



What can Australian students do with computers?

John Ainley describes the latest findings of the National Assessment Program- ICT Literacy, conducted by ACER for the Australian government, which show some mixed results in Australian students' proficiency with computers.

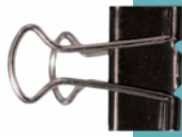


Dr John Ainley is ACER's Deputy Chief Executive Officer and Research Director, National and International Surveys

The use of Information and Communications Technologies (ICT) has become an integral part of schooling for Australian students of all ages. It is difficult to imagine future higher education or employment opportunities for today's school students that will not require well-developed skills in ICT. The importance of ICT literacy – defined as the ability of individuals to use ICT appropriately to access, manage,

integrate and evaluate information, develop new understandings, and communication with others in order to participate effectively in society – is acknowledged by its inclusion in Australia's National Assessment Program along with literacy and numeracy and civics and citizenship.

Previous international studies have shown us that Australian students and teachers are among the highest users



ICT Proficiency standards

of ICT both at school and at home. The National Assessment Program – ICT Literacy helps to identify just what Australian students can do using ICT and how they use ICT at school and for leisure. Most importantly the assessment program provides a detailed picture of how well Australia is progressing towards meeting the objective set out in the 2008 Melbourne Declaration of education goals that ‘in this digital age young people need to be highly skilled in the use of ICT.’

The assessment program tests a nationally representative sample of students in Years 6 and 10 on their ICT skills. A questionnaire gathers information on student background factors such as socioeconomic status, Indigenous status and geographic location to pinpoint possible influences on ICT literacy.

MCEETYA (now the Ministerial Council for Education, Early Childhood Development and Youth Affairs - MCEECDYA) contracted ACER to conduct the first national assessment of ICT in 2005. The earlier study provided the first detailed, national picture of the ICT literacy of Australian students. The second assessment was conducted by ACER in 2008 and provides the first opportunity to examine changes in ICT literacy over time. A detailed report on its findings was released by Deputy Prime Minister and Education Minister Julia Gillard on 22 April 2010.

In 2005 ACER developed assessment instruments designed to be as realistic as possible and allow students to demonstrate their skills in creating and using information with software packages. All students were assessed in ‘mini labs’ of purpose built laptop computers that were set up in participating schools.

There were some changes in the delivery method of the assessment in 2008. Most students completed the assessment using their school’s

The proficient standard set for Year 6 indicates that a student at this level is able to: ‘generate simple general search questions and select the best information source to meet a specific purpose, retrieve information from given electronic sources to answer specific, concrete questions, assemble information in a provided simple linear order to create information products, use conventionally recognised software commands to edit and reformat information products.’

The proficient standard set for Year 10 indicates that a student at this level is able to: ‘generate well targeted searches for electronic information sources and select relevant information from within sources to meet a specific purpose, create information products with simple linear structures and use software commands to edit and reformat information products in ways that demonstrate some consideration of audience and communicative purpose.’

own computers. Just 14 per cent of participating schools required a mini lab to be set up for the assessment. The assessment was again designed to be as authentic as possible and mirror students’ typical ‘real world’ use of ICT. Students completed tasks on computers using software that included a seamless combination of simulated and live applications. Some tasks were automatically scored and others were stored and marked by human assessors. Three assessment modules from the 2005 test were repeated in 2008 to allow a comparison of results. These assessed general skills, use of a piece of unfamiliar software and tasks using common utilities.

The assessment was completed by a nationally representative sample of about 11 000 students from around 600 schools across Australia. The survey was administered during October and early November 2008.

The most pleasing result of the 2008 assessment was the considerable improvement made by Year 6 students. In 2008 average test scores achieved by Year 6 students increased from 400 to 419 scale points. There was also a slight increase in scores achieved by

Year 10 students with an average score of 560 in 2008 compared with 551 in 2005.

The change from 2005 to 2008 can also be expressed in terms of the percentage of students who attained the proficient standard developed with ICT experts as an indication of what students could reasonably be expected to do using ICT. (see box for description of proficiency levels.) In 2008, 57 per cent of Year 6 students reached or exceeded the proficient standard compared to 49 per cent in 2005. A small rise in the number of Year 10 students meeting or exceeding the proficiency standard was recorded. Sixty-six per cent of Year 10 students in 2008 reached or exceeded the Year 10 proficient standard compared to 61 per cent in 2005.

At the other end of the scale, the percentage of students achieving at the lowest proficiency levels remained similar to those seen in 2005. This indicates that the gains in achievement made by Year 6 students did not come as a result of improvement by the lower performing students. The gains were recorded at the middle and upper levels of proficiency.

The improvement in performance by Year 6 students was linked to an increase in the use of computers at home and school. In 2008 54 per cent of Year 6 students and 73 per cent of Year 10 students used a computer at home almost every day or more frequently. In 2005 the corresponding figures were 43 per cent and 58 per cent. The study showed that use of a computer at home – particularly when it was used for study purposes – had a positive impact on achievement.

While the overall achievement of most students is pleasing, the study also identifies some areas where achievement is not as good as we would hope. This report, like many before it, has highlighted a disadvantage for Australia's Indigenous students as well as those from lower socioeconomic backgrounds and rural areas. These findings were perhaps not surprising as they reflect those of a range of studies on educational achievement over many years.

The largest influence on student achievement was socioeconomic background. In Year 6, 41 per cent of students whose parents worked in jobs described as 'unskilled manual, office and sales' attained the proficient standard compared to 72 per cent of students whose parents are 'senior managers and professionals'. In Year 10 the corresponding figures are 52 per cent and 78 per cent. These differences are similar to those reported in 2005.

There is a substantial gap between the ICT literacy of Indigenous and non-Indigenous students. In Year 6, 24 per cent of Indigenous students attained the proficient standard compared to 59 per cent of non-Indigenous students. In other words, non-Indigenous students were more than twice as likely as Indigenous students to reach or exceed the proficient standard. At Year 10, the corresponding percentages were 32 per cent and 68 per cent. The gap in ICT literacy achievement between Indigenous and non-

Indigenous students is greater in 2008 than it was in 2005.

Location also had an effect on performance. Students' ability seemed to decline with distance from a metropolitan area. Students in metropolitan areas outperformed those in regional areas who in turn outperformed students from rural and remote locations. Access to computers and related services such as reliable internet connections may offer some explanation for the weaker performance of non-metropolitan students but this is uncertain. The differences between results attained for each geographic location are very similar to those reported from the 2005 survey.

ICT is part of life in modern society and students who do not develop proficiency in ICT are likely to be limited in their participation in later economic and social life. In general the results from the 2008 assessment of ICT literacy indicate that Australian students are well prepared to participate in contemporary life. However, the study does highlight that some students are at risk of being left behind in this vital area of their education. The percentage of students achieving in the lowest two levels of proficiency remained relatively unchanged from 2005 indicating a lack of progress where improvement was most needed. This also suggests there are some students struggling to master ICT skills. Some intervention may be required to help these students reach the desired proficiency standards.

Whether progress has been made or if the same groups of students continue to struggle will be shown in the results of the third National Assessment Program-ICT Literacy to be conducted in 2011.

Further findings and details about the assessment methods used are available in the full report of the National Assessment Program-ICT Literacy Years 6 and 10.

See <www.mceecdya.edu.au> ■

