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**6**

# Field operations

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## OVERVIEW OF ROLES AND RESPONSIBILITIES

PISA was co-ordinated in each country<sup>1</sup> by a National Project Manager (NPM) who implemented the procedures specified by the international contractors responsible for PISA implementation. Each NPM typically had several assistants working from a base location that is referred to throughout this report as a National Centre. For the school-level operations, the NPM co-ordinated activities with school-level staff, referred to in PISA as School Co-ordinators.<sup>2</sup> Trained Test Administrators administered the PISA assessment in schools.

### National Project Managers

NPMs were responsible for implementing the project within their own country. They:

- attended NPM meetings and received training in all aspects of PISA operational procedures
- negotiated nationally-specific aspects of the implementation of PISA with the international contractors, such as national and international options, oversampling for regional comparisons, additional analyses and reporting (e.g. by language group)
- established procedures for maintaining the security and confidentiality of materials during all phases of the assessment implementation
- determined the general suitability of using school computers to conduct the computer-based assessment (CBA countries only)
- prepared a series of sampling forms documenting sampling-related aspects of the national educational structure
- prepared the school sampling frame and submitted this to the international contractor for the selection of the school sample
- organised for the preparation of national versions of the test instruments, questionnaires, school-level materials (manuals, scripts and forms), and coding guides
- identified School Co-ordinators from each of the sampled schools (nominated by the school principal or a volunteer from the school staff) and worked with them on school preparation activities
- used software to select the student sample from the lists of eligible students provided by the School Co-ordinators
- used software to select the teacher sample from the lists of eligible teachers provided by the School Co-ordinators, if applicable
- recruited and trained Test Administrators according to the PISA 2015 Technical Standards: Standards 9.1, 9.2, 9.3 and 9.4 to administer the assessments within schools (see Annex F)
- nominated suitable persons to work on behalf of the international contractors as external PISA Quality Monitors (PQMs) to observe the assessment administration in a selection of schools (main survey only)
- monitored the completion of School Questionnaires
- monitored the completion of Teacher Questionnaires (if applicable)
- monitored the completion of Parent Questionnaires (if applicable)
- recruited and trained coders to code the open-ended test items and the occupational data on questionnaires
- arranged for the data entry of the test responses, Student Questionnaire responses, and School Questionnaire responses completed on hard copy (paper-based assessment (PBA) countries)
- submitted the national database to the international contractors
- arranged for the transmission of School Questionnaire and Teacher Questionnaire (if applicable) and responses completed online
- arranged for the coding, data management, and reporting on the Parent Questionnaire (if applicable) or other options (if applicable)
- submitted a written review (Main Survey Report) of PISA implementation activities following the assessment.

A National Project Manager's Manual provided detailed information about the duties and responsibilities of the NPM. Supplementary manuals, with detailed information about particular aspects of the project, were also provided and are described in the relevant chapters.



## School Co-ordinators

School Co-ordinators co-ordinated school-related activities with the National Centre and the Test Administrators. A School Co-ordinator's Manual, prepared by the international contractors, described in detail the activities and responsibilities of the School Co-ordinator.

The School Co-ordinator:

- established the assessment date and time, in consultation with the NPM
- ran a systems diagnostic tool provided by the international contractors to determine if school computers were suitable for the assessment (CBA countries)
- prepared the student list with the names of all eligible students in the school and sent it to the National Centre so that the NPM could select the student sample using KeyQuest
- prepared the teacher list with the names of all eligible teachers in the school and sent it to the National Centre so that the NPM could select the teacher sample using KeyQuest (if applicable)
- received the list of sampled students from the NPM on the Student Tracking Form (a form designed to record sampled students with their background data) and updated it if necessary (e.g. identifying students with disabilities or limited assessment language proficiency who could not take the assessment according to criteria established by the international contractors and the PISA Technical Standards)
- received the list of sampled teachers on the Teacher Tracking Form from the NPM (if applicable) and updated it (e.g. identifying teachers who refused to complete the questionnaire, no longer taught at the school, or were otherwise ineligible)
- received, distributed, and collected the School Questionnaire (if on hard copy) or monitored the completion of the School Questionnaire if completed online
- distributed instructions for completing the Teacher Questionnaire online and monitored the completion online (if applicable)
- received and distributed the Parent Questionnaire if applicable (generally, the Test Administrator distributed the Parent Questionnaire to students on the assessment day to give it to their parents to complete, or the School Co-ordinator sent the questionnaire to the parents 1-2 weeks before the assessment and requested that students return it to the School Co-ordinator before the assessment date)
- informed school staff, students, and parents of the nature of the assessment and the assessment date by sending a letter or organising a meeting
- secured parental permission, if required by the school or education system
- informed the NPM and Test Administrator of any assessment date or time changes
- arranged for technical support if administering the assessment on computers
- assisted the Test Administrator with room arrangements for the assessment day.

