

KEY WORDS

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Comments on National Broadband Research Agenda

Section B. Broadband Access and Adoption

Question 9: What specific research and data are needed to understand how rural residents and other population groups that have traditionally under-utilized broadband technology (e.g., seniors, low-income families, persons with disabilities) can better adopt and use broadband?

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This response focuses on adults with low levels of formal education and those with limited literacy skills. According to a fact sheet released earlier this year by the U.S. Department of Education Office of Career, Technical and Adult Education,

Across the total U.S. working age population, ages 16-65, the new data confirm that there is a significant portion of employed adults with low measured skills. Fourteen percent of the employed population have low literacy skills; 23 percent have low numeracy skills, and 62 percent have low digital problem solving skills.

In addition, the fact sheet outlines the relationship between educational attainment and literacy skills:

Four percent of employed adults with at least one college degree have low literacy skills, while 17 percent of those with a high school diploma and nearly 50 percent without a high school diploma have such low skills. (OCTAE, 2016)

Attention to adults with limited education and those with low literacy skills will be an essential component of the new National Broadband Research Agenda because these adults are less likely to take advantage of the learning and growth opportunities that broadband access provides. According to a survey conducted by the Pew Internet and American Life project earlier this year,

information technology plays a role for many as they learn things that are personally or professionally helpful. Still, those who already have high levels of education and easy access to technology are the most likely to take advantage of the internet. For

significant minorities of Americans with less education and lower incomes, the internet is more on the periphery of their learning activities. Fewer of the people in those groups are professional or personal learners, and fewer of them use the internet for these purposes. Overall, the internet does not seem to exert as strong a pull toward adult learning among those who are poorer or less educated as it does for those in other groups. (Horrigan, 2016a)

Further analysis by Pew staff shows that adults with lower levels of formal education are more likely to demonstrate the characteristics of the groups labeled "The Unprepared" and "The Reluctant," the two groups at the "least ready" end of the digital readiness spectrum (Horrigan, 2016b).

User experience (UX) research with adults who have low literacy skills has demonstrated physical differences between these adults and those with stronger reading proficiency in terms of how they read on computer screens. Using eye tracking technology, researchers have shown that users with limited literacy skills do not exhibit the F-shaped reading pattern characteristic of stronger readers (Nielsen, 2006). Instead, they exhibit many of the eye movements that have been described in studies of low literacy readers and the printed page: more and longer fixations, re-reading both text and site navigation, skipping words and sections of text, and getting distracted (Colter & Summers, 2014; Nielsen, 2005).

Adults with low literacy skills are among those who could benefit most from the educational, life skills, and workplace skills development opportunities that broadband internet presents. However, the medium itself may interfere with their ability to do so for two reasons:

- It relies on expectations about reading capacity that include skimming and scanning ability, ability to track from line end to line beginning in long lines of text, and ability to quickly differentiate among headings, main text, and navigation elements--all skills that adults with low literacy levels may not yet have mastered
- It does not take advantage of the knowledge and strengths that adults with low literacy levels possess, such as real-world knowledge, listening ability, and recognition of pictures, symbols, and icons

Under-utilization of broadband internet by adults with limited formal education and low literacy levels may therefore be, at least in part, a function of the message that web design sends to such users: this is for people with skills you don't have.

The field of web design has identified numerous best practices that can improve user experience and ensure that sites are responsive to the type of device (phone, tablet, laptop, desktop) being used. In addition, some government agencies have made concerted efforts to increase the usability and appeal of their public-facing websites to citizens at all educational levels (Kennedy, 2015). However, much more could be done in terms of research on ways to make informational websites more user-friendly for adults with limited literacy skills. Specifically, how do these adults experience reading on different types of devices, and how can websites be designed to respond to those experiences? How can websites best facilitate these

users' absorption of content, through reading and through other means (layout, graphics, audio and video)? How can websites build on the strengths and skills that these adults bring to the user experience?

Exploration of these questions and elaboration of the answers has the potential to improve web design for all users, and to make the internet an effective partner in promoting digital inclusion.

References

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