I have been part of the IEA family for a long time. For more than a decade, I was a national research coordinator, and I was honored to be appointed Director of IEA Amsterdam in February. And although I thought I knew the ins and outs of IEA, the behind the scenes experiences of the last six months have left me in awe. I have met with colleagues from the International Study Centers, researchers from national research institutes, government representatives from participating countries, and other stakeholders and partners from all around the world, and I am amazed by the dedication, perseverance and flexibility of all involved. I believe that is what makes IEA strong; the people who truly believe in and share our goal of researching education and improving learning.

I have joined the IEA at an exciting time, with the imminent releases of ICCS 2016 and PIRLS 2016. To enhance the promotion of our studies and their results we have sought and found partners to host these events. The ICCS International and European reports will be released on 7 November 2017 in cooperation with the European Commission and other stakeholders and experts. The release of the PIRLS 2016 results will take place at UNESCO headquarters in Paris on 5 December 2017, accompanied by an online release including new media possibilities and several roundtable discussions regarding study outcomes and policy implications. Meanwhile, planning and development for (e)PIRLS 2021 and ICCS 2022 has already begun.

At the start of the year, the TIMSS (including Numeracy and TIMSS Advanced) 2015 international databases were made available to the researchers all over the world via the IEA Data Repository System. TIMSS 2019 started well, piloting eTIMSS in more than 25 countries to establish the equivalency of the TIMSS trend items between paper and computer modes of administration. IEA Hamburg continued the development of different IEA e-Assessment System modules, including the Online Translation System, the Online Data Monitor and the Online Scoring System, each adapted to eTIMSS.

Overshadowed for the moment, ICILS 2018 is gearing up for the main test next year and all involved are working hard on the selection of the materials for inclusion in the main survey instruments, and finalizing the ICILS 2018 Assessment Framework.

In another important milestone for the IEA, this year the IERI (IEA-ETS Research Institute) celebrated the tenth anniversary of our collaboration. The IERI academies (and I have attended several) were developed to enhance knowledge about the science of large-scale assessments, and empower researchers and practitioners to identify and develop informed policies. As a researcher, I am glad to work for an organization that believes in discussing and sharing knowledge to meet the global goal of ensuring inclusive and quality education for all, as demonstrated by initiatives such as IERI. Only by being part of the wider research community, and being open to the opportunities and experiences that create new research ideas and directions and enrich expertise, can IEA stay focused on IERI’s mission: providing researchers and policymakers from around the world with the best available information.
Monitoring the sustainable development goals for education
AN IEA PERSPECTIVE

BY DIRK HASTEDT, EXECUTIVE DIRECTOR IEA

For nearly 60 years, our network of scholars and researchers has been conducting international studies of what students know and can do, providing evidence to improve education for all. I believe it is vital to monitor learning outcomes, as well as educational content and contexts to understand how educational achievement is measured and how to interpret results; there should be visible benefits for the participating education systems. To this end, IEA has been cooperating closely with UNESCO in the development of measures for the sustainable development goals (SDGs) for education (Education 2030, 2016).

Education practitioners and policymakers can provide useful guidance on the information that they think should be collected to improve education; without their input, the cost of measuring outcomes is a missed opportunity. What education systems require is not only mean achievement results or simple rankings but rather a holistic overview of their own educational landscape in the global environment, enabling countries to identify the strengths and weaknesses of their education system. Without this, as David Edwards, Deputy General Secretary of Education International, put it ‘That’s like saying: ‘We have a sick patient—we need more thermometers!’’ (Hanushek, & Edwards, 2017). A coordinated approach should lead to further research, and international comparisons can help inspire innovative ways to improve education systems. There are significant benefits if countries collaborate and use comparable instruments for measuring progress towards the SDGs.

Of course, measuring trends in educational outcomes is beneficial, enabling education systems to reflect on curriculum and policy changes over time, but trend results may have serious implications for national policies and policymakers, including funding in some countries. Although quick and dirty solutions sometimes look appealing, they should be avoided; it is important to act responsibly and respectfully (Outhred, 2017). Balancing investment in education and smart allocation of resources can lead to huge benefits; due to other priorities, investment in education research is quite limited in some countries, and this may lead to poor understanding of what may work best for a particular education system.

Existing international and regional assessments are high quality, well validated and grounded in commonly agreed frameworks. Developing international assessments is costly and measuring educational outcomes in all United Nations countries will clearly require significant investment from all involved. Drawing on existing assessments as a platform for development avoids common mistakes and misconceptions, and consequently is a measure of risk management. Linking international and regional assessments to create one common metric would provide a reliable baseline for monitoring education, and IEA’s TIMSS and PIRLS are already established unique metrics for measuring numeracy and literacy internationally at the end of primary education. Coordinated international assessment leads to financial benefits because participating countries share development costs.

Working together, our experience has revealed that employing a grade-based design together with contextual data from students, parents, teachers, and principals, provides solid information on intended, implemented and achieved curriculum, providing policymakers and practitioners with the tools to better understand educational outcomes. Grade-based assessment is not just a ‘thermometer’ but rather a diagnostic tool for investigating a country’s education system(s). While some may argue that age-based assessment results in more comparable data between countries than grade-based assessment, countries have widely differing policies with respect to grade repetition and school entry age, and students’ individual circumstances may also mean that the opportunity to learn differs significantly between students of the same age. Thus, only a grade-based assessment enables comparisons between students’ actual achievement and what students are supposed to have learned based on the countries’ specifications.

THE WAY FORWARD

Measuring the achievement at the end of primary education (grades 4–6) sets a solid foundation for all students, to enable further effective teaching and learning outcomes at the end of compulsory school. If countries are not participating in an international or regional assessment they should be encouraged to use standardized assessment instruments, such as LaNA (http://www.iea.nl/lan). Aligning the reading and mathematics results of PIRLS and TIMSS with SACMEQ (Southern and Eastern Africa Consortium for Monitoring Educational Quality; http://www.sacmeq.org/), PASEC (Programme d’analyse des systèmes éducatifs de la conférence; http://www.pasec.confem.org/), and ERCE (Estudio Regional Comparativo y Explicativo; see http://www.unesco.org/new/es/santiago/education/education-assessment/) would provide literacy and numeracy data for approximately 100 education systems and benchmarking entities. If there are sufficient links and communalities, a common metric may result.