On the assessment day, the School Co-ordinator was expected to ensure that the sampled students attended the assessment session(s). If necessary, the School Co-ordinator also made arrangements for a follow-up session and ensured that absent students attended the follow-up session.

## Test Administrators

The Test Administrators were primarily responsible for administering PISA fairly, impartially, and uniformly, in accordance with international standards and PISA procedures. To maintain objectivity, a Test Administrator could not be the science, reading, or mathematics teacher of the students being assessed, and it was preferred that they not be a staff member at any participating school (see Standard 8.2 in Annex F). Prior to the test date, Test Administrators were trained by National Centres. Training included a thorough review of the Test Administrator's Manual and the Student Delivery System Manual (CBA countries). Additional responsibilities included:

- ensuring receipt of the testing materials from the NPM and maintaining their security
- contacting the School Co-ordinator one to two weeks prior to the test to confirm plans
- completing final arrangements on the test day



- reviewing and updating the Student Tracking Form
- completing the Session Attendance Form (a form designed to record students' attendance and instruments allocation)
- completing the Session Report Form (a form designed to summarise session times, any disturbance to the session, etc.)
- ensuring that the number of test booklets and questionnaires collected from students tallied with the number sent to the school (PBA countries) or ensuring that the number of USB sticks used for the assessment were accounted for (CBA countries)
- obtaining the School Questionnaire from the School Co-ordinator (PBA countries)
- obtaining Parent Questionnaires and Teacher Questionnaires (if applicable)
- conducting a follow-up session, if needed, in consultation with the School Co-ordinator
- sending the School Questionnaire, Student Questionnaires, Parent and Teacher Questionnaires (if applicable), and all test materials (both completed and not completed) to the National Centre after the testing.

### THE SELECTION OF THE SCHOOL SAMPLE

NPMs used the detailed instructions in the School Sampling Preparation Manual to document their school sampling plan and to prepare their school sampling frame.

The national target population was defined, school- and student-level exclusions were identified, and aspects such as the extent of small schools (a small school is defined as any school whose approximate enrolment falls below the target cluster size) and the homogeneity of students within schools were considered in the preparation of the school sampling plan.

For all but one country, the sampling frame was submitted to the international contractor, who selected the school sample. Having the international contractor select the school sample minimised the potential for errors in the sampling process and ensured uniformity in the outputs for more efficient data processing later (student sampling, data analysis). It also relieved the burden of this task from National Centres. NPMs worked closely with the international contractor throughout the process of preparing the sampling documentation, ensuring that all nationally-specific considerations related to sampling were thoroughly documented and incorporated into the school sampling plan.

### PREPARATION OF TEST BOOKLETS, QUESTIONNAIRES, AND MANUALS

As explained in Chapter 2, the mode study design for the PISA 2015 field trial required all countries to test using the 18 paper-and-pencil forms that included the trend items for reading, mathematics and scientific literacy and, where applicable, the two Financial Literacy booklets. As part of the 2015 quality control process, the contractors assumed responsibility for preparing national versions of the paper-based trend clusters by extracting clusters from existing booklets in the PISA archives and formatting them for the 2015 cycle. Those countries who were new to PISA in 2015, or who were missing units from previous cycles in which they had not participated, translated those materials following the standard PISA translation/reconciliation process. All countries updated and translated the common booklet parts, which were revised for PISA 2015 and included the cover, general instructions, formula sheet for Mathematics, and the acknowledgements page.

Once the clusters and common booklet parts were finalised and approved by the National Centres, the field trial booklets were assembled by the contractors and shared with countries for final review and signoff. Following that approval process, print-ready files were provided to National Centres.

For the main survey, only those countries not testing on computer prepared paper booklets. National Centres were asked to document any errors in the field trial versions of their booklets that required correction. Those requests were reviewed by the contractors and, where appropriate, revisions were made. As was the case in the field trial, booklets were provided to National Centres for final review and sign off, and print-ready files were then provided.

The computer-based version of the tests included both trend and new items. In preparation for the field trial, where countries had existing translations of trend items, the contractors copied those materials into the computer format and then provided those materials for review and revisions. Countries were asked to document any linguistic or layout issues in their computer-based materials and any corrections were implemented by the international contractors. All new computer-based items were translated by national teams following the translation and reconciliation processes defined in the PISA standards (see Chapter 5 for detailed information).



