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# Children, Disability, and the Digital Classroom: Rethinking Access and Assistive Technology for Low-Income Children with Disabilities in the Digital Age

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## Article

# Children, Disability, and the Digital Classroom: Rethinking Access and Assistive Technology for Low-Income Children with Disabilities in the Digital Age

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*As U.S. public schools increasingly incorporate digital learning tools at home, primary and secondary classrooms have come to transcend their traditionally brick-and-mortar walls. While these hybrid learning environments provide powerful spaces to build digital literacy skills, low-income children with disabilities—among the most vulnerable students in the U.S. education system—are increasingly left behind. Recent data suggest that children with disabilities, particularly low-income children with disabilities, are less likely than their peers to have the fundamental technology necessary to access classrooms' increasingly digital spaces. This discrepancy exacerbates disparate outcomes between children with and without disabilities, as those with disabilities receive lower test scores, experience less academic progress, and develop fewer digital literacy skills necessary for future education, employment, and long-term independence.*

*The Individuals with Disabilities Education Act (IDEA) provides powerful safeguards to ensure that children with disabilities have access to the traditional physical classroom. But by failing to ensure that low-income children with disabilities have access to reliable broadband internet and personal computers—functionally the doors to the digital classroom—the IDEA fails to guarantee that all children with disabilities have access to the rapidly changing classrooms from which they were historically excluded. This Article examines the disconnect between the IDEA's assistive technology amendments and the role of digital learning in U.S. public*

*schools. In examining this disconnect, this Article explores the Act's existing assistive technology provisions and recommends clarifying language and additional guidance to provide parents, local educational agencies, and courts with a much-needed framework to efficiently implement fundamental supports. This framework is critical to identifying and providing the digital tools necessary, both to ensure that low-income children with disabilities have access to today's increasingly online learning environments and, ultimately, to fulfill the purpose of the IDEA in the digital age.*

## ARTICLE CONTENTS

## LIST OF ABBREVIATIONS

*AT* ..... *assistive technology*
*DOE* ..... *U.S. Department of Education*
*ESEA* ..... *Elementary and Secondary Education Act*
*FAPE* ..... *free appropriate public education*
*IDEA* ..... *Individuals with Disabilities Education Act*
*IEP* ..... *individualized education program*
*LRE* ..... *least restrictive environment*

# Children, Disability, and the Digital Classroom: Rethinking Access and Assistive Technology for Low-Income Children with Disabilities in the Digital Age

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## INTRODUCTION

Jeremiah[1] entered ninth grade not knowing how to use a laptop, connect a personal computer to wireless internet, or send an email.[2] Like millions of children in U.S. public schools, however, Jeremiah was frequently assigned homework that required accessing and navigating information online.[3] But Jeremiah, who lived with his mother and siblings in Washington, D.C., could not access online assignments let alone engage with material in a digital format. The family lived below the federal poverty line and could not afford an internet subscription or a personal computer.[4] Instead, Jeremiah and his three siblings relied on the family's single smartphone and limited data plan to complete schoolwork that required online access.[5]

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[1] The child's name has been changed to protect his identity.

[2] Confidential Statement of Mother of Jeremiah to Health Justice Alliance, Georgetown Univ. Law Ctr. (Aug. 16, 2021) [hereinafter Confidential Statement] (transcript on file with author).

[3] *See* KEITH N. HAMPTON ET AL., QUELLO CTR., BROADBAND AND STUDENT PERFORMANCE GAPS 7 (2020), https://quello.msu.edu/wp-content/uploads/2020/03/Broadband_Gap_Quello_Report_MSU.pdf.

[4] A "personal computer" is a computer designed for individual use and includes a desktop computer, laptop, or tablet. Notably, a "personal computer" does not include individual use of a smartphone. *Personal Computer (PC)*, TECHNOPEDIA (Nov. 9, 2012), https://www.techopedia.com/definition/4618/personal-computer-pc; *see also* SUMIT CHANDRA ET AL., COMMON SENSE, CLOSING THE K–12 DIGITAL DIVIDE IN THE AGE OF DISTANCE LEARNING 26 (2020), https://www.commonsensemedia.org/sites/default/files/featured-content/files/common_sense_media_report_final_7_1_3pm_web.pdf (defining "adequate device" as a device "suitable for online learning . . . [including] laptops, computers, and tablets . . . [but] not includ[ing] mobile/cellular phones").

