



NEWSLETTER

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EDITORIAL

RESEARCH AND INNOVATION IN IEA STUDIES

IEA Secretariat

IEA pioneered international assessment and attracted the attention of policy-makers due to its strengths in research and innovation. The IEA studies not only enabled comparisons of a country's policies with those of other countries, but also provided tools for analyzing national education systems, such as the concept of "opportunity to learn," which was introduced by John B. Carroll in 1963 in his model of school learning and developed further by the IEA researchers. This issue of the IEA Newsletter highlights the various ways in which **innovation in educational evaluation flourishes** within the IEA community. Contributors from Hong Kong SAR, Iran, and the United States—education systems that have participated in all cycles of TIMSS and PIRLS—share their unique perspectives and insights on how trend data were disseminated and interpreted, analyzed in research on curricula and

teaching, and used to initiate and evaluate reforms.

The newsletter also reports on the 2013 IEA research conference and awards. These two platforms make outstanding secondary analysis known to the benefit of all those who seek to link achievement to meaningful contextual factors. They also highlight possible improvements in assessment methodology for investigating such linkages.

A brief retrospective of IEA's first mathematics studies reflects on their role in the early days of comparative education. Looking forward, upcoming studies and new projects within the IEA study cycles, including some new initiatives in the use of computer-based assessment, will build and improve upon earlier frameworks to deepen our understanding of how policies and teaching practices relate to learning outcomes in countries around the world. ●



COUNTRY EXPERIENCES WITH TIMSS & PIRLS: INFORMING EDUCATIONAL RESEARCH AND POLICY

HONG KONG SAR

“By tracking students’ performance in items across three cycles of TIMSS, we aimed to identify what had been done right as we entered the 21st century, and also the areas where improvements were needed.”

DR ALICE SIU LING WONG, FACULTY OF EDUCATION, THE UNIVERSITY OF HONG KONG

Hong Kong has participated in every cycle of TIMSS since 1995. This article shares two examples of how the team of science teacher educators at the University of Hong Kong (HKU) have been turning the “heaps of data” accumulated over almost 20 years into a series of research and teacher professional development projects.

Tracking student performance in TIMSS

The very first project of the HKU team was launched after TIMSS 2003, which showed that the science performance of eighth grade students in Hong Kong had improved significantly over previous cycles. While Hong Kong’s mathematics achievement has ranked consistently

among the top five performing countries, science scores had never shown such an impressive outcome until TIMSS 2003. By tracking students’ performance in trend or similar items across the three cycles of TIMSS, researchers aimed to identify what had been done right and also the areas where improvements were needed. >

Reflections on the curricula, learning, and teaching

The analysis pinpointed an area in which students demonstrated significant improvement over their performance in the first two cycles of TIMSS: scientific inquiry (specifically, students' understanding of what constitutes a "fair test" and the importance of controlling for variables). This favorable learning outcome reflected certain successes of the major curriculum reform in science education, which had started in 1996 and 2000 at the primary and junior secondary levels, respectively. In preparation for the move from content-focused to wider curriculum goals, including the development of generic skills in and interest towards science, the Science Education Curriculum Development team of the Education Bureau had organized seminars and workshops for science teachers. Also new primary and junior secondary science textbooks were enriched with inquiry activities emphasizing the importance of a fair test.

Having noted the positive impact of the curriculum reform, analysis of students' performance at the item level nevertheless revealed several aspects of the curriculum and the learning and teaching process where changes might be needed. This included the need to consider students' prior misconceptions when designing lesson activities, provide more opportunities for students to design their own scientific inquiry tasks, strengthen linkages between curriculum topics and students' everyday experiences, and widen the types of lesson activities and assessment methods (e.g., in relation to the promotion of higher order skills such as learning to learn and written communication in science).

About 250 teachers participated in sharing workshops centered on the findings of this analysis of the TIMSS items, resulting in many thoughtful ideas to address the identified shortcomings. The workshops also provided an opportunity to compliment and motivate teachers on the basis of their success in enhanc-

ing students' understanding of scientific inquiry (in a Chinese proverb "種瓜得瓜, 種豆得豆", meaning "you reap what you sow").

Currently the HKU team has just launched another project prompted by a disappointing and puzzling observation from all five cycles of TIMSS. The observation is that students do not perform favorably on TIMSS items in the topics of "matter as particles" and "photosynthesis and respiration." Yet both topics are covered with reasonable depth and breadth in the junior secondary science curriculum.

Intensive lesson observations have just begun on the learning and teaching of these topics in classrooms in eight participating schools. This project will last until February 2015, with the hope of yielding more comprehensive findings to resolve the puzzle.

ISLAMIC REPUBLIC OF IRAN

"As the TIMSS and PIRLS reports were published and educational researchers and policy-makers got involved, school and ministry officials started to advocate for educational reform."

DR **ABDOL'AZIM KARIMI**, RESEARCH INSTITUTE FOR EDUCATION

Iran's first experience in the area of international large-scale assessment was the Assessment of Basic Competencies (ABC) in 1994–1995, a study based on UNICEF's international framework and further developed for the Iranian context. The ABC was conducted nationally, and student achievement was compared across provinces. The results of this study prompted participation in TIMSS 1995; since then, Iran has participated in every cycle of TIMSS at the fourth and eighth grades, as well as TIMSS Advanced 2008 and PIRLS since

2001.

These studies are funded by the Ministry of Education and conducted by the Research Institute for Education of the Organization for Educational Research and Planning, the TIMSS/PIRLS national study center in Iran.

Reports on findings

Initially, publication of assessment results was targeted towards policy-makers. In subsequent stages, achievement reports were prepared for individual schools and sent to them privately.

Later books and articles in educational journals and newspapers introduced the public and a broad group of stakeholders to the TIMSS/PIRLS results and their potential use for educational improvement. These reports were less focused on research methodology and used language accessible to audiences at different levels, including teachers, school principals, students of education, and parents.

The Iranian national study center has published a number of reports and

books on mathematics and science assessment in primary and lower secondary school, findings from TIMSS 1995 and TIMSS Advanced 2008, and the TIMSS and PIRLS frameworks and released items/passages. Presentations at conferences and universities, as well as interviews with the media, have also been part of the effort to attract public response.

Impact of results

The TIMSS and PIRLS results “sounded the bell” for stakeholders about students’ achievement in mathematics, science, and reading. Some officials believed, at first, that the poor performance could be attributed to students’ lack of familiarity with the type of questions asked. But as the TIMSS and PIRLS reports were published and educational researchers and policy-makers got involved, this view began to change—school and ministry officials started to advocate for educational reform. In light

of this, several actions took place at various levels.

Consultations at the ministerial level have been held since 1997 to analyze students’ performance and possible factors affecting this performance. A ministry working group on improving mathematics and science education by TIMSS 2015 led to a proposal, among others, to extend TIMSS as a national assessment.

At the research level, several dissertations and independent projects have been carried out on TIMSS and PIRLS, focusing on measurement issues, comparisons of achievement, school management, the curriculum (including synchronization of the intended, implemented, and attained curriculum), and how teachers view poor student performance. Research is also being conducted to identify and account for students’ common misconceptions in mathematics.