Once all field trial instruments were approved by National Centres, including both the test items and background questionnaires, files were locked and the national Student Delivery Systems (SDS) was prepared. Please see Chapter 2 for more information about SDS preparation and testing.

In preparation for the main survey, computer-based countries were asked to review their items based on the field trial data and identify any serious errors in need of correction. The contractors worked with National Centres to resolve any remaining linguistic or layout issues and prepared the national instruments for the main survey.

In addition to the standard Student Questionnaire, the Information and Communication Technology Familiarity questionnaire and/or the Educational Career Questionnaire were administered, depending on which options were chosen by the individual country. Forty-seven countries administered the Information and Communication Technology Familiarity Questionnaire and 22 countries administered the Educational Career Questionnaire. The standard Student Questionnaire had to be presented first in the questionnaire booklet.

Two PBA countries and 16 CBA countries also administered the optional Parent Questionnaire. Nineteen CBA countries administered the optional Teacher Questionnaire, which was only available on the computer. All countries administered the obligatory School Questionnaire, with all PBA countries doing it on paper and all CBA countries doing it on the computer.

As with the test material, source versions of the questionnaire instruments in both French and English were provided to NPMs for translation into the languages of the test.

NPMs were permitted to add a maximum of five questions of national interest as national add-ons to the questionnaires. Proposals and text for these were submitted to the international contractor for approval as part of the process of reviewing adaptations to the questionnaires. It was required that the additional material should be placed at the end of the international modules. Following approval of adaptations, the material was verified by the international contractor. NPMs implemented feedback from verification in the assembly of their questionnaires. For paper-based countries, PDFs were finalised by the NPM and uploaded to the PISA Portal. For the computer-based instruments, contractors cross-checked and implemented final versions in all languages on the computer-based platform. More information is given in Chapter 17 of this report.

The School Co-ordinator's Manual, Test Administrator's Manual, and script(s) used to administer the various sessions (these include the Test Administrator's Script, the *Une Heure* (UH) Script [if applicable], and the Financial Literacy Script [if applicable]) were also required to be translated into the national test language(s). Only English source versions of the manuals and scripts were provided by the international contractors. NPMs were required to make adaptations to the manuals and script(s) using the New Comment and Track Changes functions in Microsoft Word. Alternatively, NPMs could submit a Materials Adaptation Spreadsheet (MAS) documenting all proposed national adaptations to the manuals and script(s) to the international contractor for approval. Only a few countries used the MAS. Following approval of the adaptations, the manuals and scripts were translated in the national test language(s).

In countries with multiple assessment languages, the assessment instruments, manuals, and script(s) needed to be translated into each assessment language. For a small number of countries, where Test Administrators were bilingual in the assessment language and the national language, it was not required for the manuals to be translated into both languages. However, in these cases, it was still a requirement that the script(s) was/were translated into the language of the test.

Various checking procedures were employed to review how closely national translations of the school-level materials (manuals and scripts) adhered to the Technical Standards. Key elements of the adapted national language versions were reviewed in approximately 10% of countries. No significant deviations were noted that might affect data validity and reliability. During the main survey, PISA Quality Monitors (PQMs) in all countries were asked to compare the adapted English source versions with the national translations. PQMs questioned the translations in about 5% of countries and these translations were then reviewed. Again, no significant deviations were noted that might impact data quality.

## THE SELECTION OF THE STUDENT SAMPLE

Following the selection of the school sample by the international contractor, the list of sampled schools was returned to National Centres. NPMs then contacted these schools and requested a list of all PISA-eligible students from each school. This was used by NPMs to select the student sample.



NPMs were required to select the student sample using KeyQuest, the PISA student sampling software prepared by the international contractor. KeyQuest generated the list of sampled students for each school, known as the Student Tracking Form, and the Session Attendance Form that served as the central administration documents for the study and linked students, test booklets, and student questionnaires.

## PACKAGING AND SHIPPING MATERIALS

The following key documents and items needed to be sent either to the Test Administrator or to the school:

- test booklets and Student Questionnaires for the number of students sampled plus extra unassigned booklets and questionnaires (PBA countries)
- Student Tracking Form
- Session Attendance Forms, which were specific to PBA or CBA countries (a separate Session Attendance Form was used for Financial Literacy sessions in countries that selected this international option)
- Session Report Form(s)
- test delivery USB sticks (CBA countries)
- Student Logon Forms (CBA countries)
- results from the school's computer system diagnostic report to determine the suitability of running the computer-based assessment from a USB stick (CBA countries)
- Materials Reception Form
- Materials Return Form
- additional materials, e.g. pens and calculators, per local circumstances<sup>3</sup>.