[5] Confidential Statement, *supra* note 2.

And while Jeremiah's high school had several (dated)[6] computers in the physical classroom, he was unable to stay after school to use them. As the oldest child at home, Jeremiah was responsible for meeting each of his younger siblings after school and accompanying them on public transit.[7] However, even if Jeremiah had been able to stay after school, he would not have been able to use the classroom computers, as he had never developed the digital skills necessary to operate a digital device aside from a smartphone.

Further complicating Jeremiah's ability to access and engage with instruction were his diagnoses of attention-deficit/hyperactivity disorder (ADHD), a mixed expressive-receptive language disorder, and specific learning disabilities in the areas of reading, writing, and math.[8] As a child with disabilities,[9] Jeremiah's individual learning needs created an additional barrier to accessing the same digital educational material as both his peers without disabilities and those with access to fundamental technology at home. Instead, Jeremiah, unable to complete any assignments that required online access or a digital upload, relied on extra credit using hard copy materials to make up missing points.[10]

Several months into his ninth-grade year, Jeremiah and his siblings transitioned to remote learning because of the COVID-19 health crisis. Although the public school system temporarily provided Jeremiah with a laptop and wireless hotspot, he did not know how to use either one. Until that time, the family did not have access to the internet or a personal computer. Jeremiah's mother, who did not know how to use a laptop or hotspot, struggled to resolve technology challenges at home.[11] Without the

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[6] *See generally*, Nick Pandolfo, *As Some Schools Plunge into Technology, Poor Schools Are Left Behind*, CHI. TRIB. (Jan. 25, 2012), https://www.chicagotribune.com/news/ct-xpm-2012-01-25-ct-x-digital-divide-0125-20120125-story.html (discussing the prevalence, and related challenges, of dated technology in the classroom setting, including "slower hard drives [that] make it difficult to run newer software programs").

[7] Unlike many public school districts, Washington, D.C., does not provide school buses for all children attending public schools. As a result, families must find alternate means of ensuring that children, especially young children who cannot safely self-transport, can get to and from school every day. *See* Jenny Abamu, *In D.C., Kids Ride Free, But They Can't All Ride Alone. And That's a Problem*, WAMU 88.5 (Oct. 4, 2018), https://wamu.org/story/18/10/04/d-c-kids-ride-free-cant-ride-alone-thats-problem/.

[8] Confidential Comprehensive Psychological Evaluation of Jeremiah (2021) (on file with author).

[9] This Article, consistent with health and legal scholarship, uses person-first language when referring to individuals with disabilities; however, it is important to note that individuals and communities may have varying preferences regarding the use of person-first or identity-first language. For this reason, it is important to confirm these preferences and maintain awareness that person-first language may not, in fact, be the preferred language. *See* Amy F. Crocker & Susan N. Smith, *Person-First Language: Are We Practicing What We Preach?*, 12 J. MULTIDISCIPLINARY HEALTHCARE 125, 127 (2019); Cara Liebowitz, *I Am Disabled: On Identity-First Versus People-First Language*, THE BODY IS NOT AN APOLOGY (Mar. 20, 2015), https://thebodyisnotanapology.com/magazine/i-am-disabled-on-identity-first-versus-people-first-language/; *see also* Lydia Brown, *Identity-First Language*, AUTISTIC SELF ADVOCACY NETWORK, https://autisticadvocacy.org/about-asan/identity-first-language/ (last visited Oct. 22, 2022).

[10] Confidential Statement, *supra* note 2.

