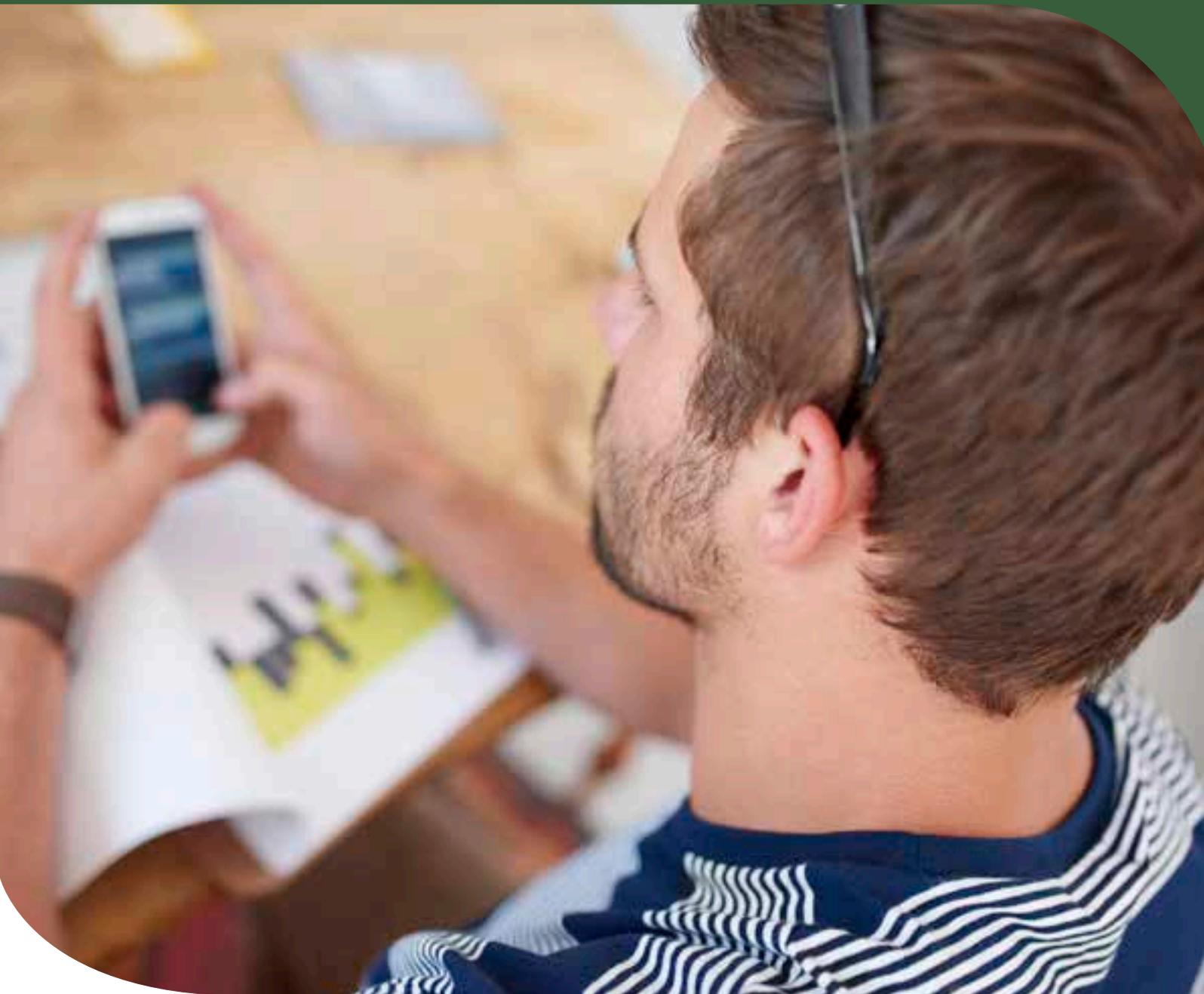


Keeping up with information and communication technology

Lixia Qu and Ruth Weston



Australian Government

Australian Institute of Family Studies

The rapid advances in information and communication technology (ICT) in recent decades have had an enormous effect on many facets of everyday life, including our relationships, formal and informal education, work, recreational pursuits and shopping. Access to information has exploded, with the scope and detail of material available increasing almost beyond comprehension. For those who have kept up with ICT developments and wish to make use of them, staying in touch with family members and friends, sharing information, and organising social activities have never been so easy, thanks to mobile telephones, email and social media services. In addition, bills can be paid at any time without leaving home, and fresh groceries can be ordered online and delivered to our front door, while global positioning systems (GPSs) enable easy navigation of unfamiliar territories.

