CSIS BRIEFS

The Digital Literacy Imperative

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THE ISSUE

- **Digital literacy has become indispensable for every global citizen, whether to communicate, find employment, receive comprehensive education, or socialize.** Acquiring the right set of digital skills is not only important for learning and workforce readiness but also vital to foster more open, inclusive, and secure societies.
- **Digital literacy, like other competencies, should start at school.** However, many education systems lack the proper infrastructure, technological equipment, teacher training, or learning benchmarks to effectively integrate digital literacy into curriculums.
- **Effective strategies to address digital literacy and skill-building will require public and private investments** in digital infrastructure, policy and governance frameworks, and training in the use of digital technologies.
- **The U.S. government—particularly through the work of the U.S. Agency for International Aid (USAID), its premier development agency—can partner with the private sector, local organizations, and civil society to lead and support an international coalition on digital skills.** It can lead in this space by convening a multistakeholder working group on digital skills, investing in skills development among vulnerable and excluded populations (such as women and girls), and enhancing digital skills in basic curriculums.

INTRODUCTION

Reading, writing, and numeracy: these are foundational skills people learn at school and continue using throughout their lifetimes. But as societies evolve and technology progresses, the learning needs and demands of one generation change for the next. Curriculums in educational institutions must keep up with these changes to reflect the new realities. They do so by removing outdated content, incorporating new disciplines, and innovating with new educational tools and techniques. While previous American generations learned Latin and shorthand, current generations learn Spanish or French and practice typing. In many public schools across the United States, cursive handwriting is no longer taught. Children now practice writing and typing using new technology such as tablets and computers, not typewriters. In advanced countries, educational equipment such as blackboards, chalkboards, and even whiteboards have been replaced with high-tech tools such as Promethean boards.

While numeracy and basic literacy are still fundamental to learning, digital literacy has emerged as another critical **life skill** and is now, per the World Economic Forum, part of the twenty-first-century toolkit (see Figure 1). Beyond basic literacy, digital skills have become indispensable for every global citizen, whether to communicate, find employment, receive comprehensive **education**, or socialize. More than 90 percent of professional roles across sectors in **Europe** require a basic level of digital

knowledge and understanding. This need has become even more evident during the Covid-19 pandemic, making it more urgent for countries to embrace digital technologies and their associated skills.

To keep up with technological advancements, **companies** need to hire employees that have the right skills. However, workforces are not always equipped with the requisite digital skills, and businesses often struggle to find qualified talent. Digital skills are at a premium, even in advanced economies. For instance, the European Union's **Digital Economy and Society Index (DESI)** shows that approximately 42 percent of **Europeans** lack basic digital skills, including 37 percent of those in the workforce. Women are particularly underrepresented in tech-related professions; only one in six information and communications technology (ICT) specialists and one in three science, technology, engineering, and mathematics (STEM) graduates are women.

However, acquiring the right set of digital skills is not only important for learning and workforce readiness: digital skills are also vital to fostering more open, inclusive, and secure societies. When people interact with digital infrastructure, they need to be aware of the privacy and data risks as well as cybersecurity challenges (e.g., ransomware and phishing attacks). Thus, digital literacy also includes handling security and safety challenges created by technology. At the same time, with the rise of **digital authoritarianism, misinformation, and disinformation**, as well as limitations on personal freedoms, it is equally important to maintain a values framework for digital transformation.