[11] *Id.*

digital literacy skills necessary to access and navigate online instruction, Jeremiah was unable to log into the remote classroom. Even after the school system's temporary technology was fully implemented at home, Jeremiah—who requires additional time to process information because of his diagnoses and related learning needs—struggled to keep up. And while his teachers were available to provide additional support by email, Jeremiah could not reach out. He had never had an email address and did not know how to create or use one.[12]

In the digital age, the Individuals with Disabilities Education Act (IDEA), one of the nation's most powerful and "comprehensive law[s] at the intersection of education and disability,"[13] is increasingly unable to protect the educational rights that it grants to children with disabilities. As today's K–12 schools routinely incorporate online learning tools throughout primary and secondary students' educational programs,[14] classrooms have come to transcend the traditionally brick-and-mortar walls of the U.S. public school system.[15]

While this transition is critical to ensuring that students develop fundamental digital skills, recent data suggest that children with disabilities—among the most vulnerable students in public schools[16]—are less likely to have access to reliable broadband internet[17] or a personal

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[12] *Id*.

[13] Claire Raj, *The Lost Promise of Disability Rights*, 119 MICH. L. REV. 933, 936 (2021). The Act is typically referred to by its initials and pronounced *I-D-E-A*, rather than as *idea*.

[14] *See* Cecilia Kang, *Bridging a Digital Divide that Leaves Schoolchildren Behind*, N.Y. TIMES (Feb. 22, 2016), https://www.nytimes.com/2016/02/23/technology/fcc-internet-access-school.html (noting that, as of 2016, over seventy percent of K–12 teachers assigned homework that requires internet access outside of school).

[15] Daniel A. Lyons, *Narrowing the Digital Divide: A Better Broadband Universal Service Program*, 52 U.C. DAVIS L. REV. 803, 809–10 (2018); *see also* Lauren Musu, *The Digital Divide: Differences in Home Internet Access*, NCES BLOG (Oct. 31, 2018), https://nces.ed.gov/blogs/nces/post/the-digital-divide-differences-in-home-internet-access.

[16] Raj, *supra* note 13, at 933; *see also* Nora C.R. Broege & Charity Anderson, *Inequality in Isolation: Educating Students with Disabilities during COVID-19*, *in* 1 SOCIAL PROBLEMS IN THE AGE OF COVID-19 95 (Glenn W. Muschert et al. eds., 2020) (noting that students with disabilities (SWD) who are "an already vulnerable student group, are at even greater risk of inadequate services, academic failure, and social regression during the pandemic, and that low income SWD, SWD of color, and/or SWD who are also English-language learners (ELLs) may be at a particular disadvantage. The current realities of COVID-19, shelter-in-place laws, and virtual schooling have exacerbated inequities in our educational system and widened the achievement gap between SWDs and their general-education peers.").

[17] For the purpose of this Article, the term "broadband" refers to "high-speed Internet access that is always on and faster than the traditional dial-up access" at download and upload speeds necessary to access and engage with digital learning tools and services. *Types of Broadband Connections*, FCC, https://www.fcc.gov/general/types-broadband-connections (last visited Aug. 17, 2022). It is important to note that although broadband commonly refers to a variety of high-speed internet connections, policy makers have yet to "settle on a uniform definition of 'broadband' service . . . [and] the [FCC] currently uses different definitions in different contexts." *See* Lyons, *supra* note 15, at 842 (discussing the need for an activity-based approach to defining broadband service). *See also infra* text accompanying note 103.

computer[18] than their peers who do not have a disability.[19] As a result, many children with disabilities are unable to access today's increasingly hybrid learning environments; experiencing significantly lower performance in reading, math, and science; and developing fewer digital literacy skills[20] necessary for today's increasingly digital world.[21]

The IDEA has traditionally recognized the significant barriers that children with disabilities face in accessing and engaging with the same material as their peers without disabilities. Congress passed the IDEA in response to a series of cases establishing that every child with a disability has the right to an education[22] and finding that over half of children with disabilities attending U.S. public schools were either completely excluded from the school system or receiving an inappropriate education.[23] The Act emphasizes the importance of tailoring the educational services for a child with a disability to support their unique academic, cognitive, and social-emotional needs and stresses the importance of parental involvement in identifying and understanding critical services.[24] To fulfill these core components, the IDEA provides powerful substantive and procedural safeguards for children with disabilities and their families, including the substantive right to a free appropriate public education (FAPE) that is uniquely tailored to the child's individual learning needs.[25]

