



PISA-Based Test for Schools in Mexico

International benchmarking for school improvement

Implementation plan^{*}

Draft version February 2017

Purposes

Implement PISA-based Test for Schools to detect improvement areas and to compare the schools within the Knotion network as well as for nationally and internationally benchmarked. Knotion would leverage the evidence from the PISA-based Test for Schools in their school network to participate further in the Education 2030 project and use the results to measure the outcomes of future research interventions.

Testing window

Start testing as soon as possible, preferably start using the test when Knotion network be launched in August 2017.

Administration mode

The test would be implemented via iPad. Knotion has developed an App where all material will be developed. PISA-based Test for Schools will be implemented as a module on this App or as a separate App.

School recruitment

Schools within the Knotion net with possibility to expand to other schools in Mexico. In the future, it would be also expanded to Guatemala, Ecuador and other countries in Latin America. It is planned to reach 150-230 schools in August 2018.

Target population

Students in 9th grade (14-15 years old). It is expected that 50% of students are 14 years old and 50% are 15 years old. This target population can be slightly different to the 15-years old students participating in PISA. OECD will work together with Knotion to develop a methodology that allows robust comparisons with PISA.

School report delivery

Each participating school will receive a comprehensive, 119-page report geared towards international benchmarking and school improvement efforts. Each report will be unique to the individual school and will be delivered in pdf format to the participating schools.

^{*} This implementation plan is a draft version until the PISA Governing Board member for Mexico approves it.

Pilot study / Mode effect

The test would be implemented via iPad. In order to ensure comparability between administrations formats a pilot study to check potential mode effect differences in the scores should be performed between the iPad version and the paper version used in PISA-based Test for Schools. This pilot study would investigate the potential impact of the delivery mode (paper versus iPad) change on item parameters of the cognitive tests (i.e. mathematic, reading and science). Within each participating school in the pilot, half of the students would be randomly assigned to take the paper mode of the assessment, and the other half to take the iPad mode. A minimum number of 2000 students, 1000 for each administration format, would be recommendable. If the average number of students tested per school is around 65, this would require around 30 schools to be tested.

Alternatively, if Knotion can administer the test in computers there would be the possibility of directly link the test to the Computer Based Assessment of PISA 2015. Once the Knotion computer-based platform is linked to PISA 2015, a pilot study can be performed to study the mode effect between their computer version and the table version. This option would provide a direct link to PISA 2015.

Validation study requirements

In addition to the pilot / mode effect study, a validation study – field trial - should be performed to check the psychometric properties of the tests. The sample size for the field trial is a function of the test design and is set to achieve the standard of 200 student responses per cognitive item (i.e., 500 students from a minimum of 7 schools) need to be tested during the field trial. The schools selected for participating in the field trial should be as diverse as possible in terms of level of achievement, school's size, intake and type. If it is intended to deliver reports to the participating schools, it is recommendable to reach a minimum of 2000 observations for the statistical model to be correctly fitted. All response information from the field trial must be coded, and a validation study of the field trial instruments must be conducted through psychometric analyses of cognitive items.

Sampling and score corrections

PISA randomly sample 15 years old students to statistically represent a country. PISA-based Test for Schools is intended to represent the school and it might need to be adapted if, for example, not all 15 year old students are in the same school. In the case of Mexico, eligible students are in 9th grade (14-15 years old). It is expected that 50% of students are 14 years old and 50% are 15 years old. In the case that students are younger than PISA students, we would need to adjust the scores by adding an age correction. This correction can be made using PISA 2015 data and from previous cycles based on student information like age, gender and socioeconomic background. This correction would allow taking into account the score difference in function of the student maturity.

Non-disclosure agreement

Knotion and OECD will sign a non-disclosure agreement to start working in the implementation of PISA-based Test for Schools in Mexico. Once the implementation plan is agreed it will be shared with the PGB member of Mexico for approval and a formal agreement will be signed.

Next steps

As soon as the non-disclosure agreement is signed, Knotion and OECD will start working in the implementation plan. The most immediate steps are:

1. Identifying tasks and responsibilities

Knotion will act as the main Service Provider. OECD will discuss with Knotion the technical implementation of the project and will help to identify contractors for the development of the technical tasks described in the Technical Report (https://www.oecd.org/pisa/aboutpisa/PfS_TechReport_CRC_final.pdf) such as processes school cognitive and context data. The proposal of tasks and responsibilities are:

Task	OECD	Knotion	Contractor
Provide test materials	X		
Establish procedures for the security, protection, and confidentiality of all materials		X	
Lead translation and adaptation workshop	X		
Translate and adapt all testing materials		X	
Verify translated and adapted versions of test materials	X		
Develop school level reporting templates	X		
Provide technical oversight	X		
Identify contractors for Knotion	X	X	
Compile a database of schools to be tested		X	
Create student samples			X
Recruit test administrators		X	X
Recruit test markers and coders		X	X
Train test administrators			X
Train test markers and coders			X
Identify school coordinators		X	
Develop an iPad version of the tests		X	
Administer the test			X
Score and mark test responses			X
Conduct data entry for test and questionnaire responses			X
Perform pilot / mode effect study			X
Perform cognitive item validation study			X
Calculate school level results			X
Produce school level reports			X

2. Translation, adaptation and verification of the test and survey materials

The procedures firstly consist in the development of a source version of the instruments in English. If the language of instruction is not the source language (English), a full translation is needed. For English-language and non-English language applications, some degree of adaptation of the materials to local educational and cultural terminology is needed. The PISA-based Test for Schools is already translated into Spanish adapted to the context in Spain. OECD will liaise the communication between Spain and Mexico in order to use the Spanish version of the test as a source language.

3. Testing design to perform a pilot and validation study

OECD together with Knotion will develop a testing design to optimise the tests administration. For instance, from the total of participating schools a subsample can be used to test the mode effect study since the other schools can contribute to the validation study. After the proper mode effect corrections are applied (if any) and the cognitive tests show adequate psychometric properties, the school report can be prepared. The development of the testing design will depend on the number of schools available and the possibility of testing in different formats (i.e. paper, computer and iPad).