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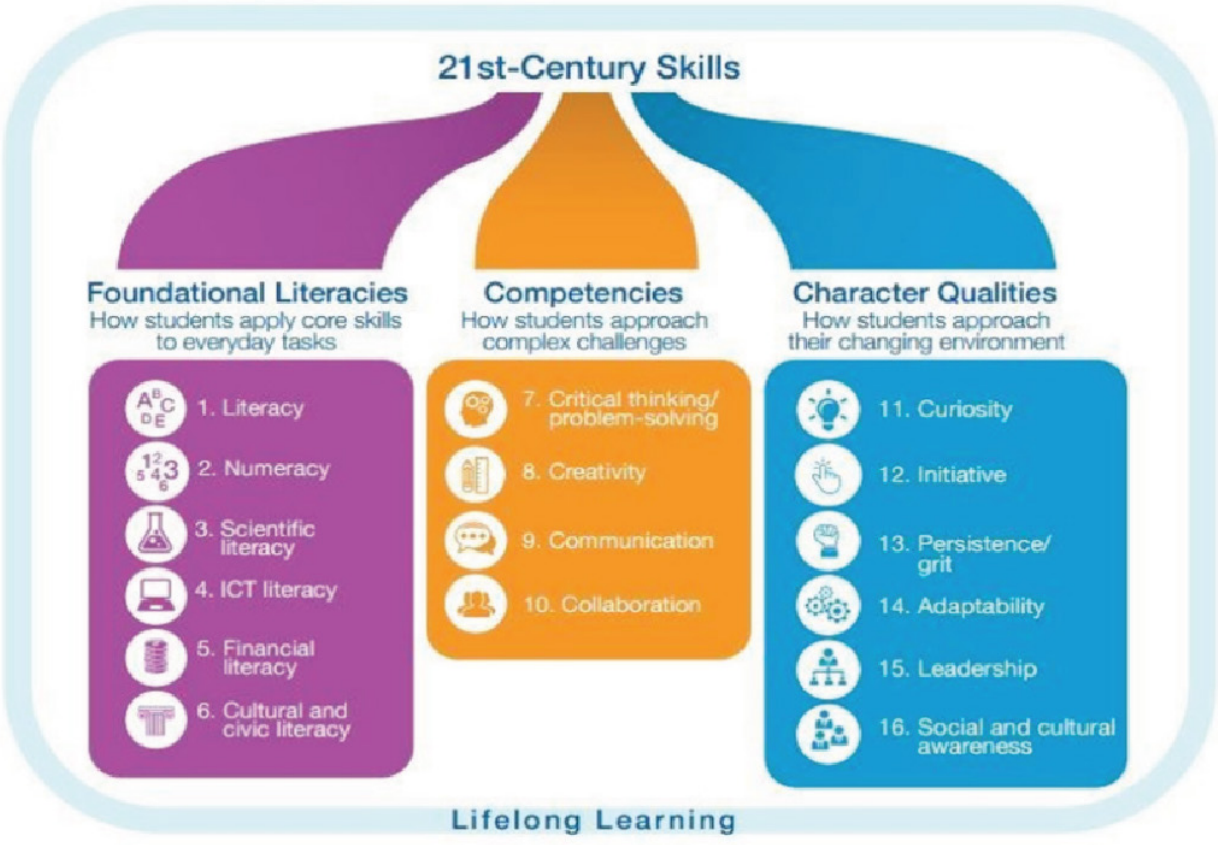
Figure 1: The Skills Toolkit for the Twenty-First Century



Source: World Economic Forum and Boston Consulting Group, *New Vision for Education: Unlocking the Potential of Technology* (Geneva: World Economic Forum, 2015), https://www3.weforum.org/docs/WEFUSA_NewVisionforEducation_Report2015.pdf. Reprinted with permission.

