

Stories of ICILS

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The International Computer and Information Literacy Study (ICILS) began in a hotel lobby in New York City in 2008. Hans Wagemaker, John Ainley and I sat around a laptop computer connected through the hotel WiFi to a virtual private network (VPN) in Australia that was hosting a computer-based ICT-Literacy Assessment. By that time, at the Australian Council for Educational Research (ACER), we had developed and successfully administered the first computer-delivered national sample assessment of ICT-Literacy in Australia (in 2005) and were on track to delivering a second cycle in 2008. What we were able to demonstrate in the hotel lobby was a technical proof-of-concept. Computer-based tasks were appearing on the screen, we could respond to them, navigate through them and all from a hotel WiFi connected to a server on the other side of the world. In 2018, this seems far less impressive than it did 10 years ago, but back then it showed that, even under less than optimal conditions, we could deliver a computer-based assessment.

I still remember being somewhat relieved and still a little awestruck that it had all worked so smoothly. I cannot say whether or not Hans was impressed with what he had seen. He quickly moved from questions about the technology (which clearly seemed to be working so there was not much to ask about) to ones of the construct. “Aren’t you just assessing reading and reasoning?”; “Is there really anything in this worth assessing?” Hans was, to some extent, pre-empting questions he thought would come if a proposal for an ICILS were to be taken before the IEA General Assembly. We were indeed invited to present a preliminary proposal for ICILS to the 49th IEA General Assembly in Berlin in 2008 and there was sufficient interest and belief in the study for us to proceed. ICILS too was fortunate to be following in the footsteps of the IEA SITES studies which had established the credibility and importance of this area of research to the IEA and the broader education communities. Following further refinement and planning a proposal for ICILS 2013 was presented to the 50th IEA General Assembly in Tallinn in 2009 with invitations to participate subsequently sent out by the IEA.

By January 2010, a sufficient number of countries had expressed interest for ICILS 2013 to begin in earnest. We planned for our first meeting of National Research Coordinators in Amsterdam to be held in June 2010 at which we would present a detailed plan for the study, including a blueprint for the assessment framework, suggested instrument content and technical details about instrument delivery. A good deal of energy at the meeting was devoted to one-on-one sessions with country representatives to determine how best ICILS could be administered in their local context.

At that meeting, there was a healthy mixture of sceptics and true believers. Amongst the community of researchers there was still a good deal of scepticism around the viability of large-scale computer-based assessment. Many alternative technical solutions were being explored across different agencies. There were stories abounding of catastrophic failures of technology, lost data, frustrated students, teachers, test administrators and national centers. My own Australian colleagues had told us their experience in a different study in which the entire assessment was run from a CD. In Australian schools at the time it seemed that a peculiar hobby of students was to remove the elastic bands that connected the CD spindle to the motor so they could flick them at each other. In many schools the computer-based testing failed due to a lack of elastic bands in the

CD drives. In ICILS we were fortunate to have experience of working with a viable solution and could point to successful and relatively painless data collection from large representative samples of students across elementary and secondary schools. We persevered with something of a pioneering spirit.

My experience of both cycles of ICILS has been that the collective group of IEA, ACER and national center researchers have embraced the challenges associated with breaking new ground. ICILS is a study of firsts. It was the first large-scale cross-national study to assess the skills associated with digital literacy in a solely computer-based environment. It was the first large-scale cross-national study to include 'large tasks' that are assessed using multiple analytic criteria and for the second cycle, it is the first large-scale cross-national study to assess and report on computational thinking. The IEA have been forward-thinking to support these initiatives and the national center and international study center researchers have worked collaboratively to make the study succeed.

When reading stories of early IEA studies, one is struck by the challenges of completing cross-national assessment in the pre-information age. There are reports of telegrams, telex communications and long waits for paper-based content to be shipped across the oceans. ICILS has not been without its own contemporary challenges. Test administrators travelled far and wide across countries (as depicted by this picture: en route to the last school visited in Norway in ICILS 2013); a set of laptops containing the test instruments was stolen from a test administrator's car; and we needed to create an entirely new set of software systems, procedures and manuals to deal with computer-based instrument preparation, test administration, scoring and data management. The planning and implementation of these systems in ICILS 2013 has contributed greatly to the ongoing development of the computer-based assessment systems that have continued to be developed by the IEA.



Reflecting on ICILS, it is a relatively new study to the IEA. It is like a younger sibling to the IEA's long-standing studies: energetic, keen for attention, creative and somewhat fearless. ICILS 2013 had an impact in its participating countries, and beyond. It has influenced policy, led to funding of digital education programs and provided empirical evidence to challenge conventional wisdom that simply providing young people with access to digital devices was enough to have them learn how to use them effectively. As with all IEA studies, its greatest lasting legacy is a rich database available to researchers to dig more deeply into student achievement and the contexts in which it develops. As the study matures across cycles, it confronts the ongoing challenges of maintaining currency and relevance in a time of rapid technological change. With the aphorism 'if you want to measure change, don't change the measure' playing on a loop in our consciousness we aim to identify, measure and report on the core and essential computer and information literacy competencies that are agreed as essential to participation and life in the digital age. Until now, with IEA's foresight and the innovativeness, collaboration and pioneering spirit of the associate researchers, ICILS has managed to achieve this across two cycles and is doing so with a keen eye to the future.