

Applying a racial equity lens to digital literacy

How workers of color are affected by digital skill gaps



DIGITAL SKILLS SERIES

American jobs are undergoing massive technological transformation, with even entry-level workers now expected to use all manner of digital devices and equipment. Examples include restaurant workers being trained in food safety using virtual reality goggles, home health aides using tablet computers to report patient information, retail clerks using smartphone apps to process returned items, and manufacturing workers using augmented reality to assemble parts.

To succeed in this rapidly transforming environment, workers need broad-based digital problem-solving skills that equip them to learn a wide variety of today's technologies and navigate continued changes in the future. This **digital literacy** includes both the capacity to use technology and the cognitive skills necessary to navigate it successfully.

But a startling one-third of American workers lack these vital digital skills. This lack of skills has wide-ranging consequences, hampering workers' own economic mobility and security, while also holding back the productivity and economic competitiveness of the U.S. companies that employ them.

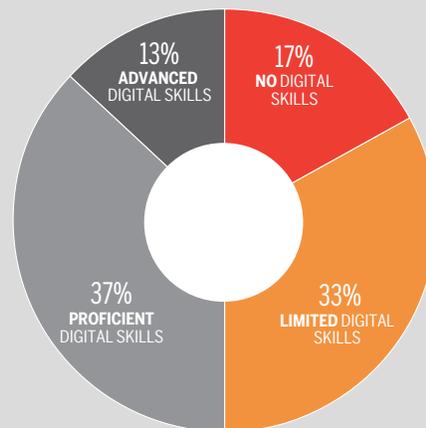
Workers of color are disproportionately affected by digital skill gaps compared to their white peers, in large part due to structural factors that are the product of longstanding inequities in American society, such as income and wealth gaps and uneven access to high-quality K-12 education. Historically, public policy decisions played a key role in forming racial inequities in educational attainment, employment, and wages among American workers. Policies also have helped create the systems that shape access and outcomes in postsecondary education and training for people of color. Therefore, public policies must now be an integral part of the **solution** to addressing digital skill gaps for workers of color.

This fact sheet draws on U.S. data from a respected international assessment known as the Organization for Economic Cooperation and Development (OECD) Survey of Adult Skills, or PIAAC.¹ The data shows that 13 percent of currently employed American workers ages 16-64 have no digital skills, and an additional 18 percent have very limited skills. Another one-third (36 percent)

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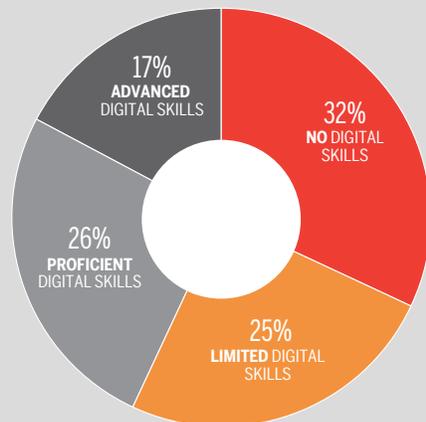
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HALF OF BLACK WORKERS NEED DIGITAL SKILLS



Currently employed US workers ages 16-64. Source: OECD Survey of Adult Skills (PIAAC), 2012-14.

MORE THAN HALF OF LATINO WORKERS NEED DIGITAL SKILLS



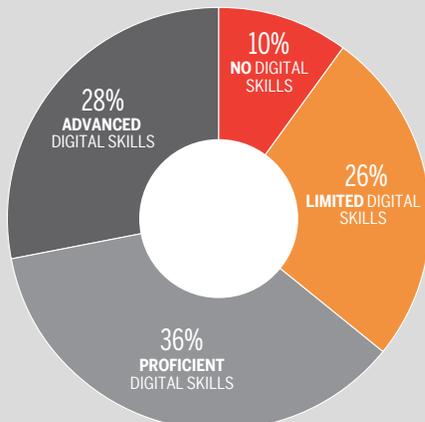
Currently employed US workers ages 16-64. Source: OECD Survey of Adult Skills (PIAAC), 2012-14.



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ONE-THIRD OF ASIAN AMERICAN/PACIFIC ISLANDER WORKERS NEED DIGITAL SKILLS



Currently employed US workers ages 16-64. Source: OECD Survey of Adult Skills (PIAAC), 2012-14.

have achieved a certain level of proficiency, and the remaining 33 percent have the advanced skills necessary to be most adaptable to changing technology.