Australians' speedy and widespread take-up of advances in ICT has been captured in various surveys conducted by the Australian Bureau of Statistics (ABS). For example, in 2012–13, 83% of adults (aged 18 years and over) were Internet users, and 83% of all households had access to the Internet. In addition, three-quarters of Internet users had purchased or ordered goods or services online (ABS, 2014). In 1998, on other hand, only 45% of households had a computer and 16% had home Internet access (with the latter percentage having quadrupled over the previous two years). Only one-third of adults were Internet users in 1998, with 13% accessing it via their home computer (ABS, 1999).

The digital divide

There are, of course, many downsides to current advances in ICT, including: potential loss of face-to-face services; erosion of privacy; online self-disclosure that is subsequently regretted; "cyberbullying"; ever-growing reliance on computers, potentially causing chaos when systems fail; increased avenues for fraudulent activities; and the emergence of the so-called "digital divide". The latter is defined by the online Oxford dictionary as "the gulf between those who have ready access to computers and the Internet, and those who do not",¹ and by the online Cambridge dictionary as "the problem that exists because some groups of people have the opportunity and knowledge to use computer technology and some do not".²

The above-mentioned ABS 2012–13 survey (ABS, 2014) provides insight into some aspects of Australia's digital divide. For example, the survey shows that the take-up of modern technology varies with certain personal characteristics, such as age and education. It appears that almost all people under 35 years (more than 95%) were Internet users, compared with just under one-half of people aged 65 years and older (46%). In addition, 96% of persons with a Bachelor degree or higher qualification were Internet

users, compared with three-quarters of those whose highest level of education was Year 12 or below.

To what extent do people believe that they have been "left behind", and to what extent are they worried that they may be unable to keep up with future ICT developments? Are older people and those with relatively limited education more likely than younger and better educated people to feel left behind or be concerned about mastering future developments?

Australian Survey of Social Attitudes

The present Facts Sheet uses data from the Australian Survey of Social Attitudes (AuSSA), conducted in 2012–13, to address this issue.³ The survey included a range of other issues, such as views about gender roles, child care, and intergenerational support. Questionnaires were sent by mail in four waves during 2012–13 to random samples of people drawn from the Australian Electoral Roll. In total, 1,588 persons aged 18 years and over (687 men and 858 women) returned a completed questionnaire.⁴ This represented a response rate of 34%.

Box 1 (on page 3) provides the relevant extract from the AuSSA questionnaire that tapped views on keeping up with ICT developments.

In the following discussion, we have classified the second response option ("agree") as reflecting moderate agreement, and the fourth ("disagree") as reflecting moderate disagreement. We also refer to "agreement" and "disagreement" in general (or "acceptance" and "rejection" of the statements), ignoring the strength of the stance taken. Respondents who disagreed with the first statement are considered to believe that they have managed to keep up, while those who disagreed with the second statement are considered to have no worries about being left behind in the future. Some of the latter respondents may expect that they will manage to keep up, while others may believe that they are likely to be left behind, without feeling worried about this. Although the specific statements refer to "modern technology", the introductory statement makes it clear that the focus is on ICT developments in general.⁵ Although some respondents who believe that they have been left behind with modern technology may not feel in the least worried about such circumstances, for simplicity in

³ The survey was conducted by the Australian Consortium for Social and Political Research Inc. (ACSPRI). The question on concerns about keeping up with modern ICT formed part of a module on family-related values and attitudes that was developed by the Australian Institute of Family Studies and included in the survey as purchased questions.

⁴ Gender was unknown for 43 respondents.