For PBA countries, one of the 18 separate test booklets in the field trial and one of the 30 separate test booklets in the Main Survey was pre-allocated to each student by the KeyQuest software from a random starting point in each school. KeyQuest was then used to generate the school's Session Attendance Forms, which contained the number of the allocated booklet alongside each sampled student's name. This information was used by the Test Administrators when distributing the booklets to students.

For CBA countries, due to the mode effect study, during the field trial, both paper booklets and computer-based forms were assigned automatically by the KeyQuest software. For the Main Survey, there was no paper-based mode. Computer-based forms were assigned automatically by KeyQuest based on the integrated design.

### Field operations procedures specific to paper-based assessment countries

It was recommended that National Centres print removable labels, each with a student identification number and his or her specific test booklet number, as well as the student's name, if this was an acceptable procedure within the country. Two or three copies of each student's label could be printed and used to identify the test booklet and the questionnaire. After the assessment, labels were removed to help ensure the confidentiality of students' responses.

NPMs were allowed some flexibility in how the materials were packaged and distributed, depending on national circumstances. In most countries, materials were shipped directly to the independent Test Administrator rather than to the school. It was specified, however, that the test booklets for a school be packaged so that they remained secure, possibly by wrapping them in clear plastic and then heat-sealing the package, or by sealing each booklet in a labelled envelope. Most countries bundled booklets specific to a school, and the Test Administrator applied the removable student labels prior to the test date. Procedures for preparing test booklets and student questionnaires were described in the Test Administrator's Manual.

### Field operations procedures specific to computer-based assessment countries

It was highly recommended that Test Administrators test the USB sticks prior to the test day to detect any defective USB sticks. Directions for testing the USB sticks were provided in the Student Delivery System Manual.

Test Administrators prepared the Student Logon Forms by ordering them in the order that the students appeared on the Session Attendance Form, numbering the Student Logon Forms, and then crosschecking that the password listed on the Session Attendance Form matched the password listed for that student on the Student Logon Form.



NPMs were allowed some flexibility in how the materials were packaged and distributed, depending on national circumstances. In most countries, materials were shipped directly to the independent Test Administrator rather than to the school.

## TEST ADMINISTRATION

After arriving at the school on assessment day, Test Administrators were required to review the Student Tracking Form with the School Co-ordinator and update the form as necessary. The Session Attendance Forms also were updated as necessary. Once the forms were updated, the Test Administrator set up the room and materials for the assessment session following the steps as described in the Test Administrator's Manual:

### Steps for setting up CBA test administration

- allocate a work space and computer to each participating student.
- set up computers for each student expected to be tested.
- distribute Student Logon Forms to students, ensuring that each student receives only the logon form assigned to that student on the Session Attendance Form.
- set aside the materials for students who had any non-participant codes recorded on the Student Tracking Form or did not attend the assessment session from the very beginning.

### Steps for setting up PBA test administration

- allocate a work space to each participating student.
- distribute test booklets (and later Student Questionnaires) to students, ensuring that each student receives only the test booklet assigned on the Session Attendance Form.
- write the testing date on a board visible to all students.
- ask the students to write the testing date on their test booklet covers in the required format DD/MM/YYYY at the beginning of the session.
- set aside the materials for students who had any non-participant codes recorded on the Student Tracking Form or did not attend the assessment session from the very beginning.

### Administering and monitoring the test

To obtain comparable and reliable data, Test Administrators were required to follow the timing of the paper-based assessment strictly, especially the administration of the test sessions (2 sessions of exactly 1 hour) shown in Figure 6.1 below. The timings were the same for CBA test sessions, with additional time added if a country was administering one of the optional questionnaires. Although CBA test sessions were timed by the test system programme, Test Administrators were still required to enforce the timing and not move students forward prematurely.

■ Figure 6.1 ■

#### Timing of paper-based assessment

Activity	Timing
Distributing materials and reading the General Directions	15 minutes (approximately)
First 60 minutes of test	60 minutes (exactly)
Short break	Generally, no more than 5 minutes
Second 60 minutes of test	60 minutes (exactly)
Break	15 minutes*
Student Questionnaire	35 minutes (approximately)
Collecting the materials and ending the session	15 minutes (approximately)
<b>Total</b>	<b>Student Time: 3 hours 30 minutes (approximately)</b>

\* The amount of break time before beginning the Student Questionnaire is not absolute. The recommended amount of time is 15 to 30 minutes, but the time can be longer or shorter depending on the discretion of the National Centre, and school circumstances.