I believe it is crucial to encourage countries to participate actively in all aspects of the study development, from reviewing materials and contributing to the pool of assessment items, to suggesting questions for the background instruments. This ensures that the assessment remains well suited to participating countries’ requirements. Although it is not feasible to cover all subjects taught in all countries and respond to all cultures’ flavors of education in an international assessment, defining the SDGs for education should not mean narrowing the scope to targets for numeracy, literacy and global citizenship (Education 2030, 2016) — education is broader than that. In creating a curriculum, countries avoid focusing solely on what is measured by the SDGs, and if negative trends result from measuring progress towards the SDGs, this may have serious negative impacts on countries and the...
perceptions of their policymakers. Equally, while the SDGs require all students should reach minimum benchmarks in numeracy and literacy, society also needs the high-performing students that can become tomorrow’s teachers, judges, researchers, or policymakers. To educate a group of students that can assume these roles is important for the sustainability and independence of a nation. Social justice also requires that high performance is an option for all students and that no student is discriminated against because of their background. As the experience of the millennium development goals has shown, some countries may focus only on what is specified in international targets in an endeavor to achieve better results, especially if financial support from donor organizations depends on achieving positive trends. The education community should discourage all initiatives that focus solely on the lowest-performing students to the detriment of the whole population.

The key is to focus research on how to improve education. Educational outcomes are important and interesting, but the goal should be improving education for all and to the benefit of society as a whole. To support this, countries need to invest in the secondary analysis of collected data, and additional studies of a qualitative nature. We need to be able to explain the implications to stakeholders, and use the data to support practitioners and curriculum. By providing evidenced insights into the factors that support student success, we can all work together to build a more educated world.

REFERENCES


As the IEA’s Progress in Reading Literacy Study (PIRLS) 2016 International Release approaches, participating countries have been preparing their national reports. Denmark has been particularly busy, having opted in on all three fronts — PIRLS, PIRLS Literacy, and ePIRLS. National Research Coordinator Jan Mejding of Aarhus University spoke about preparations for the national report and what the results mean for Denmark.

‘Trends in achievement will be a focal point, and as usual we will focus on the other Nordic countries,’ he said. ‘The gender gap usually is small in Denmark compared to other countries, but we will of course look to see if this is still the case. To understand why trend is such an issue, you need to know a little about the background.’

Denmark participated in IEA’s Reading Literacy Study in 1991, with dismal results at the third grade (age 9). The Danish were the slowest and worst readers among Nordic students. At the eighth grade (age 14), achievement was considerably better and on the level of other Nordic countries, if not at the same speed. The national report published in 1994 was titled The Ugly Duckling and the Swans? About Danish Students’ Reading Comprehension. The inspiration came from Hans Christian Andersen’s tale ‘The Ugly Duckling’ about the troubled bird that turned out to be a swan. Four flying swans trailed by a duckling graced the report’s cover, evoking the Nordic Council’s symbol of five swans for the Nordic countries.

A related finding in that report revealed that although third-grade students performed poorly, they did better than expected by trained expert teachers, Mejding recalled. In the following years in Denmark, the focus shifted to the teaching of reading in the beginner grades. In a national replication of that IEA study in 2000, Danish third-grade students performed almost as well as their Nordic neighbors.

‘With PIRLS 2006 and 2011, we have been consolidating the results,’ Mejding said. ‘Lately there have been a number of changes and school reforms in Denmark, so it is of course interesting to see if this might have had an effect on the abilities of Danish students.’
With the development of PIRLS Literacy, Mejding said he saw possibilities for struggling students whose teachers excused them from the PIRLS assessment. Eventually an easier test booklet could be offered to these students, with tasks comparable to those given to their peers.

‘The prerequisite for being able to compare is to know what you are comparing,’ he said. ‘Therefore, we needed to know the achievement level of our third graders compared to our fourth graders. I had hoped that many other countries had done the same, as I feel that the knowledge about the progression between two adjacent grade levels is very essential for understanding the diversity of results we find even within one grade level, as we do in PIRLS.’

The motivation for participating in ePIRLS was different, and simply added a domain of reading to what is being studied, Mejding said. Beyond looking at informational and literary texts on paper, he is interested in finding whether electronic texts influence what students learn.

‘Reading on screen is definitely different from reading on paper,’ Mejding explained. ‘We need to know more about that to be able to prepare our young population for the tasks of the future.’

A PIRLS release with the Danish Ministry of Education is planned for 5 December 2017.

Keeping a citizenship education study progressive, while maintaining important links to previous studies to measure trends, is a ‘moving target’ when it comes to collecting evidence about the ways in which education prepares young people to assume their role as citizens in a time of change. To reflect this, the 2016 cycle of IEA’s International Civic and Citizenship Education Study (ICCS) included and emphasized topics such as ‘social interactions at school’, ‘new social media’, and ‘environmental sustainability’. Last year, ICCS 2016 collected data in 24 participating countries, and the final analyses and reports are now almost complete.

The international report and two regional reports will tap into differences and similarities across the main contexts for civic and citizenship education. These embrace student knowledge about a wide range of social issues, their preparedness to become citizens in a democracy, and disposition toward active participation in society (for example, voting in elections). The study assesses students’ attitudes toward critical issues for any society, such as equal opportunities, global issues, and trust in institutions. Changes since ICCS 2009 and multi-level analyses explaining differences in civic knowledge by student characteristics, home background and school contexts will play equally important roles. The release of the international and European results, which highlight important, and, in part, quite positive issues and developments, will take place on 7 November 2017 in Brussels, in cooperation with the European Commission. The primary launch will be followed by additional related events, including database workshops in 2018. We recommend you monitor the IEA’s website,
LinkedIn or Twitter channels to keep abreast of the full program of activities.