⁵ For each of these two questions, 1% of respondents selected the "can't choose" option. These responses have been excluded from the analyses. In addition, some participants skipped the questions. The present results are based on the responses of 1,510–1,529 participants (comprising 662–678 men and 847–851 women).

¹ Oxford Dictionaries: <www.oxforddictionaries.com/definition/english/digital-divide>.

² Cambridge Dictionaries Online: <dictionary.cambridge.org/dictionary/business-english/digital-divide>.

Box 1: Question on keeping up with ICT in AuSSA

D1. Advances in information and communication technology (ICT) have changed the ways that we do things, but not everyone feels confident using some of these technologies such as “smart phones”, computers and the Internet. To what extent do you agree or disagree with each of the following statements?

Please cross one box on each line.

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Can't choose
I feel left behind with modern technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am worried that I'll be left behind with modern technology in years to come	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

describing trends for the two issues taken together, we refer to them as “concerns” about keeping up with ICT.

This Facts Sheet mainly focuses on the views of respondents according to their age and educational level. First, however, a brief summary of the results for all the respondents is provided. (The patterns of responses of men and women were very similar.)⁶ This is followed by a brief outline of the relationship between views on the two issues.

Views of all respondents

Views on currently feeling left behind with modern technology

While respondents most commonly indicated that they had not been left behind (48%), a substantial minority (38%) believed that they had been left behind.

Respondents were more inclined to express moderate than strong views, especially where they agreed with the statement: 8% strongly agreed and 15% strongly disagreed.

In total, 14% neither agreed nor disagreed.

Concerns about being left behind in the future

Respondents were equally divided in relation to their concerns about the future: 44% were worried about the future and 43% were not worried.

Once again, respondents were more inclined to indicate moderate than strong views: only 9–11% reported that they strongly agreed or strongly disagreed with the statements.

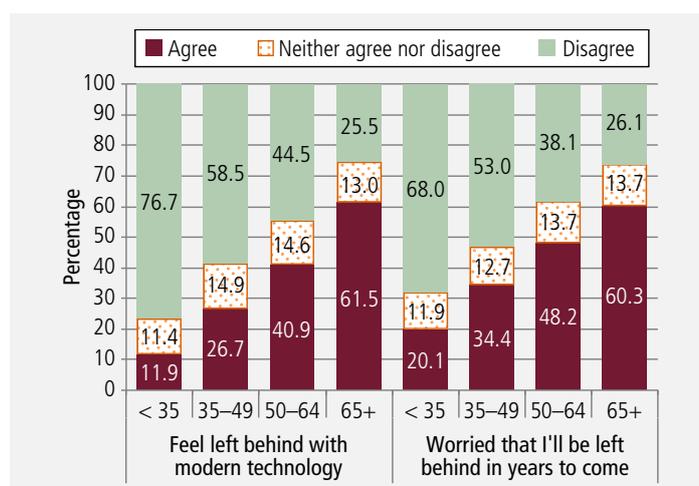
⁶ In relation to the first question: 8–9% of men and women agreed strongly; 28–32% agreed moderately; 14% of both men and women neither agreed nor disagreed; 32–34% disagreed moderately; and 15% of both men and women disagreed strongly. In relation to the second question: 8–10% agreed strongly; 33–36% agreed moderately; 13–14% neither agreed nor disagreed; 32% of both men and women disagreed moderately; and 10–11% disagreed strongly.

Relationship between views on each issue

People’s concerns about their future ability to keep up with technology were consistent with their current experiences. Most of those who already felt left behind (85%) were worried about their future ability to keep up, while most of those who felt they were keeping up (81%) expressed no concerns about their future ability to keep up.

Views according to age

Figure 1 shows the proportions of respondents in each of four age groups who agreed, disagreed or neither agreed nor disagreed in relation to the two statements (taken separately).



Notes: Sample sizes for the < 35, 35–49, 50–64, and 65+ age groups respectively: currently feeling left behind: $n = 219, 390, 519,$ and 384 ; worries about the future: $n = 219, 387, 517,$ and 380 . Chi-square tests indicated a significant relationship ($p < .001$) between the responses to each statement and the age of the respondent.

