coordinator manual worked well or does it need improvement?	436	31	83	

### 8.3 Interview with the National Research Coordinator

In addition to visiting a sample of schools to observe the testing sessions, Quality Control Monitors held face-to-face interviews with the national research coordinator for their country. In countries with more than one QCM, interviews with the NRC were either conducted by the QCMs jointly, or one QCM was chosen. Interviews with NRCs were conducted in 36 of the 38 countries that participated in TIMSS 1999. The results are summarized in the following section.

The interview probed NRC's experiences in preparing for and conducting the TIMSS data collection, focusing on sampling activities, working with school coordinators, translating the instruments, assembling and printing the test materials, packing and shipping the test materials, scoring free-response questions, data entry and verification, choosing quality assurance samples, and suggestions for improvement in the process.

### 8.3.1 Sampling

Section A of the NRC interview related to sampling. Topics covered included the extent to which the NRCs used the manuals and sampling software provided by the International Study Center as well as the complexity of the task.

Exhibit 8.9 shows that only four countries did not use the sampling manuals provided, mainly because they dealt directly with Statistics Canada. In one case, no sampling was necessary because the sample was the population. Just over half of the NRCs used the within-school sampling software provided by the IEA DPC to select classes. In the cases where the sampling software was not used, it was generally because the country started the process late and did not have time to learn the software, and occasionally because of software incompatibility.

A number of NRCs encountered organizational constraints in their systems that necessitated deviations from the basic sample design. In each case, a sampling expert was consulted to ensure that the altered design remained compatible with the TIMSS standards. Most NRCs reported that the sampling procedures were not unduly difficult to implement, although some found the process very difficult. Nevertheless, all NRCs managed to deliver school and student samples of high quality for the data collection.

**Exhibit 8.9 Interview with the NRC – Sampling**

Question	Yes	No	N/A
Did you use the manuals provided by the International Study Center to select a sample of schools and students within schools?	32	4	0
Did you use the within-school sampling software provided by the International Study Center to select classes or students?	19	17	0
Were there any conditions or organizational constraints that necessitated deviations from the basic TIMSS 1999 sampling design?	6	29	1
	<b>Very difficult</b>	<b>Somewhat difficult</b>	<b>Not difficult</b>
In terms of the complexity of the procedures and number of personnel needed, how would you describe the process of sample selection?	4	10	21

### 8.3.2 Working with the School Coordinators

Section B of the NRC interview asked about working with the school coordinators, specifically about contacting them, shipping materials, and training.

**Exhibit 8.10 Interview with the NRC – School Coordinator**

Question	Yes	No	N/A
Have all the school coordinators for your sample been contacted?	33	3	0
If yes, have you sent them materials about the testing procedures?	25	7	4
Did you have formal training sessions for the school coordinators?	19	14	3

At the time the interviews were conducted, almost all of the NRCs had already selected the school coordinators for their sample, and most of them had been sent the appropriate materials on the testing procedures. Where this was not the case, it was often because the schools were on break, or because a meeting had been set up but not yet held. About half the NRCs conducted formal training sessions for school coordinators prior to the test administration.

### 8.3.3 Translating the Instruments

Section C of the NRC interview dealt with the difficulty of translating and adapting the assessment instruments and manuals.

Exhibit 8.11 shows that most NRCs reported little difficulty in translating and adapting the test booklets, questionnaires, or manuals, but that the scoring guides for the free-response items proved more problematic.

In translating the test booklets, NRCs generally reported using their own staff or a combination of staff and outside experts. All NRCs reported that they had submitted the achievement test booklets to the translation verification program at the International Study Center. At the time of the interview, almost all of them had received a translation verification report back.



Exhibit 8.11 Interview with the NRC – Translation

Question	Very difficult	Somewhat difficult	Not difficult
How difficult was it to translate and/or adapt the test booklets?	3	18	14
How difficult was it to adapt the questionnaires?	2	20	13
How difficult was it to adapt the <i>Test Administrator Manual</i> ?	0	10	26
How difficult was it to adapt the <i>School Coordinator Manual</i> ?	1	8	25
Did you translate or do you plan to translate the <i>Scoring Guide for Mathematics and Science Free Response Items</i> ?	18	18	0

### 8.3.4 Assembling and Printing the Test Materials

Section D of the NRC survey dealt with assembling and printing the test materials. It included quality control issues related to the accuracy of the materials and the security of their storage.

The results from Exhibit 8.12 indicate that NRCs were able to assemble the test booklets according to the instructions provided, and that almost all conducted the recommended quality control checks during the process. In the rare instances where the NRCs did not check the test booklets during the printing process, it was because of a shortage of time.

All NRCs reported having followed procedures to protect the security of the tests during assembly and printing. The one case where an NRC reported a breach of security was in fact simply a potential breach, that never materialized. Most countries elected to send their test booklets and questionnaires to an external printer, but more often printed their manuals in-house.

