

Digital Skills Assessment: The Survey Report

In preparation for future digital equity work at the Washington State Library (WSL), we have surveyed and summarized research that addresses digital inequity; our approach has included past and present studies of digital inequity, frameworks and tools devised to assess digital skills, and survey methods that can address large geographical areas with varied and often hidden populations. We have foregone a definition of digital literacy, as many have been developed and are equally useful, and instead address critical perspectives on literacy and the “digital divide” in hopes of providing a nuanced perspective to our research and recommendations.

Landmark Studies

Research regarding digital inequity began in earnest in the mid 1980s. Three distinct waves of research can be identified between this early period and the present day; each wave addresses ongoing threads of debate regarding the utility of evaluating self-reported vs. assessed skills and familiarity with terms vs. operational knowledge of concepts.

The first cluster of research endured from the mid 1980s until the mid 1990s. This phase focused on exploring the existence and dimensions of the digital divide, prioritizing the collection of data that proved the digital divide *existed*. Researchers were focused on identifying disparities in device ownership and internet connectivity, as well as attitudes that limited technology adoption. This can be seen in Fred Davis’ development Technology Acceptance Model (TAM) in 1989, which has since become the most widely applied model of users’ acceptance of technology (Davis 1989). The TAM correlates perceived usefulness and usability with users’ *use* of devices, and demonstrates that users will overcome usability challenges to incorporate devices or programs that will be useful. A shortcoming of the TAM is exemplary of much digital divide research of the time in that it does not evaluate underlying social attitudes or pressures to adopt technology. This era was, on the whole, agnostic in its regard of social contexts for technology adoption and barriers.

Analysis of the digital divide deepened from the mid 1990s to early 2000s, when social scientists began to examine the underlying socioeconomic factors that impacted technology access *beyond* user interest. Mossberger et al.’s foundational study “Race, Place, and Information Technology,” was the first to analyze how the racial, educational, and socioeconomic makeup of a community impacted the community’s attitudes and adoption of technology. By isolating these factors, Mossberger et al. demonstrated that levels of concentrated poverty and access to anchor institutions significantly impacted device ownership, although optimism about the usefulness of technology was not contingent on these factors (Mossberger 2006). This research was further explored in Mossberger and Kaplan’s later study about the ways in which community access to devices impacted

individuals' likelihood of using these devices at work; this study demonstrated the close relationship between at-home use and workplace utilization of technology (Mossberger and Kaplan 2012).

From the mid-2000s to the present, interest in the digital divide has spread across academic disciplines, with special focus from the fields of public health and education. Notably, developments in this research have come largely from practitioners, who have taken an interest in how digital skills provide greater access to health services and information literacy. This shift describes an effort "to move discussion of digital literacy—and of the literacies that make it up or that relate to it—from the area of listing of skills to be mastered towards that of the role of the digital in the growth of the individual, as student, as worker, as person" and triggered an interest in critical perspectives on digital divide research (Martin, 2008).

Susan Star's landmark paper "Ethnography of Infrastructure" invited researchers across disciplines to implement counter storytelling tactics in their investigation, and emphasizes the importance of surfacing invisible work and habits in studying how people use infrastructure (Star 1999). This idea is furthered in Margaret Morris' 2018 book *Left To Our Own Devices*. Morris writes a "gallery" of vignettes that demonstrate how technology can create new kinds of social interaction that defy researchers' expectations, and emphasizes that digital divide research has historically prioritized binaries of having/not having a skill over identifying communities' problem solving processes and abilities to find digital workarounds to access barriers. Similarly, rather than assessing the presence of digital skills before and after intervention, José Torralba's influential 2014 study "A Survey of Emergent Digital Literacy Inside the Homes of Latino Immigrants in California: Digital Literacy Inside the Homes of Latinos in California" observed how immigrant families *develop* digital skills in action. Torralba emphasizes that problem solving and the process of self-directed skill development are important and underexplored elements of digital divide research (Torralba 2014).