The IDEA's substantive right to a FAPE is the foundation for determining the specific educational supports that a public school must provide to a child with a disability. In 1982, long before the internet or digital learning tools, the Supreme Court first considered the level of educational benefit afforded by the IDEA's FAPE standard—finding that children with disabilities were entitled to no more than a special education program that provides some educational benefit—what the Court called a "floor of

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[18] For this Article's definition of "personal computer," see *supra* note 4 and accompanying text.

[19] *See* Ananya Sen & Catherine Tucker, *Social Distancing and School Closures: Documenting Disparity in Internet Access Among School Children* app. at A-2 fig. A2 (Mass. Institute of Tech. Sloan Sch. Of Mgmt., Working Paper No. 6093-20, 2020), https://ide.mit.edu/sites/default/files/publications/SSRN-id3572922%20Sen,Tucker.pdf; *see also* Broege & Anderson, *supra* note 16 at 95.

[20] *See* ANGELINA KEWALRAMANI ET AL., NAT'L CTR. FOR EDUC. STAT., STUDENT ACCESS TO DIGITAL LEARNING RESOURCES OUTSIDE OF THE CLASSROOM, at xv, 98, 102, 110 (2018), https://files.eric.ed.gov/fulltext/ED581891.pdf.

[21] *See generally* JANNA ANDERSON ET AL., PEW RSCH. CTR., EXPERTS SAY THE "NEW NORMAL" IN 2025 WILL BE FAR MORE TECH-DRIVEN, PRESENTING MORE BIG CHALLENGES (2021), https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2021/02/PI_2021.02.18_New-Normal-2025_FINAL.pdf (discussing the growing need for digital literacy skills).

[22] The IDEA was originally passed as the Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773; *see also* S. Rep. No. 94-168 (1975) (Conf. Rep.); Bd. of Educ. v. Rowley *ex rel.* Rowley, 458 U.S. 176, 199–200 (1982).

[23] Education for All Handicapped Children Act § 3, 89 Stat. at 774; *Rowley*, 458 U.S. at 189; *see also* Individuals with Disabilities Education Act, 20 U.S.C. § 1400(c)(2).

[24] *See* 20 U.S.C. § 1400(d)(1)(A).

[25] *Id.* FAPE is typically referred to as one syllable, pronounced *fape*, rather than by its initials.

opportunity."[26] In 2017, the Court revisited the IDEA's FAPE obligation and found that, although a child with a disability does not have a right to the best education possible, the child has a right to an educational program that is "appropriately ambitious in light of [their] circumstances."[27] As such, the Court found that the child's individualized education program (IEP)[28] must enable them to make markedly more than *de minimis* educational progress.[29]

The relationship between special education and the ever-evolving digital landscape is legally significant because the IDEA requires that public schools[30] provide students with a free appropriate public education to prepare them for future education, employment, and independent living.[31] Today, however, the knowledge and skills necessary for future education, employment, and independence are significantly different than in 1975—namely, the ability to meaningfully engage with information, education, and related skills has changed drastically in the digital setting.[32] As a result, today's educational, professional, and personal spheres require (1) reliable access to digital tools (such as broadband and personal computers), as well as (2) the digital literacy skills necessary to navigate and engage with those tools.[33] For K–12 students, including children with disabilities, this means reliable, informed, online access for homework, group work, research, and managing assignments.[34] For later education, employment, and independence, this means the ability to navigate the world's increasingly online systems, including, among many others, email, health records, and finances.[35]

Currently, the IDEA requires that public schools "consider" a variety of "special factors" when developing a child's special education program, including "whether the child needs assistive technology devices and services."[36] Although the IDEA provides a high-level framework regarding

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[26] *Rowley*, 458 U.S. at 201.