Figure 1: Views about keeping up with ICT developments, by age, 2012–13



Views according to educational attainment and age

Respondents' concerns about their current and future ability to keep up with ICT developments varied according to their educational attainment level. Overall, the higher their education, the less concerned they were about ICT. Since older groups had, on average, lower education levels, the greater concerns about ICT among older groups could be partly explained by their lower educational attainment.

The following discussion divides the respondents into two age groups—those under 55 years old and those aged 55 years and older. Each of these two groups is further subdivided according to three educational attainment levels: those with a degree or higher qualification, those with other post-school qualifications, and those with no post-school qualifications. Figures 2 and 3 (on page 5) present the patterns of answers provided by these subgroups to the first and second questions respectively:

- Regardless of age group, the higher the respondents' education level, the less concerned they were about their current and future ability to keep up with ICT.
- The older groups with the same level of education as the younger groups were considerably more likely to have concerns about ICT. For example, 36% of older degree holders indicated that they felt left behind by modern technology, compared with 17% of younger degree holders (Figure 2), and 41% of older degree holders and 27% of younger degree holders reported feeling worried that they would be left behind in years to come (Figure 3).
- The younger degree holders were therefore the least likely to be concerned about either their current or future capacity to keep up with ICT.
- The older respondents with no post-school qualifications formed the only group where the majority agreed with each statement: 65–66% indicated that they currently felt left behind or were worried about being left behind in the future, while 22–24% rejected such ideas.

Overall patterns

A generally similar pattern of results emerged in relation to each statement: the older that people were, the more likely they were to be concerned about their ability to keep up with modern ICT.⁷ Specifically, the proportion of respondents who indicated that they currently felt left behind with modern technology increased from 12% of those under 35 years to 62% of those at least 65 years, while the proportion who said that they were worried about being left behind in the future increased from 20% of the youngest group to 60% of the oldest group.

Specific group trends

Most respondents under 35 years (68–77%) believed they were keeping up currently and were not worried about being left behind in the future.

Likewise, most respondents aged 35–49 years (59%) indicated that they could currently keep up with modern technology, although their confidence was not as widespread as in the youngest group. Only a little over one-half (53%) indicated that they were *not* worried about being left behind in the future, while 34% expressed concerns.

Those aged 50–64 years were quite divided regarding whether they were currently keeping up: 45% believed they were already behind and 41% felt they were managing. However, this age group was clearly more likely to be worried about being left behind in the future than the younger age groups, with 48% expressing concern.

The oldest age group (65 years and older) were clearly the most concerned about their current and future ability to keep up with ICT—just over 60% felt they were not currently keeping up and much the same percentage were worried about being left behind in the future.

⁷ The age-related trends for men and women were very similar (data not shown).

Summary and implications

Based on a national mailout survey resulting in a sample of nearly 1,600 respondents aged 18 years and over, this Facts Sheet examined the respondents' beliefs about whether they had been left behind by ICT developments, and whether they were worried about being left behind in the future. The pattern of results is clear and understandable: despite increasing societal reliance on ICT developments, the results suggest that a digital divide persists in relation to age and education. This Facts Sheet focuses exclusively on these two characteristics, ignoring the many other characteristics that may contribute to a digital divide; for instance, geographic remoteness or cultural or linguistic background.

Men and women held very similar views, most of which were moderate rather than strong. Although respondents most commonly believed that they had kept up with ICT, they were equally divided about whether they were, or were not, worried about being left behind in the future.

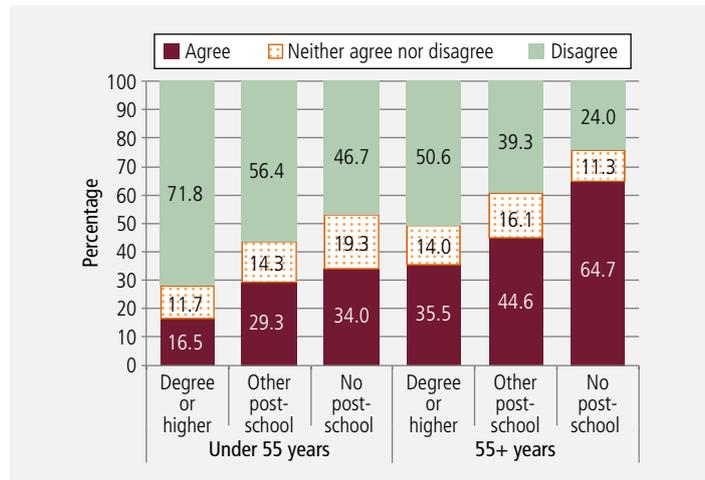
There was a strong relationship between beliefs about current capacities and worries about the future: most respondents who already felt left behind were worried about being left behind in the future, and most of those who believed that they had kept up with ICT developments were not worried about being left behind in the future. These trends suggest that current experience of being left behind makes the future seem particularly daunting in a world that is increasingly reliant on ICT developments.