The insights from ICCS 2016 are eagerly anticipated. At the recent Conference on the Future of Citizenship and Human Rights Education in Europe (held in Strasbourg, 20–22 June 2017; the associated Council of Europe (2017) report is a highly recommended read), we organized a case study where the national research coordinators (NRCs) from three countries participating in ICCS 2016 discussed their key reasons for becoming involved and the benefit of the empirical insights. Their starting points, needs and intentions differed substantially: a transition from a socialist system to a liberal democracy, an identified lack of basic understanding of key dimensions coupled with low levels of tolerance and other related attitudes among students, or quite knowledgeable and tolerant students that nonetheless reported low levels of participation and engagement. Continued changes to school subject scoping and definition were mentioned by all NRCs as key interests in the study of trends.

Contexts of citizenship education and democracy continue to change, ever more rapidly it seems, and especially at the global level. Studying curricula and policies at the system level is a relatively straightforward task, but this cannot provide all the answers, and the value of ICCS is that it also investigates processes and outcomes at the school and classroom levels, revealing learning opportunities and students' attitudes, values, and engagement. Do curricula, policies and practices reflect global trends and challenges? Do schools and teachers provide students with safe spaces and opportunities to debate and discuss persisting, emerging and often utterly confusing issues in societies? Are schools themselves organized and allowed to work in some meaningful democratic fashion?

In response, the IEA is formulating the next cycle of ICCS, kicking off development with a first meeting of currently participating and newly registered countries and entities in early 2018, with a main data collection planned for 2022. In 2015, the IEA and UNESCO agreed to cooperate with respect to the measurement of Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) (Carstens, 2016). The Council of Europe, the European Commission, the Asia-Pacific Centre of Education for International Understanding (APCEIU), and other intergovernmental and non-governmental organizations have all played a part in exploring the scope of the new cycle. The current ICCS consortium, which comprises the Australian Council for Educational Research (ACER), the Laboratorio di Pedagogia Sperimentale (LPS) at Roma Tre University, and the IEA, with support from academic project advisors and expert, has already begun to devise how the diverse educational strands and issues can be conceptualized and integrated in the next cycle.

In the meantime, ICCS 2009 and soon 2016 data, will contribute to global measurement agendas, in particular the United Nations SDG thematic indicator 4.7.4, namely the percentage of students by age group, or education level, showing adequate understanding of issues relating to global citizenship and sustainability.

Personally, it was, and is, a genuine pleasure and privilege for us at the international coordinating center in Hamburg to collaborate with such a vibrant and engaged team of international scholars, national research teams and advisors. We are determined to continue to support the study’s future success!

REFERENCES

Italy analyzes 20 years of TIMSS mathematics and science trends

BY SHIRLEY GOH, TIMSS & PIRLS INTERNATIONAL STUDY CENTER, BOSTON COLLEGE

Italy has participated in IEA’s Trends in Mathematics and Science Study (TIMSS) since it was first launched in 1995, and with TIMSS 2015 it amassed 20 years of achievement trends in mathematics and science, the longest of any international educational assessment. For TIMSS National Research Coordinator Laura Palmerio, of the National Institute for the Educational Evaluation of Instruction and Training (INVALSI), these trends provide a wealth of data that can be used to analyze and improve education.

‘Two things that always strike people in Italy are the low position of our country in the international rankings, and the huge differences in performance between north and south, as if they were entirely different countries,’ she said.

TIMSS and TIMSS Advanced 2015 results showed gender gaps in mathematics and science in all the national territories. This was especially true at the basic school level, though any gaps at Grades 8 and 13 were lower and stable.

‘Italy is the country where the advantage of Grade 4 boys in mathematics is the highest, and one of the few countries where there is an advantage of boys in science,’ Palmerio said. ‘Furthermore, the gap shows an increasing trend. The fact that the worst situation exists in primary school should make our policymakers worry a lot.’

‘Increasing gender gaps in favor of male pupils in mathematics, not due to improvement of males’ performance but mostly to worsening of females’ importance, are in my opinion a sign of a cultural regression in Italy, and should be seriously addressed,’ she continued.

The other main cause for her concern was the northern regions continuing to perform well in all grades and types of schools while southern regions struggled in the bottom of the distribution. In recent years, Palmerio conceded, there have been small steps forward. Still, she saw more room for improvement, as well as a need to better use assessment data.

‘Twenty years of participation in TIMSS surveys saw our country constantly struggling to climb the rankings, mostly with little or no success,’ she said. ‘In my opinion, the international results, and research results in general, are not sufficiently used by policymakers in decisions regarding reforms at the national level, but also for smaller interventions in specific territories or schools.’

INVALSI’s interest in participating in TIMSS Advanced, which assesses students in the final year of secondary school who are engaged in advanced mathematics and physics studies, was mainly driven by the fact that no other assessment existed for that target group, even though the Italian sample was not fully comparable with those of other participating countries, Palmerio said. She expressed great interest in the new eTIMSS, saying Italy is gradually moving all its national assessments to a computer-based platform, and in continuing with TIMSS 2019.

‘We think it is one of the most valuable surveys in education,’ she said. ‘INVALSI, being a research institute, is interested in doing valid, reliable, and prestigious assessments. Moreover, we have a long tradition of participation started by a great scholar, former INVALSI President Aldo Visalberghi, and of trends that we do not want to interrupt.’

Palmerio aspires to produce specific thematic reports addressed to policymakers at various levels using the TIMSS and TIMSS Advanced 2015 data, and encourages the scientific community to use the data in research.
Education priorities in a digital world
EXPLORING MUTUALITIES BETWEEN THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS, AND IEA'S ICILS

BY RIINA VUORIKARI, DIRECTORATE INNOVATION AND GROWTH, DG JRC - EUROPEAN COMMISSION

The IEA's International Computer and Information Literacy Study (ICILS) looks at a cohort of students aged 13-14 years old, and measures the extent of the computer and information literacy (CIL) competences that are assumed to be necessary for them to participate fully in everyday life, lifelong learning and employment in the 21st century. Similarly, the Digital Competence Framework for Citizens, produced by the European Commission, outlines the 21 competences that citizens need for work and employability, learning, leisure, consumption and participation in society. With ICILS 2018 focusing on students' computational thinking skills, the two frameworks have become increasingly aligned, highlighting the emerging needs of tomorrow's society.