The TIMSS frameworks were considered a reference during revisions of the middle school science curriculum (2000), primary school science curriculum (2003 and 2011), and primary school mathematics curriculum (2012). Further reform-related activities included preparing educational videos for science teachers, compiling various primary and middle school mathematics and science textbooks, and compiling a sixth grade workbook based on the TIMSS cognitive framework (the first book to extend diagnostic assessments like TIMSS to different grades in Iran).

At the level of teacher education and practice, in-service and pre-service training courses were held on the TIMSS/PIRLS cognitive domains. Released items were also made available to teachers and students (in two different versions) to increase their familiarity with questions at different cognitive levels.

UNITED STATES

“TIMSS and PIRLS have played a role in U.S. education policy discussions, state-level curricular reform efforts, and international benchmarking by individual states.”

DR **STEPHEN PROVASNIK**, U.S. NATIONAL CENTER FOR EDUCATION STATISTICS

The United States’ participation in IEA studies spans nearly 50 years and a wide range of areas, including mathematics and science (FIMS/FISS, SIMS/SISS, TIMSS), reading (Reading Literacy Study, PIRLS), writing (Written Composition Study), and civic education (CivEd). Most recently, the United States has participated in every cycle of TIMSS and PIRLS since the projects began in 1995 and 2001, respectively.

Impact on education policy, reform, and benchmarking

Since the late 1990s, TIMSS and PIRLS have played a role in U.S. education

policy discussions, informed curricular reform efforts in the states, and been the principal vehicle for international benchmarking by individual states. In 2002, the U.S. Congress passed two major reforms of U.S. educational legislation—the *No Child Left Behind Act* and the *Education Sciences Reform Act*—both of which referred to TIMSS in arguing for certain reform policies. Non-profit public policy organizations such as the Brookings Institution have used TIMSS and PIRLS results to support their agendas for states to improve graduation rates, academic standards, and accountability.

TIMSS data on curricula in top-performing nations have informed curricular reform efforts in various states. For example, the Oregon Department of Education’s revision of its state mathematics content standards for kindergarten to eighth grade in 2007 notes that they examined the curriculum coverage in top-performing TIMSS countries and focused on the content included by at least two-thirds of the top-performing countries. TIMSS curricular data also have played a role in the Common Core State Standards Initiative’s effort to develop a clear and consistent framework to guide teaching practices for mathematics in every state. >

Experts who guided the development of the Common Core cited conclusions from TIMSS in their research, especially focusing on the curriculum of high-performing countries such as Singapore.

TIMSS and PIRLS have also been the principal vehicle for international benchmarking by individual states. Since 1995, 13 states have taken part in TIMSS as benchmarking participants. In 2011, 9 U.S. states were TIMSS benchmarking participants and 1 U.S. state was a PIRLS benchmarking participant.

Dissemination

The National Center for Education Statistics (NCES) in the U.S. Department of Education reports TIMSS and PIRLS results in a variety of ways. For example, each U.S. school that participated in TIMSS or PIRLS receives a report which presents the number of students who were administered each publicly released assessment item and the number of students who responded correctly to those items.

The U.S. Department of Education website provides access to the reading,

mathematics, and science questions that are released after each assessment cycle so that they can be utilized by educators to inform discussions on curricula and help design school assessments. Also on the website is the TIMSS and PIRLS International Data Explorer (<http://nces.ed.gov/surveys/international/ide/>), which is a data tool that allows users to create statistical tables and charts with TIMSS and PIRLS data. ●

ASSOCIATION NEWS

- After eight years of leadership, **Dr Seamus Hegarty** stepped down from his position as IEA Chair at the end of 2012. The IEA General Assembly recognized his significant and long-standing contributions to the association by awarding him honorary membership (www.iea.nl/honorary_members.html) at its 53rd meeting. Dr Hegarty was involved with IEA over many years, earlier serving as General Assembly representative and, in his role as Director of the National Foundation for Educational Research, supervising IEA studies in England.
- Assuming the new position of IEA Chair in 2013, **Ms Anne-Berit Kavli** brings her considerable expertise in the field of education as Head of the Department for Research and International Affairs at the Norwegian Directorate for Education and Training. She has also worked as an educational advisor and teacher of mathematics and science. Her term as IEA Chair will be for three years. Previously Ms Kavli was the General Assembly representative for Norway (2002–2012) and a member of the IEA Standing Committee (2005–

2008). All of us at IEA warmly welcome Ms Kavli in her new leading role.

- IEA is pleased to announce and welcome a new colleague, **Mr Roeland Burgers**, who will succeed Mr Jur Hartenberg as IEA Financial Manager after Mr Hartenberg's retirement in December 2013. Mr Burgers has international experience with non-profit organizations, and his previous positions include Business Controller in a company in the automotive sector, Finance Manager Europe with SITA (a cooperative association in the airline industry), and senior auditor for Ernst & Young. Mr Burgers will begin working at the IEA Secretariat in October 2013.
- The IEA Standing Committee welcomed three new members: **Dr Jack Buckley** (United States), **Dr Mark Nemet** (Austria), and **Dr Chew Leng Poon** (Singapore). Departing members Dr Tongthong Chandransu (previous representative for Thailand), Dr Tom Loveless (previous representative for the United States), and Dr Serara Moahi (Botswana) concluded their terms on the committee.

- **Dr Henry Braun** (Boston College, United States) became a new member of the IEA Technical Executive Group (TEG). TEG's other members include Prof Jan-Eric Gustafsson (University of Gothenburg, Sweden), Prof Larry Hedges (Northwestern University, United States), Mr Marc Joncas (Statistics Canada), Dr Michael Martin (Boston College, United States), Dr Ina Mullis (Boston College, United States), Mr Heiko Sibberns (IEA DPC), and Dr Norman Verhelst (Eurometrics, The Netherlands). The committee is chaired by Dr Hans Wagemaker, IEA Executive Director.
- **Dr Tom Loveless** (Brookings Institution, United States) joined the IEA Publications and Editorial Committee (PEC). PEC is chaired by Prof David Robitaille (University of British Columbia, Canada) and its membership also includes Mr Robert Garden (independent consultant, New Zealand), Prof Svein Lie (University of Oslo, Norway), and Prof Anu Toots (Tallinn University, Estonia). ●



Participants of the 53rd IEA General Assembly at Siray Bay, Phuket

53RD IEA GENERAL ASSEMBLY MEETING

8–11 OCTOBER 2012, PHUKET, THAILAND

Beckoned by the rhythmic sounds of guitar and drums, participants gathered in Phuket for a welcome reception on the eve of the 53rd IEA General Assembly. It was a congenial time to make and renew acquaintances, and an auspicious start to a highly focused three-day meeting that included progress reports on current IEA studies, announcements of upcoming study cycles, and proposals for new projects on early childhood education and English as a foreign language. The meeting was hosted by the Office of the Education Council of the Thai Ministry of Education and attended by delegates from over 40 member countries, as well as IEA officers, committee members, study coordinators, honorary members, and observers. IEA Chair Dr Seamus Hegarty opened

the meeting with some reflections on the significant changes and growth of the association in the 12 years since the 41st General Assembly convened in Thailand. Dr Hans Wagemaker, IEA Executive Director, highlighted recent accomplishments and the important tasks at hand, particularly consideration of plans for the new IEA studies.

