Digital Inclusion and Digital Literacy in the United States: A Portrait from PIAAC

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This paper uses U.S. data from the Survey of Adult Skills (PIAAC) to explore a digital inclusion pathway leading from digital access to digital literacy. Multivariate models are used to analyze two major sets of issues: (1) digital equity along the inclusion pathway, and (2) the embedding of digital literacy in a range of economic and social outcomes.

The digital inclusion framework adopted by the paper offers a nuanced view of digital equity to reveal distinct patterns and issues facing groups based on gender, race/ethnicity and national origin. In terms of gender, there is a consistent lack of digital equity across the inclusion pathway, with women having higher levels of access, readiness and taste yet lower assessed PSTRE proficiencies than men. There are no gender differences in adjusted ICT use outside of work.

Different patterns of digital equity are evident in groups based on race/ethnicity and national origin. Foreign-born, Black and Hispanic adults have lower adjusted levels of digital access, readiness and taste and lower adjusted PSTRE proficiencies. Black and Hispanic adults have *higher* adjusted levels of ICT use in non-work settings, whereas foreign-born adults and women experience digital equity in their ICT use outside of work. Policies and programs that are effective at engaging adults with using technology may not necessarily be as effective in facilitating their acquisition of digital literacy. "Practice oriented" or "contextualized" instructional approaches may be more effective with some learners than "proficiency-oriented" or "skills-based" approaches.

Digital literacy – measured by both problem solving in technology-rich environments (PSTRE) and use of ICT in workplace and non-workplace settings – is embedded differently in the various economic and social outcomes examined. Digital literacy is embedded in the earnings of prime age workers but not in the employment status of prime age adults. The finding that use of ICT at work is embedded in earnings but workers' use of ICT *outside* of the workplace is not suggests that different policies and approaches may be needed for teaching digital literacy in an employment search or job development context than in incumbent worker contexts.

Further insights about incumbent worker technology training may follow from better understanding of the finding that ICT use in the workplace is embedded in workers' earnings but their ICT use outside of work is not. The consistent embedding of ICT use outside of work (but not PSTRE proficiency) in all of the social outcomes examined – social trust, volunteerism, political efficacy and health – may indicate promising policy and program directions for blending support of technology access and use with other social aims and initiatives.

Many of these findings need further testing and elaboration through additional secondary analyses of PIAAC data, both in the U.S. and cross-nationally. Cross-national comparisons of the digital embedding models and comparison of the embedding of digital literacy with other proficiencies and skill use measures are high priority. These could be complemented by new studies that gather PIAAC-compatible data along with other research data, using the soon-to-be-released Education and Skills Online assessments.