Due to longstanding inequities, workers of color are over-represented among those with limited or no digital skills.

For example, Black workers comprise 12 percent of overall workers, but represent 15 percent of the subset of workers who have **no** digital skills and 21 percent of those with **limited** skills. Latino workers (who may be of any race) are 14 percent of overall workers, but represent a full 35 percent of workers with no digital skills, and 20 percent of those with limited skills.

Is the glass half-full or half-empty? Understanding fragmented knowledge

It may seem surprising that in this day and age some workers have few or no digital skills. It is important to note that many of these workers may have fragmented knowledge: That is, they may be comfortable using a mobile phone to text a photo, but not familiar with how to operate a mouse or upload a job application.

This is particularly true for individuals who do not own a desktop or laptop computer. Data from the US Census Bureau indicates that 23 percent of US households fall into this category.⁴

Fragmented knowledge is also more likely to occur among people who have smartphone-only internet access—that is, they can get online using their phones, but don't have broadband internet access at home. A 2019 survey from the nonpartisan Pew Research Center showed that people of color are more likely to have smartphone-only internet access, with 23 percent of Black respondents and 25 percent of Latino respondents falling into this category, compared to just 12 percent of whites.⁵

The picture for Asian American and Pacific Islander (AAPI) workers is more mixed. These workers represent 5 percent of overall workers, 4 percent of workers with no digital skills, and 7 percent of workers with limited skills.² Unfortunately, detailed data on other workers of color – such as Native Americans or multi-racial individuals – is not available due to low sample size. (See text box on insufficiency of data.)

DELVING DEEPER: WORKERS WITH NO DIGITAL SKILLS

While the numbers listed above describe the *percentage of all workers with few or no digital skills* who are of various racial/ethnic groups, it's also important to analyze the converse. In other words: *what percentage of all workers within each specific race/ethnicity lack digital skills?* Looked at from this perspective, fully 17 percent of all Black workers have no digital skills. Similarly, 32 percent of all Latino workers have no digital skills, as do 10 percent of all Asian Americans and Pacific Islanders.³

These workers failed to meet one or more of the three baseline criteria to even take the full PIAAC digital skills assessment: 1) prior computer use, 2) willingness to take the computer-based assessment, or 3) ability to complete four out of six very basic computer tasks, such as using a mouse or highlighting text on screen.

It's important to note that some of these workers likely have what is known as *fragmented knowledge*. (See text box below.)

Workers with fragmented knowledge may be adept in navigating certain digital tasks they use often in their daily lives, yet also be held back from advancing in their careers due to lack of the digital problem-solving skills measured by the PIAAC.

Policymakers and advocates seeking to help these workers upskill should be careful not to underestimate their ingenuity and expertise.⁶ In particular, leaders should ensure that workers have a voice in identifying what skill-building opportunities they need, what support is necessary to ensure their success, and how their employers can most effectively be engaged in upskilling conversations. (Labor-management partnerships are one proven model for this type of collaborative program design.⁷)

Understanding the phenomenon of fragmented knowledge can help leaders avoid making assumptions about who lacks digital skills and why, and which interventions can help people make bridges between the skills they have and the skills they need.

ONE FOOT ON THE LADDER: WORKERS WITH LIMITED DIGITAL SKILLS

An additional one-third (33 percent) of all Black workers have limited digital skills, as do 25 percent of all Latino workers and 26 percent of all Asian American and Pacific Islander workers.⁸ People with limited digital skills would have a hard time accomplishing simple digital tasks that have a generic interface and just a few steps. An example would be a person who is presented with five e-mails in an inbox. The e-mails are responses to an event invitation. People who have limited digital skills would struggle to complete the task of sorting the e-mails into pre-existing folders to track who is and is not attending the event.

HOLDING STEADY: WORKERS WITH PROFICIENT DIGITAL SKILLS

Approximately 37 percent of all Black workers have achieved a certain level of proficiency in their digital skills, as have 26 percent of all Latino workers and 36 percent of all Asian American and Pacific Islander workers.⁹ People at this level would typically struggle with tasks that require the use of both generic and specific technology applications. For example, a person might be presented with a new type of online form and need to navigate across multiple pages and applications to answer the test question. The task may have multiple steps and may require the use of tools (such as the “sort” function) to solve the problem. Workers at this digital skill level might have difficulty with the higher-level reasoning necessary to solve the problem and complete this task.