Vocabulary and strategies for identifying these as-yet-unexplored skills are emerging and the next several years of this research will likely reveal strategies for measuring previously unanticipated skills. We see this as a positive change. Digital skills develop in a social and economic context, and current digital divide research emphasizes the study of a community's skills and attitudes in relation to local infrastructure and economic imperatives.

Frameworks

In order to study digital literacy, scholars have developed frameworks that describe the processes and skills that can be used in quantitative and qualitative assessments. Early models for digital literacy described digital literacy skills as a linear progression (ALA 1989, Wolf 2003). These models are not technically frameworks of digital literacy; however, they demonstrate the foundational efforts made by library organizations and other informational institutions to identify core digital skills. These

skills describe cognitive engagement with technology, which collects all skills under the singular cognitive construct. This approach was quickly identified by scholars as overly restrictive as it became evident that acquiring digital skills is a nonlinear process.

The first frameworks were developed in the early 2000s to depict a more holistic concept of literacy (Eshet-Alkalai, 2002). This early step in reclassifying skills elaborated on the two primary constructs, separating technological knowledge from cognitive knowledge; though the difference between the two can be easily overlooked, it's important to define cognitive knowledge as “the mentally-based skills and abilities we use to plan and execute tasks and goals” in contrast to technological knowledge, which is specialized, defined as the “expertise necessary to make use of a range of different digital technologies across different contexts and for different purposes” (Magassa, 2020). These constructs were both applied to the concept of branching, multidimensional and nonlinear acquisition of skills. The interaction between cognitive and technological skills described a form of digital literacy that allowed for human learning processes. This complicated the formation of previously straightforward assessment tools. In response, assessment tools have been developed along the lines of the holistic framework, and scholars have expanded on the holistic framework as the assessments have revealed gaps in the original concept.

Frameworks evolved over the course of the 2000s to encompass concepts like emotional/affective skills, socio-relational skills, and judgment-based ethical constructs (Calvani et al. 2008, Cartelli and Di Nuzzo 2010, and Ng 2012). The goal of these frameworks was to address the ways in which digital literacy interacted with everyday life rather than structured interactions with technology. Cultural and social backgrounds affect the ways in which people select and manage information, and determine effective learning processes for acquiring skills long-term. Some of these constructs were ultimately too ambiguous to be effectively incorporated into assessment tools; the role of ethics was and remains particularly difficult to navigate, given that personal ethics are largely derived from cultural conceptions of morality and vary widely between different social and ethnic groups. These frameworks also rely on hierarchical social relationships to describe learning processes, which does not accurately reflect the ways in which peer relationships are sites of education in many populations.

Throughout the mid- to late-2010s, many new frameworks were introduced as more tools to develop and assess digital literacy were introduced to the ecosystem, and as institutions continually revised their earlier frameworks. Looking at the following examples of frameworks from this period we can start to identify a trend in digital literacy in the information science sector.

- Mozilla Web Literacy, Mozilla, published in 2013 (latest iteration 2017)
- Framework for Information Literacy for Higher Education, ACLR, 2015
- Essential Digital Skills Framework, GOV.uk, published in 2015 (latest iteration 2019)
- DigComp 2.1, EU Office of Publications, published in 2016 (latest iteration 2018)

- Digital Literacy Framework Toolkit, Virginia Tech, 2019
- Digital Literacy Framework for Adult Learners, Maryland Department of Labor, 2020

These frameworks demonstrate the ways in which proprietary assessment tools and governmental institutions have used previous literature to devise their own frameworks. Many of these identify digital literacy as skills-based and have expanded their frameworks along the lines of accruing an ever-growing list of skills that can be incorporated into sub-constructs. This contrasts with pre-existing frameworks developed within the educational sector, which have deployed “cluster concepts”, or recommendations for “flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills” (ACLR, 2015).