[27] Endrew F. *ex rel.* Joseph F. v. Douglas Cnty. Sch. Dist. RE-1, 137 S. Ct. 988, 1000 (2017).

[28] *See* 20 U.S.C. § 1401(14) (defining "individualized education program" or "IEP" as "a written statement for each child with a disability that is developed, reviewed, and revised in accordance with section 1414(d) of this title").

[29] *Endrew F.*, 137 S. Ct. at 1001.

[30] Congress passed the IDEA pursuant to the Spending Clause; however, because all states have accepted funds under the statute, every state is required to follow obligations outlined in the Act. *See* Arlington Cent. Sch. Dist. Bd. of Educ. v. Murphy, 548 U.S. 291, 295–96 (2006) ("Congress enacted the IDEA pursuant to the Spending Clause . . . [and] has broad power to set the terms on which it disburses federal money to the States.").

[31] 20 U.S.C. § 1400(d)(1)(A).

[32] *See generally* KEWALRAMANI ET AL., *supra* note 20, at *passim*.

[33] Patricia F. First & Yolanda Y. Hart, *Access to Cyberspace: The New Issue in Educational Justice*, 31 J.L. & EDUC. 385, 404 (2002); *see also* CHANDRA ET AL., *supra* note 4, at 8.

[34] *See generally* MATTHEW H. RAFALOW, DIGITAL DIVISIONS: HOW SCHOOLS CREATE INEQUALITY IN THE TECH ERA 109–32 (2020) (reflecting on the necessity of effective implementation of digital technology in schools to ensure future success for students).

[35] *Id.*

[36] 20 U.S.C. § 1414(d)(3)(B)(v).

what constitutes an "assistive technology service,"[37] it does not provide the same guidance regarding what constitutes an "assistive technology device."[38] As a result, special education teams developing programs for children with disabilities have come to narrowly interpret the IDEA's definition of "assistive technology device." This narrow interpretation is directly contrary to both the statute's plain language[39] as well as Congressional findings that special education can be made more effective by "us[ing] technology, including assistive technology devices and assistive technology services, to maximize accessibility for children with disabilities."[40]

Ultimately, the failure to ensure that children with disabilities have access to the fundamental technology necessary to engage in classrooms' digital spaces is the failure to ensure that all children with disabilities have access to today's public schools. Little has been written about the need to ensure that low-income students with disabilities have access to both the digital tools, as well as the digital literacy skills necessary to use those tools, to (1) access schools' increasingly online learning spaces and, (2) develop the skills necessary to fulfill the IDEA's purpose of preparing all children with disabilities for future education, employment, and independence.[41]

This Article aims to explore the IDEA's longstanding goals that children with disabilities not only have access to the U.S. public school system but also receive a free appropriate public education in preparation for future education, employment, and independence in today's increasingly digital world. It evaluates these goals in the context of today's increasingly hybrid classrooms, particularly the digital learning spaces that function as an extension of the physical classroom and allow students, including students with disabilities, to connect with teachers, engage with classmates, manage assignments, and participate in the digital learning space.

Part I describes the significant and growing role of technology in primary and secondary education, including the complex layers of the digital divide and ways in which technology serves to facilitate, or hinder, access to education, employment, and tools for independence. Part II examines the IDEA's history, beginning with the historical exclusion of children with disabilities from public education and moving to the Act's passage and evolving statutory language in light of technological advancement. Part III considers the IDEA's existing technology provisions and the disconnect between the statutory language and the implementation of key technology for children with disabilities in U.S. public schools. Lastly, Part IV proposes several avenues to clarify the IDEA's vague assistive technology language

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[37] *See* 20 U.S.C. § 1401(2).

[38] *See* 20 U.S.C. § 1401(1).

[39] *See id*.

[40] 20 U.S.C. § 1400(c)(5)(H).

[41] *See* 20 U.S.C. § 1400(d) (explaining the purpose behind the Individuals with Disabilities Education Act).

and provide parents, educators, and decision makers with much-needed guidance regarding the Act's technology provisions in an increasingly and constantly evolving digital educational landscape.

