Julian Fraillon reports on the latest national assessment of information and communication technology literacy.

The
'**digital natives**'
and ICT literacy

The third cycle of the National Assessment Program – Information and Communications Technologies (NAP – ICT) Literacy was conducted by ACER for the Australian Curriculum, Assessment and Reporting Authority in October 2011. It reveals the level of ICT literacy among Australian school students in 2011 and reports changes in ICT literacy since the first cycle of NAP – ICT in 2005 and the second in 2008.

The assessment was conducted using a computer-based performance assessment tool that was developed for the 2005 survey and subsequently extended to embrace new developments in ICT contexts, assessment and delivery methods. A nationally representative sample of approximately 5700 students from Year 6 and 5300 students from Year 10 sampled randomly from 649 schools completed the assessment.

Proficiency in ICT literacy

The 2011 assessment measured literacy against Proficient Standards established in 2005 for Year 6 and Year 10. The Proficient Standards represent 'challenging but reasonable' expectations for typical Year 6 and 10 students to have reached.

A Year 6 student at Proficient Standard can:

- 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; and
- use conventionally recognised software commands to edit and reformat information products.

A Year 10 student at Proficient Standard can:

- 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; and
- recognise situations in which ICT misuse may occur and explain how specific protocols can prevent this.

In 2011, 62 per cent of Year 6 students and 65 per cent of Year 10 students reached or exceeded the relevant Proficient Standard.

Changes in ICT literacy from 2005 to 2011

In 2011 the average score for Year 6 students was 435 scale points. This represents a steady increase on the national average scores of 419 in 2008 and 400 for the first NAP-ICT Literacy in 2005. The average score for Year 10 students remained stable over the six years from 2005 to 2011.

Change in students' ICT literacy from 2005 to 2011 can also be seen in the percentage of students who attained the Proficient Standard. In 2011, 62 per cent of Year 6 students reached or exceeded the Year 6 Proficient Standard compared to 49 per cent in 2005, and 57 per cent in 2008. For Year 10 students, 65 per cent reached or exceeded the Year 10 Proficient Standard in 2011, up slightly on 61 per cent in 2005.

Differences associated with student characteristics

Students' ICT literacy achievement is generally related to their background characteristics, particularly in terms of parental occupation and education. In Year 6, 50 per cent of students with parents in 'unskilled manual, office and sales' occupational groups attained the Proficient Standard compared to 79 per cent of students with parents from the 'senior managers and professionals' occupational groups. In Year 10 the corresponding figures were 57 per cent and 78 per cent.

Among Year 6 students, 44 per cent of students whose parents had completed Year 10 reached or exceeded the Proficient Standard compared to 79 per cent among those who had at least one parent with a university degree. For Year 10 students the corresponding percentages were 54 per cent and 78 per cent.

There is also a substantial gap in ICT literacy between Indigenous and non-Indigenous students. In Year 6, 31 per cent of Indigenous students attained

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the Proficient Standard compared to 64 per cent of non-Indigenous students. At Year 10, the corresponding percentages were 36 per cent and 66 per cent.

There is also evidence of differences in ICT literacy according to geographic location. Metropolitan students in Year 6 and Year 10 on average obtain a higher average ICT literacy score than students in provincial areas who, in turn obtain a higher average score than those in remote areas. The percentages of Year 6 students attaining the Proficient Standard were 66, 51 and 45 per cent for metropolitan, provincial and remote respectively. The percentages of Year 10 students attaining the Proficient Standard were 67, 58 and 47 per cent for metropolitan, provincial and remote respectively.

Consistent with the pattern observed in 2008, girls on average obtain higher levels of ICT literacy than boys. Even though girls express lower levels of interest and enjoyment than boys in computing, they express similar levels of confidence in their ability to carry out ICT-based tasks without assistance. There were no differences between students speaking a language other than English at home and those with an English-speaking background.

ICT use at home and school

Students use computers more frequently at home than at school. Sixty per cent of Year 6 students use computers at home almost every day or more frequently, compared with 27 per cent at school. The corresponding figures for Year 10 students were 82 per cent and 51 per cent. Study activities such as preparing documents and internet searching are used almost equally by students at school and at home in both Year 6 and Year 10, although more frequently in Year 10 than Year 6. Communication applications like email or chat are also frequently used by students but much more at home than at school and more by Year 10 than by Year 6 students. Students obtain and listen to music frequently at home but rarely at school.

Over the six years from 2005 to 2011 computer use by students has increased considerably. The percentage of students using computers frequently at home increased from 43 to 60 per cent among Year 6 students and from 58 to 83 per cent among Year 10 students. The percentages using computers frequently at school increased from 14 per cent to 28 per cent among Year 6 students and from 18 per cent to 51 per cent among Year 10 students.

Australian teenagers continue to have access to, and use, ICT to a greater extent than their peers in many other countries and are among the highest users of ICT in the Organisation for Economic Cooperation and Development (OECD), according to the OECD's *PISA 2009 Results: Students On-Line–Digital Technologies and Performance report.*

While this latest national assessment indicates that Australian students in general are ICT literate, the fact that there has been a steady increase in the average score for Year 6 students, but not Year 10 students, over the six years from 2005 to 2011 should generate further enquiry.

Many students use ICT in a relatively limited way and this is reflected in their overall level of ICT literacy. Even in Year 6, the proportion of low-achieving students has remained relatively constant since 2005. In Year 10 the percentage of students demonstrating achievement at levels below the Year 6 Proficient Standard has increased from six per cent to 10 per cent.

There are also differences associated with socioeconomic background, Indigenous status and geographic location that need to be addressed if all young Australians are to be creative and productive users of technology.

The National Assessment Program – ICT Literacy Years 6 & 10 Report 2011 by John Ainley, Julian Fraillon, Eveline Gebhardt and Wolfram Schulz for the Australian Curriculum, Assessment and Reporting Authority is available at <research.acer.edu.au/ict_literacy/3> ■