DIGITAL LITERACY IN A CONTINUUM

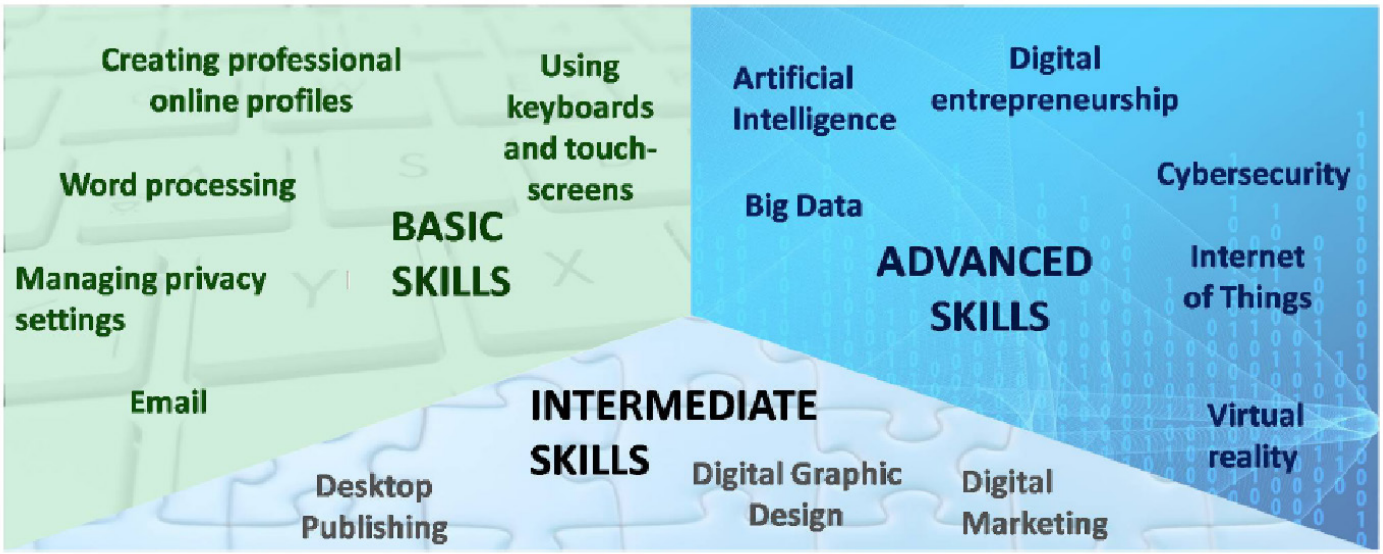
What exactly does "digital literacy" entail? There are many competing definitions, but it can be thought of as the ability to use digital technologies—both hardware and software—safely and appropriately. According to the UN Educational, Scientific, and Cultural Organization (**UNESCO**), this includes competencies such as using ICT, processing information, and engaging with media. However, digital skills do not exist in a vacuum and interact with other capabilities such as general literacy and numeracy, social and emotional skills, critical thinking, complex problem solving, and the ability to collaborate.

Digital skills also have different degrees of complexity. According to the International Telecommunication Union (ITU), digital skills exist along a **continuum** ranging from basic to intermediate to advanced (see Figure 2). *Basic digital skills* comprise the effective use of hardware (e.g., typing or operating touch-screen technology), software (e.g., word processing, organizing files on laptops, and managing privacy settings on mobile phones), and internet/ICT tasks (e.g., emailing, browsing the internet, or completing an online form). *Intermediate digital skills* comprise the ability to critically evaluate technology or create content; they are characterized as "job-ready skills" and include desktop publishing, digital graphic design, and digital marketing. Finally, specialists use *advanced digital skills* in ICT professions such as computer programming and network management. Many technology-sector jobs now require advanced digital skills related to such innovations as artificial intelligence (AI), big data, natural language processing, cybersecurity, the Internet of Things (IoT), software development, and digital entrepreneurship.

Digital literacy, like other competencies, should start at school. But many education systems are not equipped to teach children these skills because they lack the proper infrastructure, technological equipment, teacher training, curriculum, or learning benchmarks. This gap is further pronounced in developing countries. A 2020 **study** conducted in Chile, Ecuador, Mexico, and Peru assessed teachers' digital skills and readiness for remote learning, finding that 39 percent of teachers were only able to execute basic tasks, 40 percent were able to perform basic tasks and use the internet to browse or send email, and only 13 percent of teachers could do more complex functions.

Moreover, enhancing digital literacy goes beyond providing access to computers, smartphones, or tablets. Although nearly half of the world is still offline, supplying hardware alone will be insufficient to acquire digital literacy. That is, beyond the estimated **$428 billion** in investment required to close the digital coverage gap, there is little information on the total investment or demand for addressing this issue. There are alternative models for delivering digital literacy—particularly to vulnerable and under-connected communities—including interactive voice response (IVR), solar-powered devices, downloadable learning, and feature

Figure 2: The Digital Skills Continuum



Source: International Telecommunication Union (ITU), *Digital Skills Toolkit* (Geneva: ITU, 2018), https://www.itu.int/en/ITU-D/Digital-Inclusion/Youth-and-Children/Pages/Digital-Skills-Toolkit.aspx. Reprinted with permission.

phones. Despite the many innovations in this space, there is scant evidence of what works or what can be scaled.