First published in 2013, the DigComp framework defines digital competence as a combination of five key component areas: (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) safety, and (5) problem solving (Joint Research Centre, 2013). The intention was to offer European Union (EU) Member States a shared definition and understanding of what digital competence is in order to deliver digital skills for all, not only to tackle unemployment and the changing nature of work but also to measure digital skills. By mid-2018, a growing number of EU Member States will have implemented this framework; usage varies from supporting curriculum development to assessing citizens' digital skills, for example, for employment purposes, and to support better policy- and decision-making both at the regional and national level (for more detailed information, see the DigComp Implementation Gallery at https://ec.europa.eu/jrc/en/digcomp/implementation).

A brief examination reveals many complementarities between the two frameworks. Besides defining core competences for information and communication literacy, where both frameworks highlight the importance of critically evaluating information, both frameworks also identify the importance of the communication and collaboration aspects of digital technology. Digital content creation also appears in both, as does using these technologies safely and securely.

There are also distinct differences. In the ICILS framework, the focus of safety is mostly on 'the legal and ethical issues of computer-based communication from the perspectives of both the publisher and the consumer of that information'. The DigComp framework has a much wider scope for safety, also including issues such as managing digital identity; personal data and privacy; and health and well-being, encompassing issues of psychological, physical and social well-being (social inclusion). DigComp also includes competences such as 'Engaging in citizenship through digital technologies' (an aspect that was also identified by IEA's International Civic and Citizenship Study) and understanding the environmental impact of digital technologies and their use.

Secondly, and perhaps the most novel part of DigComp, is its focus on problem solving. It embraces both technical and generic problem solving in a technology-rich environment, namely any type of identification of a need and the capacity to think of a technological response to it. Moreover, the emphasis is also on individually and collectively resolving conceptual problems and problem situations in digital environments, as well as on using technologies creatively to innovate processes and products.

To come back to the competence of programming, in DigComp this has been part of the framework since its inception. Updated in 2016, the new definition was simplified as: 'To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.' Even if the goal is not to teach every European how to program, it is important that citizens have basic understanding of how to provide simple instructions in an algorithmic way (Joint Research Centre, 2016). Recognizing that this 'computational thinking' element is yet another complementarity between the two frameworks, for the benefit of every EU citizen, we look forward to reviewing the latest cycle of ICILS data and finding out what the new computational thinking module will reveal about the problem-solving abilities of the student population!

REFERENCES

ICILS is designed to respond to a question of critical interest today: how well are students prepared for study, work, and life in the digital age? The study measures international differences in students’ computer and information literacy. The study collects a rich array of data from students in the study's target grade in order to enable investigation of the factors that influence this suite of abilities in these students. This information provides education systems and policymakers with an important data source on the contexts and outcomes of CIL-related education programs.
The Literacy and Numeracy Assessment (LaNA; www.iea.nl/lana) was specially designed for developing education systems where IEA’s TIMSS and PIRLS are currently too difficult to implement. Targeted at students who are at the end of their primary education, LaNA can be seen as a first step to participating in IEA’s TIMSS and PIRLS. The literacy part of the assessment contains a short vocabulary test and passages for students to read and answer questions about. The numeracy part includes a short test of basic facility with numbers, with multiple choice items covering several domains, including algebra, geometry and measurement.

Since its inception, the IEA has been trialing LaNA to determine the practicality of implementing the new assessment design, and establish how best to analyze, use, and present the data collected. Following a successful pilot conducted in Haiti in 2016 (see Beyer, 2016), LaNA was further trialed in the Punjab province of Pakistan earlier this year. In collaboration with the World Bank, LaNA was administered in 10 schools in and around Lahore and 10 schools in and around the city of Multan between the end of April and the end of May 2017. The assessment booklets were available in both Urdu and English language versions, as both are official languages in Pakistan. Prior to the field work, IEA provided test administrator training to an experienced and dedicated local company charged with conducting the actual field work; the same company digitalized the information collected from all the paper instruments. The raw data was sent to the IEA for further processing and data cleaning.

Colleagues from the TIMSS & PIRLS International Study Center at Boston College have already reviewed the Punjab LaNA data, and the results look very promising! While it was clear that students performed better in Urdu than in English, overall LaNA was successful in collecting meaningful proficiency information from this developing region, which can be related to the existing TIMSS and PIRLS scales. IEA’s work in the Punjab has enabled us to further improve the assessment, and we thank our colleagues at the World Bank and our new friends in the Punjab for inviting us to work with them on this interesting and exciting project!

REFERENCE
The 7th IEA International Research Conference took place in Prague in June 2017, and was organized jointly by the IEA, Charles University in Prague (Institute for Research and Development of Education) and the Czech School Inspectorate.

The conference this year celebrated 20 years of TIMSS, and featured a special keynote lecture from Dr Ina Mullis and Dr Michael Martin from the TIMSS & PIRLS Study Center in Boston. Core topics for the conference were methodology of the international surveys, their outcomes and the interpretation of data collected by IEA's TIMSS, PIRLS, ICILS and ICCS. More than 200 participants from more than 40 countries around the world attended the conference. Many also attended the two-day pre-conference workshops, designed to provide a stimulating and practical learning environment for all those wishing to improve their understanding of, and gain practice in analyzing data from large-scale international assessments.

On Wednesday 28 June 2017, the conference opened with ceremonial welcome speeches from the State Secretary of the Ministry of Education, Youth and Sport, Jindřich Fryč, Czech Chief School Inspector, Tomáš Zatloukal, and Dean of the Pedagogical Faculty of the Charles University, Michal Nedělka. IEA's Chair, Anne-Berit Kavli, and IEA Executive Director, Dirk Hastedt completed the introductions. All the speakers valued the IRC as a unique event that provides an international forum for all those working with IEA study data to present their findings and exchange views on critical educational research issues in a comparative and global context.