Many younger workers nevertheless have digital skill gaps

While it might seem that younger workers would be uniformly digitally literate, the data in fact show that a significant portion of American workers with few or no digital skills are in their late teens through early 30s. Specifically, fully a quarter (25 percent) of all US workers with **no** digital skills are between the ages of 16-34, and 29 percent of those with **limited** skills are between 16-34.

Perhaps more worryingly, younger Americans are also behind their international peers. Looking at a broader set of PIAAC data that includes all adults (not just workers) ages 16-34, the US scored lower in digital skills than 17 out of 18 peer countries. Top countries included Finland, Japan, and Norway, with only Poland falling below the US.¹⁰

These stark gaps in younger workers’ skills reflect several distinct issues: First, the challenge of fragmented knowledge. (See earlier textbox.) Younger workers are not immune to the reality faced by their older peers, in which they **develop** only those skills that they regularly **use**. Thus, a person might be confident in making a quick TikTok video, but stymied when it comes to using a spreadsheet.

Second, younger workers are more likely to be people of color. As discussed throughout this fact sheet, workers of color face a variety of additional barriers to digital skill-building. Finally, younger workers may face uneven access to upskilling opportunities, especially if they are employed in occupations or industries that tend to provide fewer employer-based training opportunities and less support for workers wishing to pursue additional education.





IN A STRONG POSITION: WORKERS WITH **ADVANCED** SKILLS

The final category encompasses workers with advanced digital skills. Approximately 13 percent of all Black workers, 17 percent of all Latino workers, and 28 percent of Asian American and Pacific Islander workers have advanced digital skills. (In comparison, a full 41 percent of white workers have advanced digital skills.) At this level, a person might have to make use of an online form that they are encountering for the first time. In doing so, they might have to define for themselves the goal of the problem they are solving, and use inferential reasoning in solving the problem. They might need to navigate across different online pages and applications, carry out multiple steps of a task, and evaluate the relevance of a set of items to discard distractors.

WHY WORKERS MAY LACK DIGITAL SKILLS

In addition to the structural issues mentioned above regarding digital access and inclusion, the data shows that a handful of demographic factors are closely correlated with lack of digital skills. Among those factors are:

- Limited educational attainment (high school diploma or less)
- Low earnings (in the bottom two quintiles of monthly earnings)
- Limited literacy skills

Workers who face one or more of these barriers are less likely to pursue upskilling opportunities—though not for lack of interest on their part. Previous research shows that time and money are significant barriers for workers who would like to upskill but are not currently enrolled in classes or other training.¹³ Unsurprisingly, workers who are most crunched for time and money tend to be low-wage workers, who are also more likely to be employed in jobs that offer limited opportunities for skill-building and career advancement.

Immigrant workers' digital skills

Immigrants comprise one in six American workers, and the majority of immigrants are people of color. This trend is expected to continue well into the future, with Asian and Latino immigrants making up the largest shares of new Americans.¹¹

Immigrants are similar to their US-born peers in that both groups include significant numbers of workers with digital skill needs. In particular, PIAAC data analyzed for this fact sheet show that 33 percent of all immigrant workers have **no** digital skills and 29 percent have **limited** skills, while 24 percent have proficient skills and 15 percent have advanced skills.

(PIAAC data does not include specifics about immigration status. In general, other data show that approximately three-quarters of immigrants in the US have legally authorized status and the remaining 25 percent are undocumented.¹²)

English learners, many of whom are people of color and/or immigrants, also have digital skill gaps. PIAAC data show that 40 percent of all workers with limited English have **no** digital skills, 27 percent have **limited** skills, 22 percent have proficient skills, and 11 percent have advanced skills. It is important to note that because the digital skills assessment took place in English, these numbers may underestimate workers' technological proficiency when working in their home language. However, because English usage is so dominant in US workplaces, it is important to know how workers fare when they are functioning in that language.

Note: This fact sheet recognizes that the challenges faced by people of color with deep generational roots in the United States and the challenges faced by immigrants sometimes differ; however, the policy recommendations included here aim to address inequities for people of color from both immigrant and non-immigrant backgrounds.