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MULTILATERAL EFFORTS ON DIGITAL LITERACY

The need to equip current and future generations with the necessary skills is captured in the United Nations' sustainable development goals (SDGs). Under target 4.4, the United Nations nudges countries to increase the proportion of youth and adults who have skills relevant for the job market. More specifically, **indicator 4.4.1** calls on governments to measure the proportion of youth and adults with ICT skills.

In this regard, international organizations, the private sector, and national governments have established initiatives on digital literacy (see text box). For example, **frameworks** that measure digital skills target different societal sectors, including primary and secondary schools, government structures, and specific industries. The most relevant frameworks include the ITU's Digital Toolkit, the Eurostat digital skills indicator survey, and the **European Union's Digital Competence 2.0 Framework for Citizens**. In addition, the **DQ Framework** aggregates 24 leading international frameworks to promote digital literacy and digital skills around the world.

Digital literacy is both an international and local issue. Countries and regions will require tailored approaches to meet their unique needs and contexts. Some governments are putting together strategic plans to increase citizens' digital literacy, albeit for different purposes. For example, the Republic of Korea has prioritized fostering digital skills in public administration officials to improve efficiency in delivering public services. Meanwhile, Oman has used Microsoft's Digital Literacy curriculum to improve the ICT industry's workforce and prepare youth for employment. In 2019, the **Ukrainian** government launched a national digital education platform called **Diia Digital Education** offering over 75 courses and teaching materials to its citizens. Through its skills agenda, the **European Union** has set a target to ensure that 70 percent of adults have basic digital skills by 2025 and to cut the percentage of teens who underperform in computing and digital literacy from 30 percent in 2019 to 15 percent by 2030. **Ghana** has partnered with the World Bank's Digital Economy for Africa initiative, launching a $212 million "eTransform" program to increase training, mentoring, and access to technologies.

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EXAMPLES OF INTERNATIONAL DIGITAL-SKILLS INITIATIVES

USAID released its first four-year digital strategy plan in **2020** to achieve safe and inclusive digital ecosystems in developing countries. In April 2022, the agency also released its **Digital Literacy Primer**, which aims to raise awareness on how digital literacy can contribute to global development goals and what role USAID can play to improve digital-literacy programming and initiatives.

UNESCO has partnered with Pearson's Project Literacy program to create **digital-literacy guidelines** for nongovernmental organizations, governments, and the private sector to utilize when pursuing digital-literacy projects. UNESCO's Institute for Information Technologies in Education (IITE) hosts discussion events, provides training programs to educators and schools, and advocates for digital-literacy education policies.

The Organization for Economic Cooperation and Development's (OECD) Program for International Student Assessment (PISA) conducted a report on access to digital technology, in which it promoted initiatives to combat growing digital divides. In addition, the OECD's **Going Digital project** explains to policymakers why digital development is crucial.

The ITU operates projects around the world centered on **digital inclusion** through "digital transformation centers," "smart villages," and digitizing government services. The ITU and Cisco Systems have also **partnered** to address digital-skills and -literacy gaps in developing countries.

The World Bank's Development Data Group was implemented to expand access and promote digital-skills development across **multiple sectors**. In ***World Development Report 2021: Data for Better Lives***, the

World Bank offers recommendations for digital-literacy campaigns and strategies. This builds upon the **multiple projects in several regions** it has instituted to support digital literacy since **2006**, as well as its joint program with EQUALS Global Partnership and local **organizations** to increase digital skills and literacy for women and girls in Rwanda, Nigeria, and Uganda.

The UN Children's Fund (UNICEF) explored **digital-literacy frameworks in 2019**, seeking to partner with multiple stakeholders and expand its research on this issue. Thus far, UNICEF primarily researches and publishes reports on digital-literacy plans but does include related goals and resources in its **various education programs**.

DO4Africa aims to expand digital innovation and projects on the continent, including by **promoting digital literacy**.