Views on both issues varied with age and education level. The older the respondents were, the more likely they were to indicate that they had been left behind and to express concerns about being left behind in the future. In fact, the views of respondents who were under 35 years old and those aged 65 years and over differed markedly. Furthermore, respondents aged 65 years and over were just as likely to indicate that they had already been left behind as to indicate that they were worried about being left behind in the future, while those in the younger age groups were more likely to express concerns about the future than to indicate that they had already been left behind.

Finally, the extent to which views on these two issues varied with educational attainment level was examined for two age groups: those under 55 years and those aged 55 years and over. Respondents were classified as having a degree or higher qualification, another type of post-school qualification, or no post-school qualification. Within each of these two age groups, degree holders were the least likely to indicate current difficulties in keeping up or to express concerns about their future capacity to keep up, while those with no post-school qualification were the most likely to indicate an inability to keep up currently and having concerns about being left behind in the future.

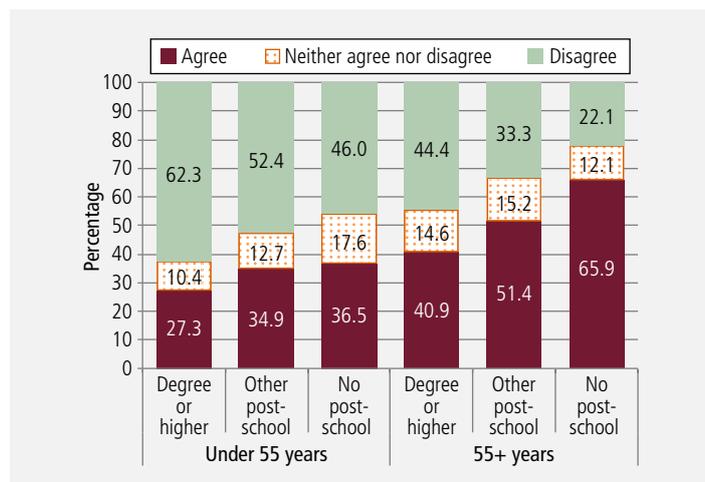
In addition, among those with the same educational attainment level, older people were more likely than younger people to report current difficulties with ICT and concerns about the future. In fact, most younger degree holders provided a favourable picture regarding the two issues, while most older people with no post-school qualifications acknowledged an inability to keep up and appeared to be worried about their future capacities in this area.

These trends concerning beliefs about keeping up with ICT developments are consistent with the results of the ABS 2012–13 information technology survey, where the take-up of modern technology was shown to vary systematically with age and education (ABS, 2014). This can clearly be a problem since service provision increasingly relies on sophisticated ICT developments. The usefulness of online service provision would depend not only on the individual's capacity to "go online", but also on the nature of the issues about which they seek help. Some individuals and families



Notes: Sample sizes for degree or higher, other post-school, and no post-school qualifications respectively: under 55 years: $n = 309, 307, \text{ and } 150$; 55 years and over: $n = 172, 211, \text{ and } 292$. For each age group, chi-square tests indicated a significant relationship ($p < .001$) between response to the statement and educational attainment level.