Presentation highlights

The study directors of ICILS 2013, TIMSS 2011, and PIRLS 2011 revisited some of the major milestones over the preceding year. The ICILS 2013 field trial was completed in 20 countries, and final refinements were made to the survey instruments and operational elements in preparation for the main data collection in February–April 2013 (northern hemisphere countries) and October–

November 2013 (southern hemisphere countries).

The TIMSS 2011 and PIRLS 2011 international reports were finalized in preparation for release in December 2012 (see pp. 10–11). Dr Ina Mullis and Dr Michael Martin, Co-Directors of TIMSS and PIRLS, discussed how the TIMSS and PIRLS assessment frameworks are developed and updated across cycles. Recognizing two key aims that are in mutual tension—maintaining the trend measurement across cycles (which requires replicating the previous measure) and incorporating new content for relevance in the changing educational landscape—Dr Mullis and Dr Martin detailed the strategies used in TIMSS and PIRLS to assure both. New cycles of TIMSS, PIRLS, and ICCS were announced, as well as proposed >

plans for the Early Childhood Education Study (ECES) and English Teaching and Learning Study (ETLS) (see p. 14).

Panelists Dr Serara Moahi (Botswana), Dr Eckhard Klieme (Germany), and Dr Frederick Leung (Hong Kong SAR) provided lessons and insights into the use of TIMSS results at the national level. Impacts were traced within each country, from initial reactions in the media to recent reform efforts. One key theme emerging from the presentations was the value of a research-driven approach for school improvement.

The General Assembly also received the financial report, updates from the IEA committees (Technical Executive Group, Publications and Editorial Committee), and a report on recent activities of the IEA Data Processing and Research Center, which included a presentation on new developments related to the IEA International Database (IDB) Analyzer software.

Discussion sessions on working with international study data at the country level and the proposed early childhood

education study generated instructive feedback about research and policy concerns among the IEA member countries. To maximize study impact, many delegates noted the importance of IEA support in terms of secondary analysis and training.

Cultural activities

An evening of expressive Thai musical and dance performances awaited participants at the annual group dinner. Many of the performers were in vividly colored, traditional costumes.

The General Assembly meeting concluded in typical fashion with an excursion. At a trip to the Phang-Nga Bay National Park and surrounding islands, participants and their families experienced an intimate view of the lush vegetation and limestone cliffs with cave formations that dominate the seascape.

IEA extends its gratitude to colleagues of the Office of the Education Council for graciously hosting the meeting. ●

Minutes and presentations from the 53rd IEA General Assembly meeting are available at www.iea.nl/53rd_ga.html.



Dancer in traditional Thai costume



IEA's transition to new leadership: Dr Seamus Hegarty, whose term as IEA Chair concluded in 2012, thanked General Assembly members for their support (pictured above); new IEA Chair Ms Anne-Berit Kavli addressed members of the IEA research community at the 5th IRC (pictured at right).



Thália Theatre, Lisbon

UPCOMING 54TH IEA GENERAL ASSEMBLY MEETING

7–10 October 2013
Lisbon, Portugal

The 54th annual General Assembly meeting will be hosted in cooperation with the Ministry of Education and Science of Portugal. It will be preceded by meetings of the IEA Technical Executive Group and Standing Committee with study directors.

For more information, please contact the IEA Secretariat (department@iea.nl).



5TH IEA INTERNATIONAL RESEARCH CONFERENCE



26–28 JUNE 2013, SINGAPORE

Every 2–3 years, IEA organizes a conference centered on its studies. The 5th IEA conference was hosted by the National Institute of Education (NIE) in Singapore on 26–28 June 2013 and welcomed about 150 participants from over 30 countries around the world, with papers presented on a diverse range of issues that were investigated using data from TIMSS, PIRLS, CIVED/ICCS, and other IEA studies.

Keynote presentations opened each day of the conference. Prof Berinderjeet Kaur (NIE) spoke in her keynote lecture about the historical developments that have shaped mathematics education in Singapore, a country where large percentages of students at both the fourth and eighth grades reach the highest international benchmark. She described some factors at the student and teacher levels and in relation to the curriculum and characteristics of the learning environment that may explain student mathematics achievement in Singapore. Prof Larry Hedges (Northwestern University, United States) discussed issues

of economic inequality and academic achievement. Drawing on IEA data (PIRLS and TIMSS) and UN and World Bank data (on economies), he demonstrated that the relation between inequality and achievement differs widely in richer and poorer countries (e.g., in poorer countries inequality is negatively related to the proportion of high-achieving students, while in richer countries this relation is positive). But he also indicated some limitations to the results of the analysis that warrant further research. Prof Eckhard Klieme (German Institute for International Educational Research) approached the issue of classroom processes in light of international comparative studies, stressing the powerful influence of contextual variables on student outcomes. He called for the need to refresh concepts such as “opportunity to learn” in order to include quality factors, and to develop innovative measures (rating scales, observational methods, longitudinal enhancements).

Prof Ina Mullis and Prof Michael Martin (TIMSS & PIRLS International Study Center at Boston College, United States)

investigated school effectiveness using TIMSS and PIRLS 2011 fourth grade data. Their research confirmed a conceptual model of the characteristics of effective schools (e.g., adequate facilities and equipment, proper staffing, a rigorous curriculum, effective instruction, support for academic success), however no single country gave a complete picture; the cross-country perspective proved itself to be crucial.

The parallel sessions included a number of TIMSS and PIRLS papers focusing on factors related to student achievement, such as student characteristics, home background, and classroom/school processes. A number of papers on CIVED/ICCS addressed relations between different

6th IEA International Research Conference

The next IRC will be held in 2015 in South Africa.

The call for papers will be announced in mid-2014.

student outcome measures: knowledge and understanding of civic and citizenship issues, attitudes, and behavioral tendencies. Some papers analyzed education system characteristics (using data gathered for the encyclopedias), while others focused on overtime changes in relation to specific policy interventions. Several papers (e.g., on ICILS, from which only field trial data were available

at the time) focused on methodological and technical issues, including psychometric characteristics of test items, measurement properties of attitudinal items, and sampling precision.

As usual, the conference was preceded by a two-day training seminar on secondary data analysis. Four parallel workshops were offered: "Introduction to IEA

Databases and IDB Analyzer," "Using HLM with International Large-Scale Assessment Data," "Assessment Designs, Item Response Theory, and Proficiency Estimates," and "Sampling in Large-Scale Assessments in Education." ●

Papers and presentations from the 5th IRC are available for download from www.iea.nl/irc-2013.html.

IN MEMORIAM

It is with sadness that we record the deaths of two distinguished members of the IEA community, Dr Janez Justin and Prof Cristina Rodríguez Schuller.