Critical perspectives on digital literacy illuminate the value of cluster-based frameworks. Skills-based assessment tools based on current framework standards are naturally designed to identify deficits within populations, which feeds a paradigm of technological pessimism. This mode of thinking devalues the extant skills within a population and offers no solutions to the issue — educational programs developed to teach specific skills are a short-term solution that cannot reach entire populations and may only perpetuate current barriers to accessing technological knowledge. Instead, the education sector has begun to advocate for asset-based thinking, which identifies the strengths within a population. Data collectors are still able to identify deficits by locating which skills are not being identified as strengths, so there is no issue of information loss in this approach. Furthermore, this approach uses and promotes optimism in respondents and reveals skills that might not have been described by frameworks developed without access to human networks.

Assessments

Digital literacy research has exposed several different methods for assessing technology users’ skills and attitudes. We have defined and compared the benefits of the three most common forms of assessment, and contextualized the methods by sharing examples of their use.

The most straightforward assessment method is self-reporting. This assessment style relies on participants to identify their own level of skill, usually on a numeric scale or by answering true/false questions. Participants are asked, often via survey, about familiarity with a term, confidence with a skill, or how frequently they perform a task or use a program. A distinct advantage to this method is that it is easy to create and administer. It’s also flexible, able to be tailored to different audiences and allowing for the assessment of many different kinds of skills and attitudes. In a social context, it also empowers survey takers to identify their own strengths and priorities. An influential representation of this survey method can be seen in the Computer Anxiety Scale, a scale created by George Marcoulides in 1989 to allow learners to express their own attitudes about technology so that educators can better target support (Marcoulides 1989).

A drawback of this method is that while it demands the fewest resources, it also has the lowest efficacy. On one level, survey takers may find it difficult to gauge their own expertise or feel insecure reporting a low level of knowledge. While Hargittai's 2009 study on web-oriented literacy indicates that survey respondents are generally honest in reporting if a term is unfamiliar, recent research from Seattle's Digital Bridge Program reflects a gulf between survey takers' reported level of familiarity with programs and their working knowledge as reflected by a process-based assessment. More problematic are the survey's limitations in assessing problem-solving abilities or operable knowledge. Digital skills are process-based, and a survey taker having heard of a device before does not correlate with knowing how to use the device. Because of these limitations, self-assessments are often included as addendums to other multi-prong surveys or paired with other assessment methods.

Another form of assessment is the knowledge-based test. This form is most often used in higher education research and uses multiple-choice testing to evaluate participants' ability to recall the facts of a program or tool; for example, asking a participant to identify a download icon tests the participant's retained knowledge. This method can gauge tangible skills more accurately than a self-reported survey question. Similar to self-reporting, however, it cannot capture the ability to solve a problem in action. It can tell us if a participant knows which button will download a file, but not whether they know how to organize and access the file later. Where this assessment method is most helpful is tracking digital skills before and after an intervention. For evaluating training programs or tracking growth throughout a school year, this low-resource method offers a valuable way to compare skills over time.

Digital skills rely less on rote memorization of functions than on application-in-action. Due to this, process-based assessments offer the clearest representation of a participant's skills and gaps. This assessment method presents a simulation of a program or tracks participants' clicks and keystrokes on a computer's actual software to track the participant's problem solving skills and processes for using a device. This method can be utilized to test digital skills as well as information literacy, posing participants with challenges about evaluating information. For example, Irvin Katz' 2007 study evaluates how university students leverage digital skills to navigate research challenges. Similarly, the National Skills Coalition created an assessment in 2020 that simulates a program to test skills demanded in the workforce. Developing process-based assessments involves the highest demand on resources for the developers and the greatest amount of time and work for test takers. However, the helpfulness and accuracy of this form of assessment is unmatched.