THE ROLE OF THE UNITED STATES IN DIGITAL LITERACY

The Covid-19 pandemic has made evident the need to increase the adoption of innovative digital solutions and, in turn, build the skills that can accompany this wave of digitization. While the impact of the pandemic has increased opportunities for digital payments, e-services, and telework, digital technologies will not foster development and inclusion on their own. Effective strategies to address digital literacy and skill-building will require public and private investments in digital infrastructure, policy and governance frameworks, and training in the use of digital technologies.

In this regard, the U.S. government—particularly through the work of USAID, its premier development agency—can partner with the private sector, local organizations, and civil society to lead and support an international coalition on digital skills. Through its **Digital Strategy**, USAID is breaking silos internally, incorporating "digital" as an all-encompassing issue across the agency's strategies and operations. This puts the United States ahead of the curve: Among bilateral donor agencies in the OECD, only 12 countries have digitalization strategies within their organizations.

First, the United States should convene a multistakeholder working group on digital skills. Although many important institutions are working in this sector (including UNESCO, the ITU, the OECD, and the World Bank), USAID can play an important role in supporting a values-based approach to digital transformation and digital literacy. Donors need to think carefully about the principles and values being embedded into digital systems. Without strong guiding standards (such as the Principles for Digital Development) and values for these systems, we risk empowering malign actors instead of lifting people out of poverty; we risk enabling surveillance, disinformation, and digital authoritarianism instead of personal freedom and financial inclusivity; and we risk the wrong kind of systemic change by destabilizing the financial system and entrenching existing inequalities.

Effective strategies to address digital literacy and skill-building will require public and private investments in digital infrastructure, policy and governance frameworks, and training in the use of digital technologies.

To ensure maximum lasting impact, public and private organizations need to work together in a skills-development ecosystem, with more actors connecting through digital platforms and learning. As the saying goes, "If you want to walk fast, you walk alone; if you want to walk far, you walk together." In this regard, USAID has a comparative advantage in engaging with the private sector. Specifically, the agency could convene a multi-pronged approach that effectively coordinates efforts from the international donor community, multilateral institutions, local governments, and companies. This includes taking stock of existing collaborations and developing a single channel through which donors can communicate and coordinate. The U.S. government and relevant agencies should engage at not just the bilateral level but also multilaterally in order to maintain leadership roles across donor and recipient initiatives and participate in discussions to address digital-literacy challenges such as infrastructure and access.

Second, the United States and its partners should learn from previous digital-transformation approaches and elevate and invest in skills development among vulnerable and excluded populations such as women and girls. In low- and middle-income countries, fewer than **50 percent** of women have access to the internet, and far fewer have the skills to effectively and safely interact online, thus impeding their **social and economic opportunities**. Investment in general education, in addition to digital education, will also

be critical to developing twenty-first-century literacy and skills. Digital literacy is a very nuanced topic with many different elements, but research on related programming and interventions is not as robust. USAID can promote and facilitate evidence-based learning around what types of interventions work best for digital literacy—for now there is a large amount of innovation in this field, but there is also a lack of scale.

Third, in partnership with the donor community, USAID should work to enhance digital skills in basic curriculums and identify critical gaps in education systems. The earlier digital education begins, the more attainable a high degree of digital literacy. Digital Education would improve the overall quality of life in low- to middle-income countries and equip future workforces with necessary skills in a rapidly digitizing world. Where possible, integrating technology and digital skills into curriculums will allow for early development of digital literacy, allowing students to familiarize themselves with modern methods of communication and accessing information. These initiatives will need to be adapted to different countries' and communities' local and cultural contexts to maximize learning impact and ensure minimal exclusion. USAID can also assist governments in establishing upskilling initiatives to train older workers and employers in how to integrate digital technologies into businesses and sectors. These initiatives should emphasize preventing "brain drain" and retaining local digital talent. Improving ICT infrastructure will also increase the ability for people to access programs and integrate digital skills into their daily lives.

CONCLUSION

Digitalization is no longer a sectoral issue but is all-encompassing across sectors and actors. In that regard, "**the future is already here**"—and investing in digital-literacy programs will be critical to establishing global leadership in the digital age. Meeting digital demands and supporting digital transitions worldwide will be essential for global development programming and progressing toward a free, sustainable, and equitable future. In a world that is increasingly online, accessing technologies and the proper digital skills will be critical for countries' development, security, and inclusion. ■

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