Figure 2: Agreement with the statement "I feel left behind by modern technology", by education level and age, 2012–13

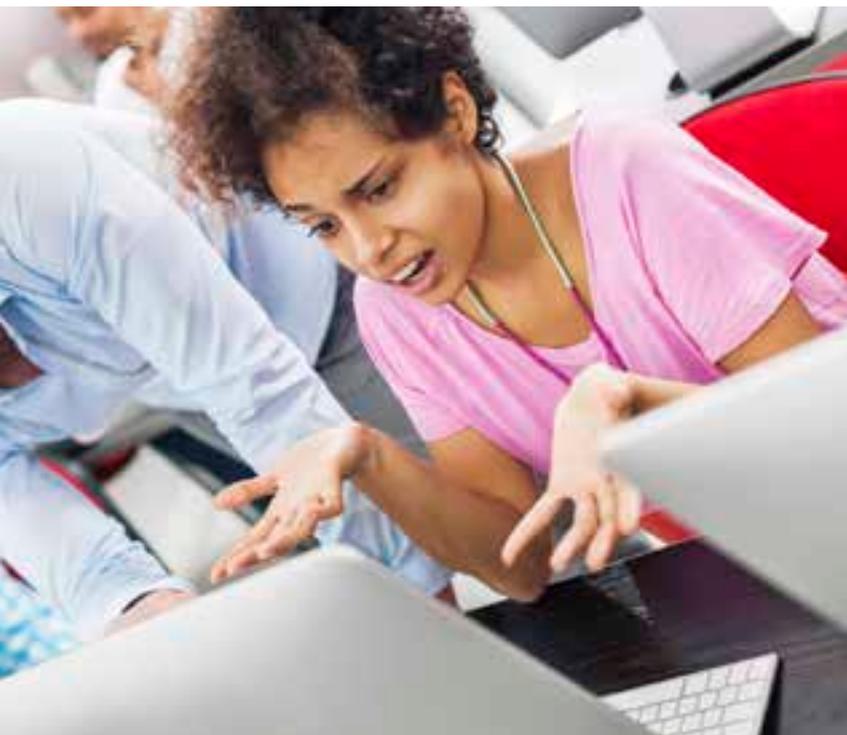


Notes: Sample sizes for degree or higher, other post-school, and no qualifications respectively: under 55 years: $n = 308, 307, \text{ and } 148$; 55 years and over: $n = 171, 210, \text{ and } 290$. For each age group, chi-square tests indicated a significant relationship between response to the statement and educational attainment level ($p < .01$ for under 55 years) and ($p < .001$ for 55+ years).

Figure 3: Agreement with the statement "I am worried that I'll be left behind with modern technology in years to come", by education level and age, 2012–13

face multiple, complex issues that would most effectively be handled through face-to-face assistance (see Moloney, Weston, Qu, & Hayes, 2012).

Although younger adults and those with degrees were the most likely to believe that they had kept up with the technology, around a quarter of those under 35 years either felt left behind (this applied to around one in ten) or "sat on the fence" by opting to neither agree nor disagree with the statement about being left behind. These results suggest



that the needs of a considerable number of young adults may not be met by services that rely partly or wholly on the use of modern ICT developments.

What does the future hold? Are those who are currently competent ICT users being unrealistically complacent about their ability to keep up with future developments as they age, or do they have no need to worry? Perhaps one of the advances in future ICT developments will take the form of increasing their “user friendliness”, taking into account the special needs of older people, those with limited education, and others not examined here whose sources of difficulties in accessing or mastering ICT advances lie elsewhere.

While keeping abreast of ICT developments has become increasingly important in the worlds of work, social life and personal development, doing so has also become increasingly important for parents in order to protect their children’s safety, in the context of a proliferation of means by which children can become exposed to, or actively engage in, risky online activities. Yet commercial studies by the security company McAfee, conducted in various countries

including Australia, the US and Canada, have highlighted the adeptness with which young people conceal their risky online activities from their parents (CNW Group, 2014; McAfee, 2013; McAfee Asia Pacific, 2014).

For discussions of ways in which parents can help ensure that their children engage in online activities in safe and responsible ways, see the Child Family Community Australia (2015) Facts Sheet *Online Safety*, Robinson (2012), and Third, Spry, and Locke (2013).

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Australian Institute of Family Studies, Level 20, 485 La Trobe Street, Melbourne VIC 3000 Australia. <www.aifs.gov.au>

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