JANEZ JUSTIN 1951–2013

Dr Janez Justin was the representative of Slovenia to the IEA General Assembly since 1999. Having graduated in literature, languages, and philosophy from the Faculty of Arts of the University of Ljubljana, he took postgraduate courses at the *École des hautes études en sciences sociales* (School for Advanced Studies in the Social Sciences) in Paris and obtained his Ph.D. in epistemology from the University of Ljubljana. He was also a visiting researcher at the Faculty of Linguistics of the University of Antwerp. From 1994 to 2000 Dr Justin was Director of the Educational Research Institute in Ljubljana, and later Head of the Centre for Applied Epistemology at this institute, which was responsible for a number of IEA studies. He carried out numerous research projects in education (including civic education, textbooks, and learning

achievement), theories of knowledge, and discourse analysis. From 1998 to 2006, Dr Justin was Head of the National Council for Evaluation in Education, later a member of this body. He was also a professor at the *Institutum Studiorum Humanitatis* (Ljubljana Graduate School of Humanities).

Dr Justin was co-editor of *Theory and Research in Education* (London, Sage) and *Šolsko polje* and *Monitor* (both Ljubljana). He authored or co-authored many publications related to educational issues.

CRISTINA RODRÍGUEZ SCHULLER 1936–2013

Prof Cristina Rodríguez Schuller was affiliated with IEA since 1967 when she became the Chilean representative to the IEA General Assembly, a position she would hold for 10 years. She graduated as State Professor of English as a foreign language from the *Universidad de Chile* and received an M.B.A. in education from the *Pontificia Universidad Católica de Chile*. She also undertook specialized training in educational evaluation (UNESCO-IIEP) and methodology in superior education (*Deutscher Akademischer Austauschdienst* at the universities of Hamburg, Berlin, and Göttingen). Since 1963, Prof Rodríguez Schuller was a professor at the Faculty of Education and Faculty of Physics and Mathematics of the *Universidad de Chile*. She was also in charge of the Department of

Teaching Improvement (since 1985) and a researcher at the Institute for Statistical Research (1963–1985), conducting several projects on quality assessment of higher education, the student selection process, and evaluation.

Prof Rodríguez Schuller was involved in a number of national and international research projects, including the Six Subject Survey, one of the early IEA studies. Although the study results were not used in Chile at the time, after the collapse of its military dictatorship Prof Rodríguez Schuller helped engage the country in new



IEA studies (TIMSS 1999 and CIVED). She also published articles on the theory of teaching and learning, curriculum development, and educational assessment. Her book, *Evaluación del aprendizaje escolar* (Evaluation of Learning at Schools), which was published in 1976, was very influential in the restructuring of the Chilean education system.

Janez and Cristina will stay in our memory. Our deepest sympathies go to their family, friends, and colleagues. ●





TIMSS & PIRLS 2011 INTERNATIONAL RESULTS

A MIRROR ON EDUCATIONAL IMPROVEMENT

In an event that spawned numerous articles (print, electronic, broadcast, and multimedia) worldwide, the 2011 results of the **Trends in International Mathematics and Science Study (TIMSS)** and **Progress in International Reading Literacy Study (PIRLS)** were released to the public on 11 December 2012. The studies' major findings were published in three reports: *TIMSS 2011 International Results in Mathematics*, *TIMSS 2011 International Results in Science*, and *PIRLS 2011 International Results in Reading*. Accompanying the release was a series of online videos to present the results, touching on trends over five cycles of TIMSS and three cycles of PIRLS, the importance of an early start in education, and school factors for academic success.

The 2011 cycle of TIMSS and PIRLS represented the first time that the assessments have been conducted concurrent-

ly. The synergy of this joint effort, which required widespread coordination across the study units, led to advancements in the context questionnaire scales and provided an opportunity for countries to assess the same fourth grade students in reading, mathematics, and science. Another first in 2011 was prePIRLS, a new initiative designed to assess basic reading skills as a bridge to PIRLS, for countries where most children are still developing fundamental reading skills.

Altogether more than 600,000 students in 63 countries and 14 benchmarking systems participated in TIMSS 2011. PIRLS 2011 assessed about 325,000 students across 49 countries and 9 benchmarking systems.

Mathematics and science achievement results

In TIMSS 2011, there was a substantial range in performance between the

highest and lowest performing countries. Singapore, Korea, and Hong Kong SAR had the highest average achievement in fourth grade mathematics. In mathematics at the eighth grade, Korea, Singapore, and Chinese Taipei were the top-performing countries. Overall science achievement at the fourth grade was highest in Korea and Singapore; at the eighth grade level, Singapore had the top scores, followed by Korea, Chinese Taipei, and Japan.

Of 17 countries with comparable fourth grade trend data from 1995 to 2011, 12 countries showed increases in average mathematics achievement and 3 countries showed declines. Fourth grade science results revealed a similar pattern, with increases in achievement in eight countries and a decline in only one country. At the eighth grade, there was more balance between growth and decline in both subjects. >

In general, countries with the highest average achievement also had the largest percentages of students reaching the advanced international benchmark. Several countries improved at all four benchmarks (i.e., across the entire distribution of student achievement) since 1995 in fourth grade mathematics (Australia, England, Hong Kong SAR, Iran, Japan, Korea, Portugal, Slovenia, United States), fourth grade science (Hong Kong SAR, Iran, Korea, Portugal, Singapore, Slovenia), eighth grade mathematics (Korea, Lithuania, United States), and eighth grade science (Korea, Lithuania, Slovenia).

More countries demonstrated relative strengths in knowing mathematics and science (e.g., recalling, recognizing, computing, describing) than in applying knowledge and reasoning.

Reading achievement results

Hong Kong SAR, the Russian Federation, Finland, and Singapore had the strongest overall reading achievement in PIRLS 2011. Similarly to TIMSS, there was a substantial range in scores between the highest and lowest performing countries.

Since the 2001 cycle of PIRLS, 10 of 21 countries with comparable data showed increases in average achievement; there were declines in only 4 countries. Trend data also indicate that the reading achievement gender gap has remained mostly consistent: Girls continued to outperform boys in 2011 in nearly all of the participating countries.

Singapore had the largest percentage of students (24%) reaching the advanced international benchmark, followed by the Russian Federation, Northern Ireland, Finland, England, and Hong Kong SAR (18–19%). Notably, the majority of PIRLS countries had a large percentage (95% or more) of their students reaching a basic reading level (low international benchmark). Six countries

(Hong Kong SAR, Iran, Russian Federation, Singapore, Slovenia, United States) showed improvement across all four international benchmarks over the past decade.

Many top-performing countries had relative strengths in the processes of interpreting, integrating, and evaluating, compared to their overall reading achievement. Girls outperformed boys in literary reading in nearly every country, but there were fewer achievement differences in informational reading across countries.