## I. THE IMPORTANCE AND INACCESSIBILITY OF TECHNOLOGY IN TODAY'S K–12 CLASSROOMS

Digitalization is deeply engrained within every aspect of life in the U.S.[42] Today's schools incorporate online learning tools throughout K–12 education, both within and outside of the physical classroom.[43] In fact, research shows that by 2018, nearly eighty percent of K–12 teachers assigned homework that required access to reliable broadband.[44] As a result, the vast majority of today's K–12 students require the physical technology and related skills necessary to access, navigate, and engage[45] with an increasingly online landscape[46]—initially within the school setting and later throughout students' personal and professional lives.[47]

### A. *Access to Today's K–12 Learning Environments Requires Broadband, Technology, and Digital Skills at School and at Home*

As broadband internet, technology, and online learning tools expand the spaces and ways in which students learn, today's K–12 classrooms increasingly transcend the traditional brick-and-mortar school setting.[48] Previously, K–12 students entered a physical classroom where they engaged with hard copy materials and brought hard copy assignments home to reinforce and continue the learning process.[49] In recent years, however, K–12 students are more likely to enter physical classrooms that incorporate digital learning tools throughout the day—whether for classwork,

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[42] ADIE TOMER ET AL., METRO. POL'Y PROGRAM AT BROOKINGS, DIGITAL PROSPERITY: HOW BROADBAND CAN DELIVER HEALTH AND EQUITY TO ALL COMMUNITIES 6 (2020), https://www.brookings.edu/wp-content/uploads/2020/02/20200227_BrookingsMetro_Digital-Prosperity-Report-final.pdf; *see also* Adie Tomer & Caroline George, *The American Rescue Plan Is the Broadband Down Payment the Country Needs*, BROOKINGS (June 1, 2021), https://www.brookings.edu/research/the-american-rescue-plan-is-the-broadband-down-payment-the-country-needs (noting that it is "impossible to ignore how essential broadband is in our daily lives . . .").

[43] *See supra* sources cited note 15.

[44] *See* LUCINDA GRAY & LAURIE LEWIS, NAT'L CTR. EDUC. STAT., TEACHERS' USE OF TECHNOLOGY FOR SCHOOL AND HOMEWORK ASSIGNMENTS: 2018–19, at 4 (2020), https://nces.ed.gov/pubs2020/2020048.pdf; *see also* Alyson Klein, *Acting FCC Chair: The "Homework Gap" is an "Especially Cruel" Reality During the Pandemic*, EDUC. WK., Mar. 24, 2021, at 14.

[45] TOMER ET AL., *supra* note 42, at 4–5.

[46] *See generally Digital Literacy*, AM. LIBR. ASS'N, [hereinafter AM. LIBR. ASS'N], https://literacy.ala.org/digital-literacy (last visited Oct. 22, 2022); Liana Heitin, *Digital Literacy: Forging Agreement on a Definition*, EDUC. WK., Nov. 9, 2016, at 5 (both showing the increased use of online instruction in the K–12 setting).

[47] *See* RAFALOW, *supra* note 34, at 109.

[48] *See* GRAY & LEWIS, *supra* note 44, at 4.

[49] Judith Stilz Ogden & Lawrence Menter, *Inaccessible School Webpages: Are Remedies Available?*, 38 J.L. & EDUC. 393, 393 (2009).

differentiated instruction,[50] or classroom management—and complete assignments at school and at home that involve both hard copy and online components.[51] These online components function as digital learning spaces and effectively blur the line between the physical and digital classroom.[52]

The ability to navigate an increasingly digital landscape is frequently referred to as a twenty-first century skill[53] as technology becomes an inescapable aspect of our personal, professional, and educational lives.[54] For students with access to broadband and related technology at home, online learning spaces can be powerful vehicles for collaboration (with peers and teachers), as well as a critical setting to apply, reinforce, and synthesize instructional material. It is important to note that students are not merely reinforcing academic concepts but are also applying critical digital skills necessary for future independence.[55] In contrast, children who do not have access to reliable broadband and appropriate technology at home must find alternative methods to complete these assignments.[56] And although a child without these tools may be able to demonstrate an understanding of an academic concept using hard copy materials, they are unable to engage with their peers in the classroom's digital learning spaces, build the digital skills necessary to navigate today's digital world, and are more likely to spend significantly more time completing homework every day.[57]