A trend in digital skills assessments is the creation of assessments meant to reflect the skills of specific users. The Everyday Technology Use Questionnaire, developed by Louise Nygård et al., has been used to evaluate the knowledge of adults with cognitive impairments. Similarly, Boot et al.'s Computer Proficiency Questionnaire was designed to capture the skills of older adults both brand new to technology and with years of experience. Previous assessment research has acknowledged the need

for culturally responsive assessments but existing assessments have not addressed the social elements of digital learning and adoption. Looking at demographic-specific assessments may offer cues about creating assessments more flexible to a variety of diverse communities.

Survey Trends

In the last several years states and municipalities have taken an interest in local access to technology and digital skills and have conducted research to ascertain the existing deficits within their populations. Though assessments generally cover similar topics such as device ownership, home internet access, and existing digital skills, some communities have applied a more nuanced lens to better understand local issues. In order to design more inclusive assessments that capture a bigger picture of local assets and gaps, states' and municipalities' survey inclusions are worthy of consideration when they diverge from assessments based on a set of standards devised using outdated frameworks.

Many of these states have a keen interest in digital skills regarding workforce development. A unique approach to this appeared in Hawai'i's Department of Labor & Industrial Relations 2021 survey of digital readiness. The survey was created through the lens of digital transformation; to promote the state's economic independence and ecological security, the survey evaluates skills in terms of digital resilience. While many surveys seek input from employers or industry leaders about in-demand digital skills, this survey harnesses workers' understanding of their own work and predicts how these needs will evolve over time. The skills were clustered into basic/operational, social, creative, and information/navigation skills. The survey then asked participants about the sector in which they worked and the length of time they had worked in that sector, and then asked participants to self-report their skill at home and on the job. Taking a non-prescriptive approach allowed the survey to both illuminate the skills that are currently in use in each sector, and to provide information about differences between experienced workers close to retirement and new workers. The state was then able to forecast what skills will be in demand in the coming years.

Another important development of the new wave of digital equity research is in evaluating attitudes toward technology adoption, focusing on digital self-efficacy and optimism. Several studies have demonstrated the relationship between self-belief and device use; groups with more digital confidence are more likely to incorporate technology into their lives. As a result of surveying populations about confidence and positive self-belief, Hawai'i's Department of Labor and Industrial Relations demonstrated that those with less confidence in their digital skills are also less likely to seek out training opportunities, and posited that these groups require training that focuses more on building confidence and self-efficacy at the start of their education. Taking stock of which demographics possess the most confidence allows for greater understanding of each community's outreach and training needs.

Historically, gauging information literacy has been a priority in higher education. But along with confidence in one's overall skillset, some broad surveys have begun to collect information about participants' levels of trust in information they encounter online and their perceived ability to assess the accuracy of information. The Pew Research Center's 2016 survey on digital readiness gaps assessed the intersections of digital skills and information literacy, incorporating information navigation as a fundamental digital competence. The same survey also measured participation in online learning, a competency that has only risen in importance in recent years. Recent population surveys emphasize an awareness of the ways in which residents are using the internet to learn has become an increasing priority. Pew Research Center in 2016 measured interest in formal online courses, and Hawai'i surveyed residents for awareness of popular learning outlets such as podcasts and library eBooks. Understanding how residents are choosing to further digital and other skills allows the state to better connect to informal learning environments available to residents and discover new avenues for digital support.

It has long been understood that feeling connected to community hubs and maintaining a sense of support is key to social inclusion, and recent surveys have explored how trust in anchor institutions impacts digital resilience. An exciting example is available in the organization EveryoneOn's 2021 national digital inclusion survey, which demonstrated a correlation between use of public libraries and the ability to stay online during the pandemic. Participants who identified as having trust in their local anchor institutions were more likely to seek out discounts for internet service during economic hardship and had a greater likelihood for developing their digital skills during lockdown (EveryoneOn 2021). The road ahead for understanding this relationship is encouraging. If the state knows where trust lies and where residents feel comfortable seeking help, the state will be better able to predict where support and relationship building are needed.

