Assessing and Validating Digital Skills: DRAW Detailed Findings and Discussion

With the urgent need for adult digital skill development as a backdrop, the Digital Resilience in the American Workforce (DRAW) initiative, funded by the U.S. Department of Education's Office of Career, Technical, and Adult Education (OCTAE),[1] conducted a wide-ranging landscape scan to identify effective approaches and existing resources supporting digital skills development. The scan also identified current efforts to advance digital access and digital equity; useful skill definitions, frameworks, and assessments; and practitioner professional development opportunities. Learnings from the scan are summarized in the report *Digital Resilience in the American Workforce: Findings from a National Scan on Adult Digital Literacy Instruction*.

This deep dive explores in more detail the practices and models for assessing digital skills and opportunities to improve assessment and skills validation in adult education.

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Assessments have the potential to be powerful tools for supporting the development of technology skills and digital resilience. The DRAW scan revealed a need for better understanding of existing assessments and how to use them, as well as new, asset-based assessments that measure digital resilience. An aligned and strategic approach to assessment would allow educators and program leadership, researchers, and policymakers to tailor instruction to learners' needs, understand their progress, target resources where most needed, and signal mastery of skills to employers and other stakeholders.

This deep dive explores practices and models for assessing digital skills and opportunities to improve assessment and skills validation in adult education.

What Are Digital Literacy Assessments?

The scan explored the different purposes and formats of digital literacy assessments, the challenges with assessing digital skills, and resources to help programs select an assessment. The crowdsourced list of assessment and skills validation resources is available here.

- Assessments are tools that collect learner data on digital literacy skills to inform orientation and instruction, measure progress and outcomes, and create accountability measures.
- Assessments can come in various forms and serve different purposes: self-assessments and inventories, performance- or competency-based assessments, portfolios, and formative, summative, or diagnostic assessments.
- Instructors rely on assessments to evaluate their own digital resilience and determine how they can effectively integrate technology to develop the digital literacy of their students.
- Assessments can also help leaders understand the scope of digital literacy skill gaps.

What Are Some of the Challenges and Limitations Related to Assessing Digital Skills?

- The rapid pace at which technology and skill needs change.
- Variation in skill definitions and assessments, depending on the skills they cover. The term *digital skills* means different things to different people, which causes confusion among educators, employers, and learners.[2]
- Moving beyond discrete digital skills and measuring proficiency with the application of skills in real contexts and as well as digital resilience, or adaptability and problem solving, when confronting new technologies.
- Inherent limitations to standardized assessments, including the expense required to create, update, and administer them. DRAW initiative advisor Steve Reder, who advises the PIAAC effort, has shared that there is international interest in assessment methodologies other than standardized tests. Some DRAW initiative advisors also question the benefits of using standardized assessments to determine need for services, considering other proxy measures such as poverty, race, and English language acquisition.

How Can Programs Decide What Assessments Fit Their Needs?

- The National Governors Association Workforce Innovation Network in partnership with World Education, the National Digital Inclusion Alliance, and the National Skills Coalition developed a guide, Using Data to Advance Digital Skills: A State Playbook, to assist states in measuring digital skills. They started the effort in response to what they called a "dearth of digital skills data,"[3] recognizing the need for more investment, research, and innovation in digital skills assessment and data analysis.
- As an additional resource, the International Telecommunication Union created a comprehensive, practical guidebook of national digital skills assessments that includes analysis of existing work and the advantages and disadvantages of digital skills assessment tools that can be employed as part of a national-level assessment.

Our scan identified a need for guidance on determining when digital literacy assessments are "a good fit." The DRAW team developed a checklist to guide the selection of an assessment based on purpose and context.

VIEW THE CHECKLIST

Practices and Providers: Assessing and Validating Digital Skills

Northstar Digital Literacy

The assessment cited most by adult educators by far is Northstar, which was mentioned in more than half of the 74 responses directly related to assessment.[4] Northstar has had a deep impact in the adult education space, with more than 5.5 million assessments taken to date at over 2,230 locations. A program of Literacy Minnesota, Northstar defines, assesses, and teaches basic skills needed to use computers and the internet in daily life, employment, and higher education. Online assessments measure mastery of 14 basic skill areas. Classroom curricula provide detailed lesson plans for teachers and can be used remotely or in person.