The conference program was broadly structured into topical sessions and seminars that focused on individual surveys or on particular issues. Each day began with an opening keynote lecture, and, as well as learning all about 20 years of TIMSS from Drs Mullis and Martin, host Dr David Greger discussed the relevance of IEA studies for Eastern European countries’ education systems and research, and Professor Fons Van de Vijver treated us to a fascinating analysis of response styles in TIMSS and PIRLS. The diverse program ensured many conference and workshop participants will have taken home important feedback and potential new directions for their own work and data analyses.

The 2017 IEA International Research Conference offered participants two important innovations. Firstly, a dedicated poster session was introduced to the conference, and delegates perceived this as a valuable addition to the general program. In memory and recognition of IRC founder, Professor Papanastasiou’s enthusiastic long-term contributions to building and supporting the educational research community we enjoy today, a prize was awarded in his name for the best poster, judged on technical content, design clarity and visual appeal. In the face of stiff competition, the inaugural Constantinos Papanastasiou Poster Prize was awarded by Professor Papanastasiou’s daughter and guest judge, Elena Papanastasiou, to Masoud Kabiri from Iran (see Awards, p. 14 for further information).

Secondly, the conference offered not only ‘academic-oriented’ sessions dealing with data analyses and methodology but also a policy-oriented panel discussion session. The aim was to provide space for broader discussions of use, benefits and impacts of IEA studies within participating countries. The session included specific examples from Spain, Norway, France and the Czech Republic, and served as a much-needed opportunity to demonstrate how policy-oriented participants, including IEA General Assembly (GA) members, could gain more out of IRC attendance. I would like to thank Liv Sissel Grønmo from Norway, and IEA GA representatives Carmen Tovar Sánchez (Spain) and Thierry Rocher (France) for their thoughtful contributions to an interesting panel discussion.

However, the success of any research conference is always a joint effort, and we would have nothing without the vital contributions of our wonderful participants! We thank you for your enthusiastic interest throughout. It was truly a pleasure to welcome you all to Prague and we hope to meet you all again in 2019 at the 8th IEA IRC in Copenhagen!
At our International Research Conference (IRC) in Prague at the end of June, a new IEA website was launched: the ILSA Gateway. This website offers a centralized access to major international large-scale assessments (ILSAs) in education conducted by the IEA (ICCS, ICILS, PIRLS, TEDS-M, and TIMSS), and other organizations, including the CONFEMEN (PASEC), the IDB (PRIDI), the OECD (PIAAC, PISA, and TALIS), the UNESCO (TERCE), and the World Bank (STEP). SACMEQ studies will be available soon.

For each study, the gateway provides comprehensive information in a standardized format, organized around the following themes: factsheets, frameworks, designs, results, data, papers, additional materials, and organization. The textual information on these thematic pages, which were created with the participation of study directors and their teams, is complemented by hyperlinks to documents, data, and other resources on the external study websites. All papers are gathered in a database that includes predominantly articles from peer-reviewed journals with reports on secondary analyses of data from the studies presented on the gateway. Other sections of the gateway encompass the glossary, or announcements of recent news, publications, and upcoming events.

During the conference, participants seized the opportunity to visit the new website for the first time at the dedicated gateway stand. Their reactions and comments have been hugely positive. Site visitors who participated in the gateway book raffle noted, for example, that the gateway is a 'very valuable resource for anyone wanting quick overview of ILSA', that it provides 'nice interactive and user-friendly features', or that they will 'use it with their research students'.

The overall approach with the construction of this platform was to develop an initial basic version that will evolve based on the needs and interests of its users and the ILSA community. Suggestions made by site visitors during the IRC included expanding the content of the website by adding 'links to national internet pages from participating countries in international studies', extending the paper database, and developing a more responsive design that allows webpages to adapt more easily to screen size.

The IEA gratefully acknowledges the National Center for Education Statistics (NCES) for their generous support of the development of the ILSA Gateway, and all study directors and their teams for their important contributions to the production and editing of the content related to their ILSA.

Visit the new website at www.ilsa-gateway.org and learn more about these large-scale education studies.
Another year older, another year wiser....

NEWS FROM IEA HAMBURG

The IEA conducts regular workshops at international research conferences and in collaboration with the IERI Institute (www.ierinstitute.org). Since our last General Assembly, the IEA’s Research and Analysis (RandA) unit has delivered a record-breaking 23 workshops (including IERI academies and the pre-conference workshops that form a core constituent of our biennial IEA International Research Conference). More than 300 people benefited from these RandA training courses, and the feedback was overwhelmingly positive. The IEA encourages participant feedback, ensuring that IEA course content incorporates up-to-date research techniques and ideas, and continues to meet the needs of international audiences - this year’s satisfied customers have let us know that:

• ‘It was a well-balanced, highly informative and useful workshop that has genuinely shaped my work going forward.’
• ‘Presenters were knowledgeable, flexible, and answered questions.’
• ‘The workshop was very well organized. The presenters were very clear and helpful. There was a good balance between theory and practice.’
• ‘All the workshops are great; I have followed actually all of them over time, at the different conferences or in Hamburg, I would not know how to make them better. Great job!!’

The majority of the courses delivered over the last year were dedicated to statistical data analysis of large-scale assessment data, from basic to highly-advanced techniques. A list of upcoming workshops, updated every quarter, may be found on our website at http://www.iea.nl/training. The IEA is also happy to provide tailored workshops, designed to meet your organization’s requirements.

Visitors to the training webpage will also note we have a new series of IDB Analyzer Video Tutorials. The IEA has developed this special statistical software tool to help researchers correctly analyze large-scale assessment data, such as TIMSS, PIRLS, PISA and beyond. The IDB Analyzer software is free to download, and six comprehensive video tutorials explain how to use the software. RandA would like to extend their thanks to Dr Eugene Gonzalez from ETS (who devised and narrates the tutorials) and to Ulrich Sievers for his outstanding production.