Home and school factors

The TIMSS and PIRLS findings pointed to a strong positive relationship between students' achievement in the fourth grade and their early learning experiences. For instance, students with strong performance in mathematics at the fourth grade had parents who reported engaging in early numeracy activities with their children (e.g., counting rhymes, playing with number toys) and that their children started school able to do early numeracy tasks (e.g., simple addition and subtraction). Likewise, students had higher reading achievement when parents reported that they themselves liked reading, that they engaged in early literacy activities with their children (e.g., reading books, telling stories), and that their children started school able to do early literacy tasks (e.g., read sentences, write some words).

Home resources for learning, high expectation by parents and students for education, and attending preprimary education were all associated with higher mathematics, science, and reading achievement internationally.

The most successful schools in mathematics, science, and reading tended to have more affluent student bodies, better working conditions and facilities, and more instructional materials (books, computers, technological support, and

supplies). In general, students with the highest achievement attended schools that emphasize academic success and have hardly any discipline or safety problems. Students who attended schools with disorderly environments and reported more frequent bullying had much lower achievement than their counterparts in safe and orderly schools.

Higher achievement was also related to teachers' having more experience and being satisfied with their careers, and to students' engagement with their lessons.

The TIMSS and PIRLS results showed

a strong positive relationship within countries between students' achievement in mathematics, science, and reading and their attitudes toward those subjects (e.g., liking learning and feeling confident in their abilities). Notably, attitudes were generally less positive at the eighth grade than at the fourth grade. ●

More information on the TIMSS 2011 and PIRLS 2011 international results is available at <http://timssandpirls.bc.edu/data-release-2011/index.html>.

RELATIONSHIPS REPORT

The TIMSS/PIRLS relationships report, based on data from 34 countries and 3 benchmarking systems that participated in TIMSS and PIRLS 2011 with the same fourth grade students, will be published in October 2013. The report will include four analyses: profiles of achievement in reading, mathematics, and science; impact of reading ability on mathematics and science achievement; relative school effectiveness in reading, mathematics, and science; and effects of home background on student achievement.

NEWS FROM IEA RANDA

START OF THE IEA POLICY BRIEF SERIES

An important goal of the IEA studies is to provide empirical knowledge on educational policy and practice to inform policy decisions. For decades, IEA studies have collected reliable and valuable information on different aspects of education, identifying those aspects that are malleable and showing how they might influence student achievement. The rich, complex datasets from IEA studies necessitate good guidance and training in their use, and IEA organizes numerous seminars for researchers working with these data (some of which are noted below). It is also crucial for policy-makers and the public to be made aware of the analytic potential of study data.

The **DPC Research and Analysis Unit (RandA)** is happy to announce the initiation of the IEA policy brief series to increase policy-makers' understanding of the key factors that influence teaching and learning. Reporting on analyses of IEA data, these briefs will address educational issues that are prominent in debates at the international and national levels. The policy briefs will be published every three months, beginning in September 2013, on a range of themes in relation to teaching and learning which are addressed by the IEA studies; the first issue focuses on instructional time and educational achievement.

The IEA policy brief series is available at www.iea.nl/policy_briefs.html.



ACADEMIC VISITS

To contribute to the development of a worldwide community of researchers in educational evaluation, RandA now offers the possibility of academic stays at the IEA DPC in Hamburg for researchers working on projects involving large-scale educational assessments. Such academic stays provide an opportunity for direct contact between visiting researchers and members of RandA to exchange ideas and develop projects. Since October 2012, RandA has received visiting researchers from the London School of Economics, Pontificia Universidad Católica de Chile, Hiroshima University, and University of Bath.

For more information on RandA, please visit www.iea-dpc.de/research_analysis0.html?L=1.

ACADEMIC PAPERS USING IEA DATA

RandA researchers are very interested in promoting the results that can be derived from IEA's studies by conducting

research on a variety of specific topics. This year over 30 scientific articles that interpret and analyze findings from IEA studies were published (or accepted for publication) in academic journals, including a number of papers authored by IEA researchers:

- "Youth Future Civic Participation in Europe: Differences Between the East and the Rest," by Plamen Mirazchiyski (IEA DPC), Daniel H. Caro (University of Oxford), and Andrés Sandoval-Hernández (IEA DPC), published in *Social Indicators Research* (February 2013).
- "The Relationship Between School Resources and Grade 8 Mathematics Achievement: A Comparison of Palestinian Authority, Israeli Hebrew and Israeli Arab Schools in TIMSS 2007," by Yasin Afana (IEA DPC), Petra Lietz (ACER), and Mollie Tobin (ACER), published in *Journal for Educational Research Online* (June 2013).
- "Cultural, Social and Economic Capital Constructs in International Assessments: An Evaluation Using Exploratory >

Structural Equation Modeling," by Daniel H. Caro (University of Oxford), Andrés Sandoval-Hernández (IEA DPC), and Oliver Lüdtke (Humboldt-Universität), published in *School Effectiveness and School Improvement* (July 2013).

- "Promotion of Reading and Early Literacy Skills in Schools: A Comparison of Three European Countries," by Agnes Stancel-Piątak (IEA DPC), Plamen Mirazchiyski (IEA DPC), and Deana Desa (IEA DPC), forthcoming in *European Journal of Education* [Special issue: Literacy].
- "Considerations for Correlation Analysis Using Clustered Data: Working with the Teacher Education and Development Study in Mathematics (TEDS-M) and Other International Studies," by Sabine Meinck (IEA DPC) and Michael C. Rodriguez (University of Minnesota), forthcoming in *Large-scale Assessments in Education*.
- "Methodological Implementation of Multi Group Multilevel SEM with PIRLS 2011: Improving Reading Achievement," by Agnes Stancel-Piątak (IEA DPC) and Deana Desa (IEA DPC), chapter in forthcoming book, *Outcomes and Causal Inference in International Comparative Assessments*, edited by Wilfried Bos (University of Dortmund), Jan-Eric Gustafsson (University of Gothenburg), et al.

CONFERENCE PAPERS

- 10–13 September 2013, "Early Literacy and Numeracy: Separate or Mutually Complementing Effect on Achievement?" by Plamen Mirazchiyski at the **European Conference on Educational Research** (ECER 2013) in Istanbul, Turkey.
- 17–18 October 2013, "School Resources and Students' Resilience:

Identifying Successful Practices for Enhancing School Achievement of Socially Disadvantaged Students," by Andrés Sandoval-Hernández at the **Conference of the Outcomes and Causal Inference in International Comparative Assessments Network** (OCCAM 2013) in Dortmund, Germany.

- 17–18 October 2013, "Methodological Implementation of Multi Group Multilevel SEM with PIRLS 2011: Improving Reading Achievement," by Agnes Stancel-Piątak at the **Conference of the Outcomes and Causal Inference in International Comparative Assessments Network** (OCCAM 2013) in Dortmund, Germany.