California Civic Objectives and Additional Assessment Plans (COAAPS)

One form of assessment that utilizes performance-based assessment tasks has been used by California adult education agencies for more than 20 years to assess civics education with a system of civic objectives and related COAAPs. Many of the assessments require the use of

digital technology within the instruction and assessment tasks. Three civic objectives (COs) specifically focus on developing digital literacy skills:

- CO 47 – Identify strategies and resources to effectively use the internet safely
- CO 48 – Effectively use online tools to learn, communicate, and collaborate with others
- CO 73 – Demonstrate the language and literacy skills necessary to effectively participate in workforce training and work in information and communications technology (ICT)

Assessments directly linked to standards:

- The National External Diploma Program, a competency-based assessment, measures digital literacy skills including use of presentation software, spreadsheets, Word documents, internet navigation, and online research and citation as elements of the adult high school diploma program.
- The Programme for the International Assessment of Adult Competencies Survey of Adult Skills was first implemented in 2012 and includes assessments on literacy, numeracy, and digital problem solving. The problem-solving in technology-rich environments survey measures the cognitive skills required to carry out technology-enabled, nonroutine tasks. PIAAC PS-TRE aims to measure application of technology in everyday tasks that require 1) accessing information through ICT, and 2) solving problems that exist because of the presence of ICT itself.[5] It focuses on the ability to solve problems for personal, work, and civic purposes by setting up appropriate goals and plans and accessing and making use of information through computers and computer networks.
- The DQ framework, launched in 2018, has a free self-assessment to capture an overview of one's knowledge and skills across eight digital citizenship competencies, including critical thinking, privacy management, and digital empathy. It measures a higher level of digital competence and is an assessment that some large employers in the Digital US Employer Network have used to compare digital skills needs and start to partner on their training efforts.[6]

Skills Validation and Signaling

The landscape scan revealed a need for adult education programs to expand engagement in skills validation and signaling through badges, certificates, and credentials. Overall, there were few references to badging and signaling efforts in interviews and interview responses, which reflects a need for focus and investment in this area.

What Are Skills Validation and Signaling?

Skills validation includes badges, certificates, micro-credentials, and credentials that document (validate) the acquisition of digital skills so that learners can communicate (signal) their skills to employers and educational institutions. Northstar, Coursera, Microsoft, Grow with Google, Certiport, and IC3 Digital Literacy Certification are all examples of digital skills badging and certification programs that adult education learners and instructors alike can earn. Such types of skills validation and signaling can both demonstrate achievement as well as motivate learners.

What Are the Benefits of Skills Validation?

- Pilot testing showed that adult learners were motivated by earning Northstar certificates.[7]
- Earning Northstar, Microsoft, and other certificates has been shown to catalyze career path opportunities for adult education learners.[8]
- Preliminary research by Digital Promise indicates that micro-credentials can—and in some cases, do—lead to job promotions, higher wages, and an increase in self-confidence for adult learners.[9]

Models and Resources

- Digital Promise partnered in 2017 with Facebook and 40 organizations to offer social media marketing micro-credentials to more than 3,000 adult learners, including displaced workers in rural areas and entrepreneurs making products from jewelry to piñatas.[10] The four training modules are publicly available for learning providers and learners to use and serve as an example of competency-based micro-badging of applied digital skills for work.
- A promising practice developed by the Essential Skills Program involves supporting participants with building and refining 10 essential soft skills. Participants can earn digital badges for each skill they develop. The tagline encourages participants to "be the person employers want to hire or promote."[11]
- In collaboration with colleges and employers, the Education Design Lab designed a set of 21st Century Skills Micro-credentials to signal in-demand skills, such as collaboration, critical thinking, and creative problem solving. These can then be stacked to create micro-pathways that can be earned in under a year and result in a job at or above the local median wage.

- Evergreen Valley College in San Jose, California, and Building Skills Partnership are collaborating on the development of a digital literacy certificate for janitors; in the meantime, students can receive digital badges to signal their steps toward earning the certificate, which can include training such as an introduction to Google Apps, Getting Started with Smartphones, or Microsoft Office basics.
- Badging of digital competencies is also important for practitioners, and assessments including Northstar have been used by states to validate teachers' skills. The Texas Center for the Advancement of Literacy and Learning, the IDEAL Consortium, and ISTE have integrated badging into their professional development for instructors and practitioners to motivate and validate educators in their digital skill development and technology integration into instruction.

Opportunities to Improve Assessment and Validation of Digital Skills

Assessing Digital Skills in Context

Overall, programs across the Unites States rely on the Northstar Digital Literacy Assessment to assess foundational computer skills. It is useful as a diagnostic tool to show what skills learners need to develop, and teachers are comfortable using it. However, like most assessments designed for implementation at scale, not all of the discrete skills assessments measure proficiency with application of skills in real contexts. This is not always the best approach to preparing learners for use of digital skills in the workplace, where skills are always used in context.

More recently, Northstar has added "application" assessments in "Using Technology in Daily Life," which is a step in the right direction. Additionally, a certain level of English language proficiency and literacy level is currently needed to complete the assessment, though Northstar is working to translate it into other languages.

Competency-Based Assessment Models

The DRAW project has written at length about the need to contextualize digital skills in instruction; it would follow that competency-based models paired with performance assessments or rubrics for tracking demonstration of skill for defining learner progress would be better suited than more traditional assessments. After a thorough meta-analysis on prior research on the validity of 21st century skills assessments, Vista et al.[12]

recommended the use of competency checklists to track student progress along a predetermined continuum of competencies as the most valid way to assess skills in use.