The IEA’s new Academic Visitor program is also flourishing. Our first two academic visitors were Olaug Strand, from our research partner CEMO in Norway, and Nelladee Palane, from the University of Pretoria, South Africa; both visits have resulted in interesting collaborative publications, and we are delighted that two more visiting researchers are expected this autumn. For interested readers, further details of IEA's Academic Visitor Program may be found on our website at www.iea.nl/academic-visitor-program.

In a previous newsletter, we provided a report on Haiti's National Evaluation and Pilot Assessment 2016 (Beyer, 2016). Continuing this work with Haiti, RandA also hosted three researchers from Haiti for a month, who were in Hamburg to learn how to analyze their first national assessment data and how to turn the information they had collected into a structured national report. For Haiti, this is a big step toward achieving their goal to build a national educational research capacity, and the IEA is also benefiting, using the work in Haiti to pilot the study design for LaNA (www.iea.nl/LaNA).

In close collaboration with Dr Plamen Mirazchiyski from the Slovenia-based International Educational Research and Evaluation Institute (INERI; http://www.ineri.org/), during 2017, staff at IEA Hamburg also successfully conducted the TALIS 2018 field trial scaling. Feedback was extremely encouraging. Dr Mirazchiyski and Professor Hynek Cígler from the Institute for Research on Children, Youth and Family & Department of Psychology, Faculty of Social Studies, Masaryk University (https://www.muni.cz/en) are also supporting our RandA team’s work in scaling the field trial data from the TALIS Starting Strong Survey 2018.

COMPUTER-BASED ASSESSMENTS IN GERMANY

In spring 2017, the national project group at IEA Hamburg was responsible for administering several computer-based assessments in Germany. As well as implementing IEA's eTIMSS and ICILS at the national level, the group worked on the OECD’s PISA study for Germany and a study led by Kiel University. In total, 93 test administrators administered 304 computer-based assessments in 134 schools, assessing 4000 students in total. In order to ensure smooth test procedures, assessments were undertaken using not only the infrastructure already available in the schools but also 334 external computers.

The two IEA studies (the eTIMSS Pilot and ICILS Field Trial) were administered
using laptops provided by the IEA. This approach ensures highly standardized and cost efficient administration, but also requires rental of suitable computers, excellent logistical organization, and in-depth training for test administrators to ensure that they are familiar with the devices and software. The advantage of using school-owned laptops (as PISA does) is that they are already on site; however, if existing school equipment is used, before any assessment can be implemented, the technical properties of each piece of equipment also has to be assessed. We found that only about 60% of school-owned computers met the minimum system requirements for modern computer-based assessment, leaving the IEA to organize 40% of the computers required for the test sessions. Fortunately, the professional processes implemented by IEA Hamburg and our well-trained test administrators ensured there were very few technical problems! Continuous improvements in computer-based assessment and hardware for delivery means testing is evolving rapidly, and the IEA endeavors to ensure that it adheres to the highest international standards. For more about IEA’s services, including information on study design, management and processing, please consult our website (http://www.iea.nl/our-services).

REFERENCE

IEA Awards

The IEA Bruce Choppin and Richard Wolf awards recognize outstanding scholarly work based on IEA data. Offered annually, these awards encourage and promote young and established academics carrying out secondary IEA research on a variety of topics and methodological issues associated with large-scale assessments, including within-country and comparative studies of factors related to student achievement and attitudes.

The Bruce Choppin award is designated for an outstanding master’s or doctoral thesis, and the Richard Wolf award is given to the author(s) of a paper published in a refereed journal, monograph, or book, which includes analysis of data from one or more IEA studies. Entries are judged by the IEA Awards Committee, chaired by Dr Seamus Hegarty (IEA Publications and Editorial Committee chair). Winners receive a prize of €500 and a certificate from IEA.

BRUCE CHOPPIN AWARD 2017
This year, after stiff competition, the judges selected two winners for the Bruce Choppin Award.

Dr Xiaoxue Kuang, a Post-doctoral Fellow at The Education University of Hong Kong working on the project, ‘Big Data for School Improvement: Identifying and Analyzing Multiple Data Sources to Support Schools as Learning Communities’, and a teacher in Dongguan University of Technology in Mainland China, won for her PhD thesis, Alienated and disaffected students: the civic capacity of ‘Outsiders’ in cross cultural contexts.

A free and democratic society ultimately depends on its citizens and infusing people with necessary qualities through education originating from home, group activities, general education and civic education. The thesis applied latent profile analysis and personal investment theory with multilevel analysis to secondary data from the ICCS database to investigate students’ alienation and disaffection, and the consequent impact on student learning and the development of civic attitudes.

As well as demonstrating that latent profile analysis is a useful tool for analysis of large-scale data, the study found that illegal protest was an important form of civic engagement for outsiders. The salience of regional values suggests that more attention needs to be paid to these as influences on political socialization. The findings also provided new insights for comparative civic education by using regions as units of analysis and exploring the role of regional factors using multilevel analysis.

Xiaoxue Kuang also has an M. Ed with emphasis on Applied Psychology, and a B. Ed in Education, both from Shen Zhen University. Her major areas of research interest are civic education, international large-scale assessments (such as PISA, TIMSS, and ICCS), and educational and psychological measurement.

Dr Trude Nilsen, an Associate Professor at the Department of Teacher Education
and School Research at University of
Oslo working on international large-scale
assessment such as PISA, TIMSS, and
TALIS, won for her PhD thesis Trends in
physics competence. Using TIMSS for in-
depth studies to characterize Norwegian
students’ physics competence and factors
influencing and explaining changes in
this competence. The study investigated
changes in different aspects of students’
science competence and underlying
reasons behind these changes by using
the trend design in TIMSS and TIMSS
Advanced. The main findings showed that
Norwegian students’ declining physics
competence in TIMSS Advanced seemed
to be related to their declining ability to
use mathematics in physics. Findings from
TIMSS showed that schools’ increased
emphasis on academic success was
related to improved science achievement
between 2007 and 2011. These findings
have important political implications, as
the new national curriculum implemented
between these two cycles had an
increased emphasis on academic success.