Exhibit 8.12 Interview with the NRC – Test Materials

Question	Yes	No	N/A
Were you able to assemble the test booklets according to the instructions provided by the International Study Center?	36	0	0
Did you conduct the quality assurance procedures for checking the test booklets during the printing process?	33	3	0
Were any errors detected during the printing process?	14	19	3
Poor print quality	6	7	23
Pages missing	3	11	22
Page order	5	9	22
Upside down pages	5	9	22
Did you follow procedures to protect the security of the tests during the assembly and printing process?	36	0	0
Did you discover any breaches of security?	1	35	0
	In-House	External	Combination
Where did you print the test booklets?	8	24	3
Where did you print the questionnaires?	8	20	7
Where did you print the manuals?	21	12	2

### 8.3.5 Packing and Shipping the Testing Materials

Section E of the NRC interview dealt with the extent to which NRCs discovered errors in the testing materials as they were packed for shipping to school coordinators. Exhibit 8.13 shows that overall, very few errors were found in any of the materials. The rare errors detected before distribution were remedied.

In addition, about two-thirds of NRCs reported having established procedures requiring schools to confirm receipt of the testing materials and verification of the contents. In most countries, NRCs reported that the deadline for return of materials from the schools was within a day or two of testing. All NRCs reported that the deadline was within two weeks of testing.

Exhibit 8.13 Interview with the NRC – Test Materials

Question	No Errors	Errors found before distribution	Errors found after distribution
In packing the assessment materials for shipment to schools, did you detect any errors in any of the following items?			
Supply of test booklets	27	1	8
Supply of student questionnaires	27	1	8
Student tracking forms	34	1	1
Teacher tracking forms	35	1	0
Student-teacher linkage forms	28	0	0
Test administrator manual	35	1	0
School coordinator manual	35	1	0
Supply of teacher questionnaires	36	0	0
School questionnaire	36	0	0
Test booklet ID labels	34	2	0
Sequencing of booklets or questionnaires	35	1	0
Return labels	36	0	0
Self-addressed post-cards for test dates	36	0	0

### 8.3.6 Scoring Free-Response Questions

The TIMSS 1999 assessment contained a significant proportion of free-response items that needed to be scored by specially trained individuals. The scoring process was a considerable undertaking in each country, requiring the recruitment and training of scoring staff and an ambitious scoring effort that included double scoring 25% of the student responses as a check on reliability.

Exhibit 8.14 shows that, at the time of the NRC interview, more than two-thirds of the NRCs had selected their scoring staff, and roughly half of those had already begun the training process. All NRCs reported that they understood the procedures for scoring the 25% reliability sample as explained in the survey operations manual.

**Exhibit 8.14 Interview with the NRC – Scoring**

Question	Yes	No	N/A
Have you selected your scorers for the free-response questions?	25	11	
If yes, have you trained the scorers?	12	13	11
Have you scheduled the scoring sessions for the free-response questions?	30	6	0
Do you understand the procedure for scoring the 25% reliability sample as explained in the survey operations manual?	36	0	0

### 8.3.7 Data Entry and Verification

Section G of the NRC interview dealt with preparations for data entry and verification. Again, at the time of the interviews about two-thirds of the NRCs had selected their data entry staff and about half of those had conducted training sessions.

By way of quality assurance, about 80% of the NRCs reported that they planned to enter the data from part of the test booklets twice as a verification procedure. The proportion of booklets that was being entered twice ranged from 5% to 30%, with one country reporting that it planned to reenter 100% of the data.

**Exhibit 8.15 Interview with the NRC – Data Entry and Verification**

Question	Yes	No	N/A
Have you selected the data entry staff?	22	13	1
If yes, have you conducted training sessions for the data entry staff?	12	15	9
Do you plan to key enter a percentage of test booklets twice as a verification procedure?	28	7	1
Have you established a secure storage area for the returned tests after coding and until the original documents can be discarded?	36	0	0

### 8.3.8 Quality Assurance Sample

As part of their national quality assurance activities, NRCs were required to conduct site visits to a 10% sample of the TIMSS schools to observe the test administration and document compliance with prescribed procedures. These site visits were additional to the visits to 15 schools conducted by the international Quality Control Monitors, and summarized in the first part of this chapter.

At the time of the NRC interviews, 70% of the NRCs had selected their 10% quality assurance sample for on-site classroom observations. Three NRCs reported that an external agency would conduct the observations, 16 NRCs reported that a member of their staff would do so, and 9 NRCs reported that a combination of staff and external agency people would conduct the observations.

### **8.3.9 The Survey Activities Report**

The final section of the NRC interview asked for suggestions for improving the assessment process. The major problem that most NRCs faced was shortage of time to accomplish all that had to be done in order to keep to the very demanding TIMSS schedule. Most NRCs who commented expressed a desire for more time, particularly for translation and instrument preparation.

## **8.4 Summary**

In summary, the observations by the Quality Control Monitors and the interviews with the National Research Coordinators indicate that the data collected in the TIMSS 1999 study met high quality standards, and that as a result there can be a high level of confidence in the findings.

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## References

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TIMSS (1998). *Manual for International Quality Control Monitors* (Doc. Ref: 98-0023). Prepared by the International Study Center at Boston College. Chestnut Hill, MA: Boston College.