Understanding practical barriers to affordability is another promising area for states and municipalities to understand fluctuating needs. Many surveys rely on understanding a participants' access at a particular moment in time, asking about device ownership or home internet connections at the time of the survey. Examining barriers to access as changing and fluid challenges, rather than one-off problems, is key to understanding the digital divide. Philadelphia's 2021 citywide survey took this into account: the City gathered information about residents' abilities to stay connected over time. The City surveyed residents about the stability of their home internet connection and the level of difficulty affording their internet service with and without subsidized programs. The City also assessed residents' awareness of these programs and reasons they had or had not applied. By looking into how access may change in coming months, Philadelphia was able to understand the dynamic nature of threats to access (City of Philadelphia 2021). Examining innovative ways in which cities, states, and research organizations have surveyed residents' access illuminates new possibilities for understanding the digital divide.

Survey methods

While the content of digital literacy surveys has developed alongside the holistic frameworks to encompass more equitable and dynamic principles of assessment, the methods by which surveys have been conducted are slow to catch up. Current digital literacy surveys often use random-sampling surveying methods via phone trees (Philadelphia Household Internet Assessment Survey, 2021). It is also common to use publicly available data such as census information to model populations of specific areas, which can be further mined for cluster analysis, which can be seen in the American Community Survey and the Pew Research Center Digital Readiness Gaps. While these methods provide a broad understanding of digital literacy deficits within respondent populations, criticism has been levied at their ability to reach hidden populations. The most common methods of surveying also purport to be random, which ignores the inherent self-selecting bias of survey respondents.

Smaller case studies have been conducted to greater effect, producing more developed and nuanced models of their respondent populations. These studies are primarily non-random, and the survey model usually relies on full interviews conducted with a specific population selected to model a specific demographic (Tsai et al. 2017, Torralba 2015). While these surveys provide models of digital literacy as both a process and a set of skills, they are too work-intensive and too localized to provide good data for larger communities. Research in the public health sector has demonstrated effective methods to achieve those ends via venue-based, time-space sampling (TSS) and respondent-driven sampling (RDS) (Muhib et al. 2001, Semaan 2010, Verdery et al. 2019, Howell et al. 2020). TSS relies on the surveyors' understanding of the human network as it functions within specific geographical regions; this method identifies venues that act as gathering spaces for populations that are generally dispersed, either by virtue of geographical distance in rural areas or by non-localized attributes of populations dispersed throughout urban areas. Surveys are then conducted at these venues, or "hotspots," during times when the target population is likely to gather there (Muhib et al. 2001). While it takes a significant amount of prior research on the part of the surveyor, TSS is able to overcome the failure of broad survey methods in reaching hidden populations (Howell et al. 2020).

RDS has achieved similarly positive results via different methods; surveyors typically conduct similar research in order to identify key individuals within the hidden population, and then select these respondents to first take the survey and then to pass it along to a small group of individuals within their network. These secondary respondents are also asked to deliver the survey to a similarly-sized group of individuals, and the survey continues to spread throughout the population in waves. RDS is able to use the network that connects members of hidden populations, relying on the variety of relationships between respondents in order to generate a responsive model of the population. This method is also able to simulate the broad reach of random sampling, as the original target established in the first wave is diffused by the numerous ways in which a hidden population connects to itself and to external

support populations. Both TSS and RDS have been used within the public health sector to accurately model populations of HIV-positive individuals, which demonstrates the efficacy of prior research and non-random sampling (Verdery et al. 2019).