Dr Nilsen has published a number
of publications in international and
national journals and was one of the
editors of the recent IEA book, Teacher
Quality, Instructional Quality and Student
Outcomes, together with Professor Jan-
Erik Gustafsson. For the last eight years
she has been involved in the Norwegian
TIMSS project, writing the national TIMSS
reports and co-supervising the collection
of the data. She also contributes to
international questionnaire expert groups
for TIMSS, TALIS and TALIS Starting
Strong. Prior to this, she worked on
teacher professional development in
physics at the University of Oslo, and
designed science, physics, and
mathematics in upper secondary school.
Trude Nilsen has a masters in Astrophysics.
Her main interests lie between the field
of applied methodology and educational
effectiveness, more specifically: equity,
school climate and teachers’ instructional
quality.

RICHARD WOLF AWARD 2017
Sebastian Bergold, Heike Wendt, Daniel
Kasper, and Ricarda Steinmayr from
the Technische Universität Dortmund
won this year’s Wolf Award for their
paper: Academic competencies: their
interrelatedness and gender differences at
their high end, published in volume 109
of the Journal of Educational Psychology.
The team will be donating their prize of
€ 500 to the organization Scholars at Risk
(https://www.scholarsatrisk.org/).

Investigating gender differences at the
high end of academic competencies is one
important step toward the explanation of
women’s underrepresentation in
societal key positions such as in research.
However, gender differences in domains
such as reading, mathematics, or science
have most often been investigated for
each of these domains separately.
This approach neglects the substantial
intercorrelations between these domains
and unjustifiably assumes that each
achievement test measures solely the
target ability (and no other abilities). Their
study applied a person-centered approach
to investigate gender differences in
academic competencies among 74,868
4th graders from 17 European countries
that took part in the combined TIMSS and
PIRLS assessments in 2011. Variance in
gender ratios among the top performers
across the countries was correlated with
indicators of societal gender equity in
order to gain insight into the genesis of
the gender differences. Student profiles
differed only in individuals’ overall
performance level across all academic
competencies, documenting a strong
interrelatedness of the competencies and
only marginal relative domain-specific
strengths or weaknesses. Boys were
overrepresented at both ends of the
competency spectrum, but there was some
notable cross-national variation in the
gender ratios among the top performers.
This variation could be partly explained by
societal gender equity: gender differences
in favor of boys were smaller in countries
where women had more secondary or
higher educational levels, participated
more in the labor market, and held more
research positions. The correlational
nature of the data notwithstanding, the
cross-national variability of the gender
ratios demonstrates that sociocultural
factors definitely play an important role in
the genesis of gender differences among
the top academic performers.
Dr Sebastian Bergold has a PhD in Psychology from the University of Bonn, which he received for his work on teachers’ diagnostic competencies with regard to the identification of intellectually gifted students. Following three years as a research associate at the Technical University (TU) Dortmund, in 2017 he became junior professor for Child and Youth Psychology in Educational Contexts. His research interests include gender differences in academic achievement, giftedness, intellectual development in elementary school age, and teachers’ diagnostic competencies.

Dr Heike Wendt has a PhD in educational science from TU Dortmund, and works at the Institute for School Development Research (IFS) in the Faculty of Educational Sciences, Psychology, and Sociology. Among other responsibilities, she served as National Research Coordinator leading Germany’s participation in TIMSS 2011/2015 and PIRLS 2011/2016. Her research focuses on diversity and educational inequalities in an international comparative perspective.

Dr Daniel Kasper has a PhD in educational science from TU Dortmund, and is a Postdoctoral Researcher for Statistical Data Analysis and Statistical Development at IFS in the Faculty of Educational Science, Psychology, and Sociology. Since his masters thesis, he has been working in several areas of survey statistics and psychometrics, and his teaching and research interests focus on the application and development of methods for educational research.

After graduating from the Technical University Aachen, Prof. Dr Ricarda Steinmayr received her PhD and postdoctoral lecture qualifications in Psychology from Heidelberg University. Previously, Professor of Educational Psychology at Marburg, she has been working as Professor of Educational Psychology at the TU Dortmund since 2012. Dr Steinmayr is interested in determinants of educational achievement behavior with a strong focus on gender, giftedness, social injustice, and motivation.

CONSTANTINOS PAPANASTANIOU POSTER AWARD 2017
Dr Masoud Kabiri has been Data Manager of TIMSS and PIRLS at Research Institute for Education (RIE), Iran since 2009. He has a PhD in Educational Assessment and Measurement from the University of Tehran, and a MA in Educational Research from the Teacher Training University (Tarbiat Moallem) of Tehran. He is especially interested in secondary analysis of large-scale assessments, especially TIMSS and PIRLS, and his research involves the application of complex measurement models such as cognitive diagnostic assessment and item response theory to produce evidence-based educational policy.

His winning poster at IEA’s 7th International Research Conference (IRC 2017), entitled *Exploring of measurement characteristics of family wealth indicators over time (2001-2015)*, analyzed the importance of several indicators used to assess family wealth in Iran. He found that there was an increasingly higher percent ownership of these indicator items over the period 2001-2015. Although, typically the discrimination power of most items remained constant up to 2011, slope coefficients have declined slightly in the last cycle of TIMSS, indicating the suitability of these items is likely decreasing and alternative proxies for socioeconomic status should be considered for future cycles of TIMSS.

OTHER AWARDS NEWS

The IEA was delighted to learn that the work of long-time General Assembly member, Professor Frederick Leung, was recognized by the Hong Kong Government in its 2017 Honours List, announced on 30 June 2017. Our hearty congratulations on behalf of all members! Professor Leung was awarded the prestigious Bronze Bauhinia Star for his ‘great and long-time contributions to and achievements in Mathematics Education, which are well recognized internationally.’