TRAINING WORKSHOPS

- 10 September 2013, "Using the TIMSS and PIRLS 2011 International Databases for Secondary Analysis," workshop by Plamen Mirazchiyski and Andrés Sandoval-Hernández in conjunction with the **European Conference on Educational Research** (ECER 2013) in Istanbul, Turkey.
- 24 September 2013, "Analyzing PIRLS and TIMSS with HLM," workshop by Agnes Stancel-Piątak and Andrés Sandoval-Hernández in conjunction with the conference of the **Sektion Empirische Bildungsforschung der DGfE 2013** (Empirical Educa-

tional Research Section of the German Educational Research Association) in Dortmund, Germany. For more information: <http://aepf2013.de/index.php?id=40>.

- 6 November 2013, "Multilevel Analysis Modelling (MLM) with Data from Large-Scale Assessments," workshop by Agnes Stancel-Piątak and Deana Desa in conjunction with the conference of the **Association for Educational Assessment (AEA)-Europe** in Paris, France. For more information: www.aea-europe.net/index.php/workshop2paris.
- 19–21 November 2013, "Item Response Theory and Population Modeling in Large-Scale Assessments," **IERI Autumn Academy** by Peter van Rijn and Eugenio Gonzalez in Ljubljana, Slovenia. To register: www.ierinstitute.org/training-area.html.
- 25–29 November 2013, "Hierarchical Linear Modeling with TIMSS and PIRLS Data," **DPC training** by Sabine Meinck, Plamen Mirazchiyski, Oliver Neuschmidt, Andrés Sandoval-Hernández, Duygu Savaşçı, and Agnes Stancel-Piątak in Hamburg, Germany. To register: <https://event.iea-dpc.org/hlm-training-november-2013/>. ●

Dr Andrés Sandoval-Hernández, DPC RandA Unit Head



LOOKING FORWARD: NEW IEA STUDIES

NEW TIMSS STUDIES

IEA proposes three studies within the TIMSS project for 2015:



TIMSS 2015

TIMSS 2015 marks the sixth cycle of the Trends in International Mathematics and Science Study (TIMSS), which has been conducted every four years since 1995. TIMSS assesses mathematics and science achievement at the fourth and eighth grades, and also collects detailed information about the curriculum and curriculum implementation, instructional practices, and school and home resources.

TIMSS Numeracy 2015

For countries where students are still developing fundamental mathematics skills, IEA's new TIMSS Numeracy assessment (designed to be administered at the fourth, fifth, or sixth grade) concentrates on measuring children's numeracy learning outcomes, including fundamental mathematical knowledge, procedures, and problem-solving strategies.

TIMSS Advanced 2015

Previously conducted in 1995 (together with TIMSS) and 2008, TIMSS Advanced assesses final-year secondary students' achievement in advanced mathematics and physics. TIMSS Advanced will be reunited with TIMSS in 2015, offering countries the opportunity to collect data at three points in time across the education system. TIMSS Advanced will also collect policy-relevant information about cur-

riculum emphasis, technology use, and teacher preparation and training.

NEW PIRLS STUDIES

In 2016 IEA will collect data in three PIRLS studies:



PIRLS 2016

PIRLS 2016 is the fourth assessment in the framework of the Progress in International Reading Literacy Study (PIRLS). Previous cycles were conducted in 2001, 2006, and 2011. PIRLS provides internationally comparative data about how well children read after four years of primary schooling, as well as home supports for literacy, the curriculum and curriculum implementation, instructional practices, and school resources in each participating country.

prePIRLS 2016

prePIRLS is based on the same view of reading comprehension as PIRLS, with a focus on assessing fundamental reading skills—including the ability to recognize words and phrases, understand simple sentences and paragraphs, retrieve information, and make straightforward inferences—in countries where students are in the process of learning to read towards the end of primary school.

ePIRLS 2016

As a new extension to PIRLS in 2016, ePIRLS uses an engaging, simulated Internet environment with authentic school-like assignments about science and social studies topics to evaluate fourth grade students' achievement

in online reading. ePIRLS aims to examine how well students navigate and discriminate among informational online texts, construct meaning from these sources, retrieve data, make inferences, and integrate and synthesize information.

ICCS 2016

ICCS 2016 is the second cycle of the International Civic and Citizenship Education Study (ICCS), a study of how young people are prepared to undertake their roles as citizens. The new cycle will focus on students' knowledge and understanding, perceptions, attitudes, and activities in the area of civics and citizenship (like its predecessor ICCS 2009), as well as changes over time. The context variables under study will include classroom, school, and broader community characteristics, in addition to students' individual characteristics and family background.



ECES

The goal of the Early Childhood Education



Study (ECES) is to explore, describe, and analyze early childhood education provision and its role in preparing children to learn and function in school and the broader environment. ECES will provide internationally comparative data on policies, provision and access, quality, and outcomes of early childhood education. An assessment module will provide countries with an opportunity to evaluate aspects of children's development and learning. >



ETLS

The English Teaching and Learning Study (ETLS) aims to assess tenth grade students' proficiency in English across the domains of

listening, reading, writing, and speaking. ETLS will also collect detailed information about policies, curricula, instructional practices, and students' exposure to and

experiences with learning English both inside and outside of school. ● *For more information or to inquire about country enrollment, please contact the IEA Secretariat.*

OLDER IEA STUDIES IN MATHEMATICS

Since its inception in 1958, IEA has conducted more than 30 international comparative studies. It all began with the **Pilot Twelve-Country Study**, which was implemented in 1960 and included a test in geography, science, mathematics, reading comprehension, and non-verbal ability. The pilot study showed that it is feasible to conduct this type of cross-national assessment on a large scale.

The next study, the **First International Mathematics Study (FIMS)**, was initiated two years later and collected data in 1964. FIMS represented a big step forward for introducing international comparative studies into an academic discipline. Its steering committee included some of the most prominent names in the history of educational research, such as C. Arnold Anderson, Benjamin Bloom, Arthur W. Foshay, Torsten Husén, Gaston Mialaret, Harry Passow, Douglas Pidgeon, and T. Neville Posthethwaite. Later others became involved, such as Lee Cronbach, Gilbert Peaker, and Richard Wolf.

Equipped with experiences from the pilot study and funding from the U.S. Office of Education, the FIMS researchers focused on two aspects: good measures of educational outcomes and those features of education systems that could be directed through policy changes. This

resulted in the introduction of student performance as an indicator of system quality, rather than the percentage of an age group graduating at a certain point in time, which had been used up until then.

The study also drew researchers' attention to such factors as class size, grade repetition and ability grouping, age of school entry, and various aspects of curricula and instruction. This increased interest in student environment variables came from the researchers' idea (adopted later by policy-makers) that abilities might be not only selected but also developed, and that the "world as an educational laboratory" is a good place to learn about the best means for accomplishing this aim.

With FIMS IEA might be identified as the 'inventor' of international assessment. Other studies came along next, among them one more study in mathematics, the **Second International Mathematics Study (SIMS)**, which was developed by the younger generation of IEA researchers and collected data in 1980–1982. This study incorporated some replication of the FIMS assessment as well as a longitudinal component to investigate causal relationships between the intended curriculum (system level), implemented curriculum (classroom level), and attained curriculum (student outcomes).



In the early 1990s (after two studies of science achievement were also completed), the complex regular cycle of studies in mathematics and science—known as **TIMSS**—was born. TIMSS was implemented for the first time in 1995.