WHAT POLICYMAKERS CAN DO

For workers of color to thrive in the United States, they will need equitable opportunities to build in-demand digital skills—and businesses will need to invest in helping their employees build such skills. Congress can take action by investing in upskilling for workers and jobseekers through existing workforce and education legislation as well as new proposals. To ensure that workers of color benefit equitably from these investments, policymakers should require outcome data to be disaggregated by race and ethnicity. This allows policymakers, advocates, and service providers to identify where there are springboards or bottlenecks in their systems that are supporting or hindering racial equity in digital skill-building.¹⁴

There are a range of federal policies that provide opportunities for legislative action. Current federal investments in workforce development provide almost no dedicated support for digital skill-building; most notably, Title II of the Workforce Innovation and Opportunity Act (WIOA) lists digital literacy as one of numerous allowable activities for adult education programs.¹⁵ WIOA is due for reauthorization in 2020. Digital literacy investments could also be bolstered through other key federal workforce and education policies, such as the Higher Education Act, Perkins Career and Technical Education Act, or Supplemental Nutrition Assistance Program Employment and Training (SNAP E&T).



Special note on insufficiency of data

The primary data source used for this report, the OECD Survey of Adult Skills, or PIAAC, does not have sufficient sample size to allow for data disaggregation within the Asian American and Pacific Islander (AAPI) category. Thus, information on specific ethnicity or ancestry groups such as Cambodian Americans or Korean Americans is not available. Similarly, the dataset does not allow for detailed analysis pertaining specifically to Native Americans, including American Indians, Alaska Natives, and Native Hawaiians; or to individuals of Middle Eastern/North African (MENA) heritage; or to people who identify as multi-racial.

This lack of information reflects broader shortcomings in the availability of data on these communities. For example, there are chronic challenges in lack of disaggregation within AAPI data. Economic data about Native Americans is often outdated and insufficient to interpret reliably. Data about Native Americans is frequently described as statistically insignificant and often excluded from institutional data and reporting.¹⁶

National Skills Coalition recognizes the frustration that the absence of vital data can cause for policymakers and advocates alike. To address this issue, policymakers should fund the provision of expanded data collection through existing channels such as the PIAAC survey, gathering information from a larger pool of respondents in key ethnic communities so that findings can be disaggregated in the future.



Where this data comes from

Data in this publication comes from the Survey of Adult Skills, conducted under the auspices of the Organization for Economic Cooperation and Development. The survey, also known as the Program for the International Assessment of Adult Competencies or PIAAC, is administered by National Center for Education Statistics at the U.S. Department of Education. The survey gathered data from a representative sample of U.S. adults in 2012 and 2014. (Data used in this analysis combine information from both years for greater statistical precision.) The survey includes a background demographic questionnaire that is administered in English or Spanish, followed by a cognitive assessment in English measuring the three domains of literacy, numeracy, and the somewhat awkwardly named “problem-solving in technology-rich environments,” or PS-TRE. The data included here comes from the PS-TRE section of the study.

Note: An additional round of U.S. PIAAC data collection was completed in 2017. While 2017 data is not reflected here due to the timing of its

release to the public, it is largely consistent with earlier years. Learn more about the 2017 data here: https://nces.ed.gov/surveys/piaac/current_results.asp