Professor Leung’s interests include mathematics teaching methods, the philosophical, social and cultural contexts of mathematics education, methodological issues in educational research, and curriculum research and development in mathematics. He is Kintoy Professor in Mathematics Education at Hong Kong University.

Stalwart member of our Technical Executive Group, Professor of Educational Sciences at Gothenburg University and former head of Oslo’s Center for Educational Measurement (CEMO), Professor Jan-Eric Gustafsson, received an honorary doctorate from the University of Oslo on 1 September 2017. This award recognized his long and successful career in educational science and his important contribution to the development of high-level research at the Faculty of Educational Sciences in Oslo.

Prof. Gustafsson researches prerequisites for education, and has used various models that look at the structure of students’ cognitive skills. He also researches the impact education has on knowledge and skills, with a particular focus on international comparative studies.

The next awards deadline is 31 March 2018! For information about entry procedures and requirements, please visit www.iea.nl/awards.
The TIMSS 2015 Encyclopedia appeared first in October 2016, and the international achievement results followed in November 2016 through three online publications: TIMSS 2015 International Results in Mathematics, TIMSS 2015 Results in Science and the TIMSS Advanced 2015 Results in Advanced Mathematics and Physics. An additional policy report, entitled 20 Years of TIMSS: International Trends in Mathematics and Science Achievement, Curriculum, and Instruction provided an overview. The electronic publications are hosted on intuitive user-friendly webpages, enabling easy navigation, and including search functions and interactive features. Users can select between numerical or graphical information, according to their preferences. The electronic publication model provides flexibility and hosts more comprehensive and detailed data than could be accommodated in the printed volumes. In early 2017, the TIMSS 2015 User Guide for the International Database and TIMSS Advanced 2015 User Guide for the International Database, were issued concurrent with the online data release. Interested readers can browse the complete set of publications at https://timssandpirls.bc.edu/timss2015/.

With the launch of ICCS 2016 and PIRLS 2016 still to come in the IEA calendar, and two more volumes in the IEA Research for Education series entering the production stages, much of our 2017 activities are still under wraps. The Publications section of the website is also currently being revised, and will be relaunched later this year.

IEA Policy Briefs use secondary analysis of data from IEA studies to address issues of particular interest to policymakers. These are all currently freely available on our website at http://www.iea.nl/our-publications. Releases since our last newsletter include:

- Too scared to learn? Understanding the importance of school safety for immigrant students, by Tamara Katschnig, and Dirk Hastedt;
- Reading performance in post-colonial contexts and the effect of instruction in a second language, by Sarah Howie, and Megan Chamberlain;
- Exploring cross-national changes in instructional practices: evidence from four cycles of TIMSS, by Mojca Rožman, and Eckhard Klieme; and
- Where are the immigrant girls?, by Theopanía Chavatzia, Laura Engel, and Dirk Hastedt.

In 2016, the IEA released the first two volumes in its new open access thematic book series, IEA Research for Education (see https://link.springer.com/bookseries/14293). The strong download figures for both of the first two volumes happily indicate that the series is already established as respected scholarly analyses to support informed policy advancement. IEA Chair, Anne-Berit Kavli presented Jan-Eric Gustafsson and Trude Nilsen, editors of Teacher Quality, Instructional Quality and Student Outcomes. Relationships Across Countries, Cohorts and Time, with a special certificate celebrating 10,000 plus downloads for their book during the IEA’s IRC in Prague.

One of the authors involved, Professor Leslie Rutkowski, has meantime accepted IEA’s invitation to become the series Co-editor, alongside Seamus Hegarty. Leslie Rutkowski is Professor of Educational Measurement at IEA partner the Centre for Educational Measurement at Oslo University (CEMO). Her research interests include latent variable and examining methods for comparing heterogeneous populations in international surveys, and she recently edited the Handbook of International Large-Scale Assessment (Rutkowski, von Davier, & Rutkowski, 2014), which won the 2017 AERA Division D Significant Contribution to Educational Measurement and Research Methodology Award.

Details of all volumes in the series can be found via our website. Four further thematic volumes are at various stages
The IEA International Civic & Citizenship Study 2016 (ICCS) is to launch its International and European reports at 10 am CET on 7 November in Brussels. The public launch is organized in cooperation with and kindly sponsored by the Directorate-General for Education and Culture of the European Commission.

The report results will reflect upon the latest trends in civic and citizenship education in 24 countries.

The IEA-ETS Research Institute (IERI) journal Large-scale Assessments in Education is thriving, and published a special article collection on causal inferences with cross-sectional large-scale assessment data, while also working on a collection on results, methodological aspects and advancements of the Programme for the International Assessment of Adult Competencies (PIAAC) that appeared at the beginning of 2017. The success of the journal has made it necessary to review our editorial team requirements.

To broaden content coverage and enlarge capacity, the board recently appointed four Associate Editors to help review submissions. We are very happy that Leslie Rutkowski, Peter van Rijn, and Sabine Meinck accepted IERI’s invitation to become Associate Editors earlier this year; the fourth is Matthias von Davier, former Co-editor in Chief who has passed the baton of responsibility on to Eugene Gonzalez, director of IERI.

Would-be authors should note that the publication costs for Large-scale Assessments in Education are covered by IERI, thus authors do not need to pay an article-processing charge! Full submission guidelines are available from the publisher’s website.

As always, IEA publications are freely available for download and non-commercial use, provided full acknowledgement is given to the source. The IEA is committed to ensuring that the results of its comparative research projects reach a wide audience of researchers, policymakers, technical experts, educators, and all others working to enhance teaching and learning around the world. Publications are widely promoted through email alerts, social media postings, and press releases to the general and scientific press.

REFERENCES

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The launch of the resuts of the IEA's Progress in International Reading Literacy Study 2016 (PIRLS) is scheduled for 10 am CET on 5 December at UNESCO headquarters in Paris. During the launch event, representatives of IEA, the Lynch School of Education, Boston College, and UNESCO will meet with international press and civil society stakeholders to provide exclusive insights into the 2016 PIRLS and ePIRLS results.

Stay tuned... for the 2017 IEA study launches!

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