We are pleased to publish in this issue of the newsletter a short article about the reunion of the international researchers involved in SIMS, which took place at AERA this year. ●

More information about the older IEA studies and their results can be found at: www.iea.nl/completed_studies.html.

A SIMS REUNION: 30 YEARS LATER

BY DAVID F. ROBITAILLE



Reunion of the SIMS project members in April 2013

Twenty school jurisdictions (most of them national in scope) participated in SIMS, the **Second International Mathematics Study**, in the early 1980s. SIMS was the first of IEA's studies to treat curriculum and pedagogy as major foci, and to seek to link opportunity to learn and instructional practices to students' achievement.

Two centers were established for the study: one at the University of Illinois directed by Ken Travers, and the other in the Department of Education of New Zealand directed first by Roy Phillips and

then by Bob Garden. Fund-raising for the study was a major challenge, but several agencies made important contributions over the years. Significant support from agencies of the U.S. government was facilitated by the efforts of Larry Suter.

Ken Travers and others suggested several times in recent years that a SIMS reunion was called for; but, it finally happened this past April at this year's AERA conference in San Francisco. About 20 people met in a hotel suite one afternoon for an informal session of reminiscences and thoughts about the contributions

of SIMS to the field of international comparisons in education.

The photo shows ten of the people present at the reunion, all of whom played important roles in the study. Along the back row, from left to right, are Tjeerd Plomp, Bill Schmidt, David Robitaille, Richard Wolfe, Hans Wage-maker, and Larry Suter. Along the front row are Len Bianchi, Bob Garden, Ken Travers, and Skip Kifer. All are looking older and, one hopes, wiser.

A grand time was had by all! Thanks Ken and Larry. ●



CHILDREN'S PEACE PRIZE WINNER MALALA YOUSAFZAI

"We must work together to ensure that girls are protected, respected, and helped to flourish. We cannot all succeed, when half of us are held back. Someone once said: If you educate a boy, you educate a boy—but if you educate a girl, you educate a generation."
MALALA YOUSAFZAI

16-year-old Malala Yousafzai, champion of girls' access to education, was

awarded the International Children's Peace Prize 2013 for her dedication to children's rights. At a ceremony held in her honor in the Hague, The Netherlands, Malala accepted the award and spoke of her national and global campaign for education, envisioning a world "where education is taken for granted in every corner of the globe, because no one is excluded from it."

[Courtesy of Jan Minkiewicz]

IEA ANNUAL AWARDS

IEA offers two annual awards to encourage and promote high quality secondary analysis that makes use of IEA data. The **Bruce H. Choppin award** is designated for an outstanding thesis at the master's or doctoral level, and the **Richard M. Wolf award** is given to the author(s) of a paper published in a refereed journal, monograph, or book. IEA is pleased to announce the winners of the 2013 IEA annual awards:

BRUCE CHOPPIN AWARD



Dr Stefan Johansson,

"On the Validity of Reading Assessments: Relationships Between Teacher Judgements, External Tests and Pupil Self-

assessments" (doctoral dissertation). Dr Johansson's dissertation was completed at the Department of Education and Special Education of the University of Gothenburg, Sweden. His thesis examined validity issues in different forms of assessments: teacher judgments, external tests, and student self-assessment in Swedish primary schools. Data were used from PIRLS 2001, in which more than 11,000 students and some 700 teachers in Sweden from grades 3 and 4 participated. The research employed multilevel structural equation modeling with latent variables. The author concluded that teachers are largely able to rank order their own students in terms of their knowledge and skills. However, the correspondence between teacher judgments and student test results on PIRLS varied between teachers. A higher correlation between these variables was demonstrated for teachers with higher levels of formal competence. Student gender and socioeconomic status (SES) were also

associated with teacher judgments, in that girls and students of higher SES received higher judgments from teachers than accounted for by their test results. The results also showed that students' self-assessments of their knowledge and skills in the reading domain are in relatively good agreement with both teacher judgments and test results. No differences in self-assessment were found for pupils of different gender or SES, when controlling for differences in achievement (test results and teacher judgments).

Dr Johansson's thesis is available online: <http://hdl.handle.net/2077/32012>.

DICK WOLF AWARD

Dr Moosung Lee and Dr Philip Hallinger, "National Contexts Influencing Principals' Time Use and Allocation:



Dr Moosung Lee



Dr Philip Hallinger

Economic Development, Societal Culture, and Educational System," published in *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice* (Vol. 23, No. 4, December 2012, 461–482).

The article was part of a special issue entitled, "School Leadership That Makes a Difference: International Perspectives." The study examined the impact of macro-level context factors on principal time use and allocation. Three specific macro-contexts were explored: national economic development, societal culture (focusing on the

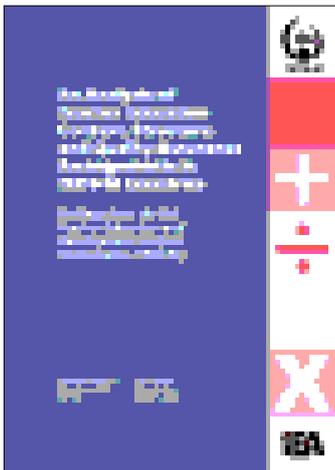
level of hierarchical power relations), and the level of standardization of the education system. The study employed a two-level hierarchical linear model to analyze data on 5,927 principals in 34 education systems participating in PIRLS 2006.

The authors found that the amount of time principals devote to their job role, as well as how their time is allocated across different domains of responsibility, varied substantially across countries. The research identified several distinctive patterns of macro-level context effects on the behavior of school principals. For instance, principals from countries with a higher gross domestic product tended to spend more time on the job overall. Principals from less hierarchically organized societies tended to allocate more time for instructional leadership and for interacting with parents and the community than their peers in more hierarchically structured societies. Principals in more structured education systems reportedly allocated less of their time for administration. The authors concluded with a call for the "next logical step" of research: to investigate how macro-level contexts moderate principals' exercise of leadership and students' learning outcomes.

Full-text access to the article can be obtained through the journal publisher's webpage: <http://dx.doi.org/10.1080/09243453.2012.678862>. ●

To apply: The next IEA awards deadline is 31 March 2014! For submission requirements, please visit www.iea.nl/awards.html.