Acknowledgments

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Footnotes

- 1 PIAAC stands for the Program for the International Assessment of Adult Competencies. Unless otherwise noted, all data in this fact sheet comes from the PIAAC 2012-14 US data on currently employed workers ages 16-64. For more information, refer to the “Where this data comes from” text box elsewhere in this fact sheet.
- 2 It is probable that these numbers are an artifact of US immigration policy. Compared to Americans overall, Asian Americans and Pacific Islanders (AAPIs) are much more likely to be immigrants, and many have arrived in the US under visa categories that select for wealthier and more highly educated individuals. Importantly, these factors are not equal across all AAPI groups; for example, individuals who arrived from Southeast Asian countries via the refugee resettlement process may have had fewer opportunities for formal education in their home countries. Unfortunately, low sample size does not allow the digital literacy data in this report to be disaggregated by AAPI sub-group.
- 3 For comparison, nine percent of all white workers have no digital skills.
- 4 “Computer and internet use in the United States: 2016,” US Census Bureau, 2018, <https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-39.pdf>
- 5 Source: <https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/>. Data on Asian/Pacific Islanders and other racial/ethnic groups was not provided in the Pew study. Additionally, it should be noted that among overall adults surveyed by Pew who lack home broadband internet access, 27 percent cited cost (of either the broadband service or a computer) as the most important reason for their lack of access. Cost concerns may be more common among people of color due to factors such as the racial wealth gap and pay inequality. Other aspects of structural racism also play a role in broadband internet access and related issues, as detailed by Sam Gustin in “Systemic Racial Discrimination Worsens the US Digital Divide, Study Says,” *Vice*, December 14, 2016, https://motherboard.vice.com/en_us/article/aek85p/systemic-racial-discrimination-worsens-the-us-digital-divide-study-says.
- 6 See, for example, “Digital Diaspora: How immigrants are capitalizing on today’s technology,” Welcoming Center for New Pennsylvanians, November 2012, <https://welcomingcenter.org/wp-content/uploads/2016/08/Digital-Diaspora-FINAL-report-Nov-2012-1.pdf>.
- 7 “The benefits of labor-management partnerships,” Labor-Management Project, 2014, <https://www.labormanagementinitiatives.org/wp-content/uploads/sites/7/2014/11/Benefits-of-LM-Partnership-Cross-Industry-Lit-Review.pdf>
- 8 For comparison, 14 percent of white workers have limited digital skills.
- 9 For comparison, 37 percent of white workers have proficient digital skills.
- 10 America’s Skills Challenge: Millennials and the Future, Madeline J. Goodman, Anita M. Sands, Richard J. Coley, Educational Testing Service, 2015, <https://www.ets.org/s/research/30079/asc-millennials-and-the-future.pdf>. Specific PIAAC PS-TRE international comparison chart viewable at: <https://www.ets.org/s/research/30079/millennials.html>.
- 11 Jynnah Radford and Luis Noe-Bustamante, “Facts on U.S. Immigrants: Statistical portrait of the foreign-born population in the United States,” Pew Research Center Hispanic Trends, June 3, 2019, <http://www.pewhispanic.org/2018/09/14/facts-on-u-s-immigrants/#fb-key-charts-origin>. Mark Hugo Lopez, Jeffery Passel and Molly Rohal, Modern Immigration Wave Brings 59 Million to U.S., Driving Population Growth and Change Through 2065: Views of Immigration’s Impact on U.S. Society Mixed, September 28, 2015, <http://www.pewhispanic.org/2015/09/28/modern-immigration-wave-brings-59-million-to-u-s-driving-population-growth-and-change-through-2065/>.
- 12 Jeanne Batalova, Brittany Blizzard, and Jessica Bolter “Frequently Requested Statistics on Immigrants and Immigration in the United States,” Migration Policy Institute, February 14, 2020, <https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states#Unauthorized%20Immigrants>
- 13 Foundational Skills in the Service Sector (National Skills Coalition, 2017), <https://m.nationalskillscoalition.org/resources/publications/file/NSC-foundational-skills-FINAL.pdf>
- 14 A version of this is already in place in Minnesota, which has disaggregated performance data from its workforce programs by race and ethnicity through a public dashboard located on its Department of Employment and Economic Development website. Learn more in The Roadmap for Racial Equity (National Skills Coalition, 2019), https://nationalskillscoalition.org/resources/publications/file/Racial-Equity-Report_6x9_web.pdf
- 15 See: <https://www2.ed.gov/about/offices/list/ovae/pi/AdultEd/integrating-technology.pdf>
- 16 “Why Data Matters When It Comes to Asian Americans and Pacific Islanders and Education,” NBC News, August 2, 2016, <https://www.nbcnews.com/news/asian-america/why-data-matters-when-it-comes-asian-americans-pacific-islanders-n621196>. Heather Shotton, Shelly C. Lowe, and Stephanie J. Waterman, Beyond the Asterisk: Understanding Native Students in Higher Education, Stylus Publishing (VA), March 5, 2013, <https://www.powells.com/book/beyond-the-asterisk-9781579226244>. Christine A. Nelson, “Moving Away From Data Invisibility at Tribal Colleges and Universities,” Higher Education Today, November 20, 2017, <https://www.higheredtoday.org/2017/11/20/moving-away-data-invisibility-tribal-colleges-universities/>