Given that these methods are proven to locate and accurately model hidden populations, they also address concerns raised in data collection for rural populations and tribal communities (Urban Institute 2020). There are many factors that contribute to the poor quality of population models in rural areas, foremost among them being that they are often difficult to survey. In these cases, surveyors tend to rely on data previously collected by large organizations, such as market research or census data. However, the collection of the data they use is often flawed in the first place. The Urban Institute describes this phenomenon, identifying the contributing factors that are inherent to the geographical regions themselves:

“The small number of responses that low-population communities typically have to surveys can result in high margins of error. Many demographic and economic datasets, including the ACS, report data collected by surveying a sample of respondents. In high-population areas, the large number of responses means these data are frequently reflective of the reality on the ground. However, in low-population areas, these data reflect fewer responses, making their true value more difficult to measure because of high margins of error. This means that even though the data give a single-point estimate for each survey answer based on the responses, the range within which the true value falls can be so large that the point estimate is effectively meaningless.”

Random sampling methods and other common surveys are therefore unable to compensate for these discrepancies, and thus far, digital literacy surveys have not accurately modeled rural populations and tribal communities. Given that technological education is often poorest in rural areas, this has contributed to a vast blind spot in digital literacy assessments. It is imperative to these populations that surveyors attempt to replicate the successes of TSS and RDS survey methods in order to accurately model community needs statewide.

Recommendations

Given the limitations observed above, survey methods that have commonly been used to assess digital literacy in large populations should be discarded. In further efforts to conduct widespread surveys we would recommend following the examples set in the public health sector, which use TSS and RDS to great effect. We would also recommend that any use of preexisting data should be largely supplemental and interrogated by surveyors; while it is tempting to use census data, this can lead to inaccurate models, a problem that worsens in key regions such as rural communities and tribal lands

(US Census Bureau, 2012). Using preexisting data can also lead to a demographics-based structure by which surveys are deployed to the public, which fails to account for nuanced acquisition of digital skills in urban populations. While there are effective methods being used to survey digital literacy — namely interviews, focus groups, and long-term collaborative research with specific populations — these are primarily useful when conducting a granular study with a small group of participants. Both TSS and RDS have been applied on a larger scale and can be used to overcome these issues. However, we would recommend that surveyors use small-scale efforts to research the population before selecting the method they use to sample. Interviews or focus groups would provide foundational information, which would help surveyors to decide whether network-driven RDS methods or venue-based TSS methods would be more effective in Washington. Conducting this level of research would also give communities the opportunity to articulate unexpected needs that can be incorporated into survey design.

Similar research can be incorporated into the survey questions themselves. It is crucial to understand the environment in which participants are able to learn and share digital skills, as this will provide the WSL with better foresight regarding future work in creating equitable systems. There are a few different areas surveyors can pay attention to in addition to the skills' assessment. Foremost among these would be an effort to understand existing human networks as described by respondents. Where are people going for help with technology? Social resources play a huge part in the digital divide; a person who is able to ask a friend or family member for assistance experiences barriers very differently from an isolated person with infrequent support. The City of Seattle asked respondents in its 2018 survey about the assistance they need getting online, and found that those living alone in fact need more one-on-one support. We recommend investigating these networks more fully, both to understand where communities are finding support and for understanding how isolation contributes to inequities. Including questions about who respondents ask for technology assistance (both among local contacts, or services/organizations), who they themselves provide assistance to, what kind of help they wish was more available, and the accessibility of their local contacts or organizations to seek that help will be useful in understanding how communities navigate digital obstacles.

Making an effort to accurately model networks will lead to more actionable data, which can be furthered by an investigation of the respondents' relationships to libraries and other anchor institutions. These should be addressed directly, even if it creates redundant information, as we cannot predict how many respondents will incorporate these institutions into descriptions of their networks. Asking participants what support they seek or expect from local institutions and their confidence in obtaining that support, whether it be help using a device or navigating vouchers, will be a valuable addition. Surveyors should attempt to investigate the level of trust respondents have in these institutions, as well as the frequency of use, as we cannot assume that these data points are inherently connected. The survey's design will inform both the respondents creating the data and the researchers

that will ultimately use the data to develop policy and programs for digital equity; to this end, the design should be as collaborative and fair as possible.

