

BACKGROUND TO THE INTERNATIONAL COMPARATIVE TESTS

The first international comparative test was a pilot effort to determine if it was realistic to collect and compare the scores of age-matched students in several countries. Conducted in 1960 with 13-year-olds, the Pilot Twelve-Country Study showed that large-scale international testing could be successful. To undertake future testing projects, the International Association for the Evaluation of Educational Achievement (known as IEA) was formed.

How did the idea of international comparative testing come about? It arose during the late 1950s among psychometricians, scholars of comparative education, and the authorities of several national ministries of education. They knew that national education systems were applying a wide variety of methods in their attempts to obtain optimal student learning. They believed that if information about students' learning could be gathered from multiple national systems, comparisons could be made to enable educators everywhere to improve their students' learning and overall experience of schooling. From the beginning, it was decided to collect from test-takers not only their subject matter test scores but also a variety of demographic, attitudinal, and classroom-experience information.

The IEA's first comparative international test was the First International Mathematics Study (FIMS), which was administered in 1964 to 13-year-old students and pre-university (final secondary year) students in twelve nations. Other types of information were also collected from the students. FIMS was followed in 1970 by the First International Science Study (FISS), which collected information from 10-year-olds, 14-year-olds, and pre-university students regarding their learning of science and other subjects. Additional information was collected as well. On this webpage, the FIMS and FISS averages of the top five scoring nations and of the U.S. are illustrated.

During the following decades, a veritable alphabet soup of international comparative tests was developed and used to compare the academic performance of students in a growing number of countries. Among the subjects assessed were reading comprehension, English literacy, civic education, written composition, and even French as a foreign language. In each case, additional information was collected from the students, enabling researchers to consider the efficacy of a vast range of factors that encourage or inhibit classroom learning. In fact, some of these studies did not assess subject mastery at all, instead exploring longitudinally questions such as the impacts on students of various teacher behaviors and the effects of children's early experiences and home environment.

As the years passed, educators, the media, and eventually the public increased their awareness of these international assessments. Gradually, two tests became the focus of attention. One was the Trends in International Mathematics and Science Study (TIMSS), first administered by the IEA in 1995. TIMSS assesses the extent to which 4th and 8th grade students have mastered a variety of topics in mathematics and the sciences; also collected, as always, is other learning-related information. On this webpage, the TIMSS averages of the top five scoring nations and of the U.S. are illustrated separately for math and science for each year of test administration.

The other test that came to the public's attention was the Programme in International Student Assessment (PISA). PISA was developed and administered not by IEA, but rather by the Organization for Economic Co-operation and Development (OECD), founded in 1961 to advise governments on ways of improving their citizens' lives. OECD administered the first PISA tests to 15-year-old students in 2000 to assess their proficiency in reading, science, and mathematics. As in the case of the IEA surveys, PISA also collects learning-related demographic, attitudinal, and classroom-experience information. On this webpage, the PISA averages of the top five scoring nations and of the U.S. are illustrated separately for math and science for each year of test administration.

For more information about TIMSS, visit timss.bc.edu/timss-landing.html. For more information about PISA, visit oecd.org/en/about/programmes/pisa.html. Wikipedia comprehensively overviews both TIMSS and PISA. Web searches for "international comparative tests" will yield a diverse range of information, analyses, and criticism, including from the U.S. government's National Center for Educational Sciences at nces.ed.gov.