And while some students who do not have access to reliable broadband or related technology outside of school may have access to a smartphone, research has repeatedly shown that a smartphone is no substitute for a personal computer in building academic and digital skills.[58] Furthermore,

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[50] Differentiated instruction refers to the adjustment of one or more instructional elements, including content, process, or product, to meet the unique learning of a specific student. *What is Differentiated Instruction?*, IRIS CTR., https://iris.peabody.vanderbilt.edu/module/di/cresource/q1/p01/ (last visited Oct. 22, 2022).

[51] *See generally* HAMPTON ET AL., *supra* note 3; Tali Orad, *Technology & Its Challenges During Homework Time*, MEDIUM (May 9, 2017), https://medium.com/thrive-global/technology-as-a-homework-helper-635a921f94b8; Beth Braverman, *The Digital Divide: How Income Inequality Is Affecting Literacy Instruction, and What All Educators Can Do to Help Close the Gap*, LITERACY TODAY, Jan./Feb. 2016, at 16, 19–20 (2016) ("Both Florida and North Carolina have announced plans to convert in coming years to digital textbooks, with students accessing those books via tablets. But the success of those programs also hinges on the assumption that all children have access to the Internet at home.").

[52] Orad, *supra* note 51.

[53] *See* Abby Oakland, Note, *Minnesota's Digital Divide: How Minnesota Can Replicate the Rural Electrification Act to Deliver Rural Broadband*, 105 MINN. L. REV. 429, 451 (2020).

[54] TOMER ET AL., *supra* note 42, at 4–5.

[55] *See* Oakland, *supra* note 53, at 451. *See also* Ogden & Menter, *supra* note 49, at 393–94 (describing how many teachers no longer print syllabi and instead post assignments and links to submit materials online—creating a significant barrier to access educational tools and making it impossible to leverage and practice digital literacy skills in working with these materials in the educational setting).

[56] HAMPTON ET AL., *supra* note 3, at 6.

[57] *Id.* ("Homework takes longer for students to complete if they don't have home Internet access. Those who have no Internet access from home spend an average of thirty additional minutes on homework per night, compared to their peers who have high-speed internet access.").

[58] CHANDRA ET AL., *supra* note 4, at 8 n.12, 18; HAMPTON ET AL., *supra* note 3, at 5, 8, 12.

many students must still travel to other locations, potentially far from home, in an attempt to connect a smartphone to the internet and complete their schoolwork.[59] However, access to a smartphone and the ability to travel to a location with reliable broadband is not enough.[60] Smartphones do not, and cannot, provide the same access to online platforms and are not a substitute for personal computers.[61] Despite this well-documented disparity, approximately thirty-five percent of adolescents report that they must at least sometimes rely on a smartphone to complete homework—a number which rises to forty-five percent for adolescents that live in households earning less than $30,000 per year.[62]

Of the fifty-four million children attending primary and secondary schools in the United States,[63] nearly seventeen million lack internet access at home—creating a "homework gap" that functions as an "opportunity gap."[64] This gap historically has—and continues to—disproportionately impact children of color,[65] children who live in low-income households,[66] and children with disabilities.[67] For so many children, especially those who fall into multiple of the above demographics (children who are "doubly or triply burdened"),[68] the

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[59] *See* Kang, *supra* note 14.

[60] *Id*.

[61] *Id*. ("Not every teacher is as understanding [about lack of internet access]. Yunuen Reyes, 17, a high school senior in Pharr, [Texas, who] does not have Internet at home and typically has three hours of homework a day that require research and collaboration with classmates online. Some assignments and take-home exams are due by midnight and must be submitted over the web. So after her shift working at the drive-up window of a Chinese restaurant, Yunuen scrambles to find Wi-Fi at a nearby Starbucks or at fast-food restaurants. Often, she goes to the home of a friend who lets her use the family computer and Internet connection. Recently, she got a C on an English assignment that she had not completed before the deadline to submit it online.").