When building the statewide digital skills assessment, there are logistical adaptations that surveyors can deploy to make the assessment more inclusive. First, we recommend prioritizing a process-based assessment over self-reporting or knowledge-based tests. This would provide the most accurate representation of existing skills and would allow for the evaluation of digital problem solving and digital information literacy. Digital skills are process-based knowledge. An assessment that approximates how skills are used in day-to-day life allows participants to demonstrate what they know. We would also recommend that the assessment includes a piece, or is created entirely, from the perspective of skills required for mobile devices such as smartphones and tablets. Research in Seattle indicates that residents are more likely to own mobile devices than laptops, and it makes logistical sense to test the skills that are more widely used, especially by low-income people. Further, smartphones are the site of many critical day-to-day interactions with technology: accessing Google maps is, for many, a more regular need than spreadsheet software. Digital skills primarily emerge for new users via smartphones, and assessing how people just building digital skills use their devices offers an avenue for targeting training opportunities.

Further than logistical considerations, taking a perspective that evaluates Washingtonians' strengths rather than deficits is key. We recommend constructing the statewide study around an asset-based approach. This is challenging: as outlined above, large surveys inherently reveal deficits, and in data analysis it can be easy to focus attention on where skills are missing. We know that vocabulary for skills is still emerging, and that survey design is unlikely to incorporate as-of-yet unarticulated abilities. However, we can assume these skills exist! We recommend that the RFP identify steps to address emerging skills. One way to approach this thorny issue is by using language around "skills" and "abilities" rather than "literacy" or "competencies." "Literacy" is regarded as a binary ability contingent on access to education, and receiving messages that a community may be "illiterate" can be alienating for groups impacted negatively by the digital divide. As outlined above, communities regarded as having low digital literacy are likely to possess skills not yet understood by state agencies. Because an effective assessment is also designed to identify problem solving processes rather than static knowledge, skills and abilities are more accurate terms in regards to the state library's stated goals.

An equitable survey will ultimately focus on "technology for people," which combines existing systems with educational programs to increase "people's well-being financially, emotionally, socially, and intellectually" (Eubanks, 2007). Following this approach necessitates a deliberate effort to understand how Washingtonians feel about currently available methods by which they can acquire digital skills, and to use extant strengths within the population to determine future goals. Notably, Hawai'i's survey measured what skills residents currently possess and what skills they want help with in their survey, and these skills often diverged. To make this information more useful, surveyors should

examine what would make digital skills training more attainable. Communities with low digital skills are often well-connected, which will ultimately prove helpful for the WSL in their efforts to provide digital access. To this end, we would recommend that surveyors use asset-based language to put a strong emphasis on self-efficacy; respondents should have space to be confident in their current skills and to demonstrate their ability to seek and find help when needed. In addition to the ways in which surveyors can interrogate the respondents' abilities and needs, we would recommend that respondents are given the space to articulate their own goals. This could take the form of an open-coded short answer question or selection from a list of skill clusters.

Exciting work has recently taken place in state/citywide digital skills studies regarding information literacy's relationship with digital skills. In addition to the examples outlined above, one as-of-yet untried survey area regards search tools. Informational retrieval makes up a large portion of internet use, and we believe that understanding which populations rely on natural language searches and which feel comfortable creating search strings or utilizing advanced search tools may serve as an indicator for other forms of information literacy. It will also predict which communities are able to find more specific and relevant information, and which are more vulnerable to incomplete fulfillment of their information needs. We would also recommend implementing a strategy similar to Hawai'i's Department of Labor and surveying individuals for their level of comfort interpreting the accuracy of information they encounter online, and in addition assessing their abilities and strategies for verifying information online. We found that this approach supports a sense of self-efficacy when examining issues of information literacy.

An inclusive and responsive statewide skills assessment addresses the competing demands of accurately gauging existing skills while identifying target areas for skill development and relationship building. By intentionally selecting frameworks, assessment styles, and outreach, the WSL can seek information reflective of Washingtonians' needs.