LATEST PUBLICATIONS



An Analysis of Teacher Education Context, Structure, and Quality-Assurance Arrangements in TEDS-M Countries:

Findings from the IEA Teacher Education and Development Study in Mathematics (TEDS-M)

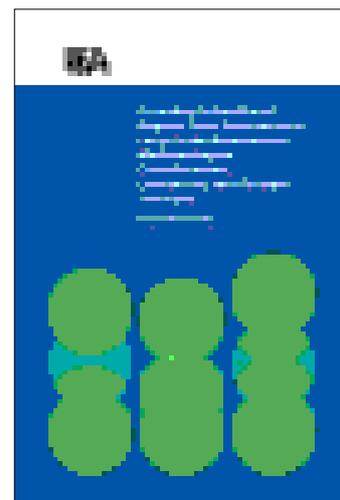
By L. Ingvarson, J. Schwille, M.T. Tatto, G. Rowley, R. Peck, & S.L. Senk
Published in 2013 by IEA, Amsterdam

This report presents various characteristics of teacher education systems in the TEDS-M participating countries. It shows that the TEDS-M countries whose future teachers had greater knowledge of mathematics and mathematics teaching pedagogy also placed the greatest emphasis on policies that enable the teaching profession to compete for high-ability secondary school graduates, balance teacher demand and supply, ensure a rigorous system of assessment/accreditation of teacher education programs, and set high standards for entry to the profession (i.e., gaining registration/licensing) after graduation. These results are consistent with teacher education policy discussions occurring nationally and internationally about the most successful processes for assuring teacher quality.

ICCS 2009 Encyclopedia: Approaches to Civic and Citizenship Education Around the World

Edited by J. Ainley, W. Schulz, & T. Friedman
Published in 2013 by IEA, Amsterdam

This volume presents the contexts of civic and citizenship education in 35 countries that participated in ICCS 2009. Chapters authored by country representatives summarize the structure of the education system, the place of civic and citizenship education in the curriculum, and teacher preparation policies. Information is also provided on national assessment and monitoring practices, as well as ongoing reforms and debates. The encyclopedia shows that civic and citizenship education was part of the national curricula of the ICCS participating countries, but there was considerable variation with respect to how this learning area was taught. In about half of the countries this learning area was compulsory (either as a separate subject or integrated into other subjects), and in about one third of the countries it was taught by civic and citizenship education specialists.



Providing School-Level Reports from International Large-Scale Assessments: Methodological Considerations, Limitations, and Possible Solutions

By P. Mirazchiyski
Published in 2013 by IEA DPC, Hamburg

This report addresses some of the limitations for reporting results from international large-scale assessments (ILSAs)—which are designed to optimize measurement and reporting at the national level—to schools or groups of students within schools. Acknowledging that schools, educational authorities, and policy-makers have a vested interest in school-level feedback, the author considers the implications of specific aspects of ILSA designs in studies such as TIMSS and PIRLS, including the multiple-matrix item sampling scheme, use of plausible values to estimate student proficiency, and within-school sampling design. This publication cautions that if the groups of tested students per school are too small, the measurement error is likely to increase substantially. Methodological and statistical sources of error, as well as school composition effects, are underscored as issues to be taken into account when presenting results to schools. Some approaches are also considered for modifying ILSA designs to facilitate the provision of unbiased feedback to schools without interfering with the main objectives of the studies. ●

OTHER RECENT PUBLICATIONS

- Foy, P., Arora, A., & Stanco, G.M. (Eds.). (2013). **TIMSS 2011 User Guide for the International Database**. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Foy, P., & Drucker, K.T. (Eds.). (2013). **PIRLS 2011 User Guide for the International Database**. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Martin, M.O., & Mullis, I.V.S. (Eds.). (2012). **Methods and Procedures in TIMSS and PIRLS 2011**. TIMSS & PIRLS International Study Center, Boston College. <http://timssandpirls.bc.edu/methods/index.html>.
- Martin, M.O., Mullis, I.V.S., Foy, P., & Stanco, G.M. (2012). **TIMSS 2011 International Results in Science**. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Meinck, S., & Vandenplas, C. (2012). **Sample Size Requirements in HLM: An Empirical Study**. *IERI Monograph Series: Issues and Methodologies in Large-Scale Assessments [Special Issue 1]*. Hamburg/Princeton, NJ: IEA-ETS Research Institute.
- Mullis, I.V.S., Martin, M.O., Foy, P., & Arora, A. (2012). **TIMSS 2011 International Results in Mathematics**. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Mullis, I.V.S., Martin, M.O., Foy, P., & Drucker, K.T. (2012). **PIRLS 2011 International Results in Reading**. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- von Davier, M., & Hastedt, D. (Eds.). (2012). **IERI Monograph Series: Issues and Methodologies in Large-Scale Assessments (Vol. 5)**. Hamburg/Princeton, NJ: IEA-ETS Research Institute.

Visit www.iea.nl/publications.html to download these publications free of charge.

LARGE-SCALE ASSESSMENTS IN EDUCATION

The *IERI Research Monograph*, which was published from 2008 to 2012, is now *Large-scale Assessments in Education*, an open access Springer journal. The journal is a joint publication of IEA and the Educational Testing Service in the United States. Its aim is to improve the science of large-scale assessments, help disseminate state-of-the-art information about empirical research using large-scale assessment databases (such as from IEA's TIMSS, PIRLS, ICCS, and SITES; U.S. NAEP; OECD's PISA, PIAAC, and TALIS; IALS, ALL, and others), and make the results available to policy-makers and researchers around the world. *Large-scale Assessments in Educa-*



tion publishes research articles, book reviews, methodologies, reviews, and short reports.

To view past articles or submit a paper, please visit www.largescaleassessmentsineducation.com.

TIMSS 2011 & PIRLS 2011 International Databases

The TIMSS 2011 and PIRLS 2011 international databases are available for researchers interested in conducting in-depth analyses of the TIMSS and PIRLS data. The databases include student achievement data as well as student, home (PIRLS), teacher, school, and curricular background data for all participating countries and benchmarking entities. The accompanying user guides describe the organization and content of the databases, and the online *Methods and Procedures* documentation provides the rationale for the techniques used and for the variables created in the process of data collection and compilation. The data can be analyzed using the IEA IDB Analyzer, free software developed by the IEA DPC.

For access to the study data and software, please visit www.iea.nl/data.html.



National Study Reports

A collection of links and information about national reports and other analyses resulting from the IEA studies is now available at www.iea.nl/national_reports.html. These reports aim to disseminate study findings to a range of audiences within countries, including government officials, policy-makers, researchers, and educators.



To contribute to this growing list, please send announcements of any national study reports to the IEA Secretariat.



IEA RSS Feed

Sign up for the RSS feed at www.iea.nl to receive the latest information about new IEA publications and events! You can also register to receive updates by email.

UPCOMING MEETINGS

4 October 2013

IEA Technical Executive Group meeting, Lisbon, Portugal

5–6 October 2013

IEA Standing Committee meeting, Lisbon, Portugal

7–10 October 2013

54th IEA General Assembly, Lisbon, Portugal

6–8 November 2013

3rd TIMSS Advanced 2015 NRC meeting, Budapest, Hungary

10–15 November 2013

3rd TIMSS 2015 NRC meeting, Budapest, Hungary

24–28 February 2014

2nd ECES NRC meeting, Rome, Italy

28 February–1 March 2014

IEA Standing Committee meeting, Amsterdam, The Netherlands

5–7 March 2014

4th TIMSS Advanced 2015 NRC meeting, Sydney, Australia

9–14 March 2014

4th TIMSS 2015 NRC meeting, Sydney, Australia

UPCOMING ISSUES

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**54th IEA
General Assembly**

•
**TIMSS & PIRLS 2011
relationships
report**

COLOPHON

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