NPMs were allowed to adapt the length of the short break after the first hour of testing. Most countries allowed only the recommended 5-minute break. In a few cases, countries did not offer a break between test sections as they felt this would be too disruptive.



No changes to the timing of the test sessions were allowed. Adaptation to the timing of the Student Questionnaire session (both CBA and PBA) was more flexible to maximise the contextual data obtained from students.

The test scripts for both CBA and PBA countries had to be read to the students word-for-word to maintain standardised assessment procedures across all participating countries. For PBA countries, the Test Administrators were required to read the extensive practice exercises and other key instructions to the students. Therefore, if students arrived after these instructions were read, the student could not participate in the session and was marked absent. However, for CBA sessions, the key instructions and exercises were presented by the Student Delivery System. If students arrived within about 5 minutes after other students started the exercises, the Test Administrators informed the student about the purpose of the test and allowed the student to begin.

For both CBA and PBA sessions, students were not allowed to leave the session unless it was absolutely necessary. If a student could not complete the session for any reason, the Test Administrator had to log the student out of the CBA session or collect the student's test material (PBA countries only). If the student was absent for more than 10 minutes from the test session (CBA or PBA), the Test Administrator recorded this student as "partially present" on the Session Attendance Form. Absences of 10 minutes or more in the questionnaire section did not affect the participant status of students.

For both CBA and PBA countries, Test Administrators were not allowed to provide any help with the test items. For CBA countries, the Test Administrator referred students who had questions to the "Help" function built into the Student Delivery System. However, they could answer questions about items in the Student Questionnaire following specific instructions in explanatory notes for Student Questionnaire items provided to them by the international contractors.

Observers were limited to necessary staff members and the PISA Quality Monitors. National Centres were responsible for ensuring that confidentiality arrangements were in place (see Standard 11.1 in Annex F). In most cases, it was national policy that an observer was required to sign a confidentiality agreement.

At the end of the computer-based administration (test, Student Questionnaire, and other international and national options), Test Administrators logged out any students still logged in to the test and collected and destroyed all logon forms. The Test Administrator then collected all USB sticks and conducted a quality-control check on the number of USB sticks and the information on the Student Tracking Form, Session Attendance Forms, and Session Report Form. Test Administrators also transmitted the test data following data-transmission procedures outlined by the National Centre. The assessment material from each administration session was then bundled together with the corresponding Session Attendance Forms and Session Report Form and shipped to the National Centre, typically within 24 hours of completing the assessment or follow-up session.

At the end of the paper-based administration (test, Student Questionnaire, and other international and national options), Test Administrators collected all assessment materials as well as the completed School Questionnaire from the School Co-ordinator. The assessment material from each administration session had to be bundled together with the corresponding Session Attendance Forms, Session Report Form, unused test booklets, and Student Questionnaires and shipped to the National Centre, typically within 24 hours of completing the assessment or follow-up session.

## RECEIPT OF MATERIALS AT THE NATIONAL CENTRE AFTER TESTING

It was recommended that the National Centre establish a database of schools before testing began to record the shipment of materials to and from schools, tallies of materials sent and returned, and to monitor the progress of the materials return, including completion of online questionnaires throughout the various steps in processing materials (for CBA countries).

It was recommended that upon receipt of materials back from schools, the counts of completed and unused booklets or USB sticks also be checked against the participation status information recorded on the Student Tracking Form.

## MAIN SURVEY REVIEW

NPMs were required to complete a structured review of their main survey operations. The review was an opportunity to provide feedback to the international contractors on the various aspects of the implementation of PISA and to provide suggestions for areas that could be improved. It also provided an opportunity for the NPM to formally document aspects such as the operational structure of the National Centre, the security measures that were implemented, the use of contractors for particular activities and so on.





The Main Survey Review Questionnaire was submitted online on a flow basis after the completion of each activity. The complete review questionnaire was due 4 weeks after the submission of the national database.

### **Notes**

1. For the remainder of this chapter, we will use the term “country” when referring to a country, economy, or adjudicated region.
2. Throughout this document, the terms “School Co-ordinator” and “Test Administrator” are used when discussing the administration of the test in schools. However, please note that some countries use School Associates, individuals who fulfil the role of both School Co-ordinator and Test Administrator. School Associates received a School Associate’s Manual and were trained by the National Centre.
3. In some countries the additional materials were supplied by schools.