In *Boosting Digital Literacy in the Workplace*, Amanda Bergson-Shilcock, a DRAW Technical Working Group (TWG) member, says, "Competency-based credentials, though much newer on the scene, can certainly have value in the labor market if rigorously designed. To this end, policymakers should explore opportunities to increase investment in high-quality competency-based programs."[13] DRAW advisor Anson Green noted that most program leaders do not feel comfortable negotiating these assessments with employers directly, so state-level initiatives would be helpful. However, a competency-based approach is novel to local programs and state-level staff alike. National Reporting System policy has conditioned programs to consider learning gains in terms of assessment on a short list of standardized assessments rather than considering use of performance-based assessments.

Assessment of Teachers' Digital Skills

Several states have teachers take Northstar assessments. As with learners, use of the assessment is best framed as a diagnostic tool. Other states, like California and Massachusetts, use more qualitative self-assessment checklists that ask teachers to rate their skills and comfort on a range of digital skills. In Massachusetts, teachers gauge skills on a continuum of expertise: whether they can perform a skill for themselves, show others how to perform a task using the skills, and finally, integrate that skill into their instruction. Local and state control will determine which approach is most needed. On the connection between student performance and teacher effectiveness, DRAW TWG members noted, "Assessment is a two-sided coin: student performance and teacher effectiveness. Teacher assessment is critical; we can't wait until the end of a term to find out that a teacher is not cut out for distance learning."[14]

Strengths-Based (Asset-Based) Assessment

An additional challenge identified in the landscape questionnaire is that assessments can often focus on the deficiencies of the individual being assessed. Learners have skills that can be built upon, and assessment should take into consideration learners' prior knowledge and their ability to transfer that knowledge to new settings. A few TWG members emphasized that when there is a cultural, regional, language, age, or other differences between the technology use of practitioners and the learners they serve, there is a danger that assessments fail to adequately measure the skills learners do have but that practitioners might not recognize. One TWG member mentioned the relative slowness of adult educators and workforce practitioners to understand how immigrant communities were using text-based mobile apps to communicate with one another long before others were and how

many African American teenagers were using Vine in sophisticated ways before educators knew what it was.[15] Taking a strength-based approach to assessment requires looking at how people use digital skills across their life in diverse settings, not just in the workplace.

Conclusion

Assessments have the potential to be powerful tools for supporting the development of technology skills and digital resilience. The DRAW scan revealed a need for better understanding of existing assessments and how to use them, as well as new, asset-based assessments that measure digital resilience. An aligned and strategic approach to assessment would allow educators and program leadership, researchers, and policymakers to tailor instruction to learners' needs, understand their progress, target resources where most needed, and signal mastery of skills to employers and other stakeholders.

The DRAW initiative's next step will be to create resources to help educators understand how to use existing assessments effectively to guide instruction and assessment. The DRAW team is taking all the learnings from the landscape scan and developing professional development resources and training to help adult educators learn how to better support their learners to develop foundational digital skills. Please follow the DRAW project page for further updates, information, and professional development support, and opportunities to join discussions on advancing digital resilience and equity.

Endnotes

[1] DRAW is funded by the U.S. Department of Education's Office of Career, Technical, and Adult Education under contract GS10F0094X.

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[3] Katherine Ash et al., *Using Data to Advance Digital Skills: A State Playbook,* NGA Workforce Innovation Network (2022), www.nga.org/wp-content/uploads/2022/04/State-Digital-Skills-Data-Playbook_20Apr2022.pdf.

[4] DRAW Practitioner Questionnaire.

[5] Organisation for Economic Co-operation and Development, *Skilled for Life? Key Findings From the Survey of Adult Skills* (2013), www.oecd.org/skills/piaac/SkillsOutlook_2013_ebook.pdf.

[6] Alison Ascher Webber, personal communication, August 23, 2021.

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[8] Digital US Coalition, *Building a Digitally Resilient Workforce*, https://digitalus.org/wp-content/ uploads/2020/06/DigitalUS-Reportpages-20200602.pdf.

[9] Sarah Cacicio and Brian Tinsley, *How Micro-Credentials Can Support Social Mobility in Rural Communities* (Washington, DC: Digital Promise, 2022), https://digitalpromise.org/2022/03/28/how-micro-credentials-can-support-social-mobility-in-rural-communities.

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[13] Amanda Bergson-Shilcock, *Boosting Digital Literacy in the Workplace* (Washington, DC: National Skills Coalition, December 2020), https://nationalskillscoalition.org/resource/publications/boosting-digital-literacy-in-the-workplace/.

[14] DRAW Technical Working Group meeting, December 2021.

[15] Amanda Bergson-Shilcock, personal communication, September 13, 2021.