[62] *See* Monica Anderson & Andrew Perrin, *Nearly One-in-Five Teens Can't Always Finish Their Homework Because of the Digital Divide*, PEW RSCH. CTR. (Oct. 26, 2018), https://www.pewresearch.org/fact-tank/2018/10/26/nearly-one-in-five-teens-cant-always-finish-their-homework-because-of-the-digital-divide/ (citing U.S. Census data).

[63] *Fast Facts: Back-to-School Statistics*, NAT'L CTR. FOR EDUC. STATS., https://nces.ed.gov/fastfacts/display.asp?id=372 (last visited Oct. 22, 2022).

[64] *Homework Gap and Connectivity Divide*, FCC, https://www.fcc.gov/about-fcc/fcc-initiatives/homework-gap-and-connectivity-divide (last visited Oct. 22, 2022).

[65] ALL. FOR EXCELLENT EDUC., STUDENTS OF COLOR CAUGHT IN THE HOMEWORK GAP (2020), https://futureready.org/wp-content/uploads/2020/08/HomeworkGap_FINAL8.06.2020.pdf; *see also Teaching Through the Digital Divide*, COMMON SENSE MEDIA https://www.commonsensemedia.org/digital-divide-stories (last updated Aug. 17, 2022).

[66] Musu, *supra* note 15; *see also* Broege & Anderson, *supra* note 16, at 91, 93–94.

[67] First & Hart, *supra* note 33, at 385.

[68] The term "double burden" is frequently used in public health literature to describe the "amplifying phenomenon" and negative health implications faced by individuals who identify with one or more "historically-disadvantaged groups" due to "sociopolitical challenges." RACHEL BLICK ET AL., OHIO DISABILITY & HEALTH PROGRAM, THE DOUBLE BURDEN: HEALTH DISPARITIES AMONG PEOPLE OF COLOR LIVING WITH DISABILITIES 1 (2015), https://nisonger.osu.edu/sites/default/files/u4/the_double_burden_health_disparities_among_people_of_color_living_with_disabilities.pdf (explaining that data regarding individuals with disabilities frequently fail to discuss "added sociopolitical challenges" resulting in a "double burden" that amplifies social determinants of health).

inability to access basic digital tools functions as an exclusion from a significant portion of today's classrooms.[69]

## B. *Beyond Homework . . . Digital Literacy in the Digital Age*

Traditional literacy—the practice of reading and writing paper-based text—requires a complex set of processes beyond decoding and reproducing written language.[70] More specifically, the practice requires skills including the ability to critically interpret, reflect on, and meaningfully engage with language across a variety of contexts.[71] As traditionally paper-based content increasingly shifts online, the ability to engage with information in digital form has become crucial to communicating with, and participating in, modern society.[72] As a result, *digital literacy*—the practice of processing, comprehending, producing, and interacting with digital information—is urgently necessary to engage in many of today's educational, personal, and professional settings.[73]

### 1. *Defining Digital Literacy*

The digital landscape requires a dynamic set of competencies, or digital literacy skills, across a variety of contexts, platforms, and settings.[74] The American Library Association defines digital literacy as "the ability to *use* information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[75] Many literacy experts consider digital literacy to encompass a larger set of skills—referring to this skillset as "digital literacies"[76]—that fall into three skills-based categories: (1) identifying and consuming digital content, (2) creating digital content, and (3) communicating digital content.[77] Ultimately, digital literacy requires a complex and multifaceted set of skills (beyond traditional literacy) applied to an ever-evolving digital landscape.[78]

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[69] *See* HAMPTON ET AL., *supra* note 3, at 5; Orad, *supra* note 51.

[70] *See* Amy J. Bach et al., *Poverty, Literacy, and Social Transformation: An Interdisciplinary Exploration of the Digital Divide*, 10 J. MEDIA LITERACY EDUC. 22, 33 (2018); *see also* Majed A. Alsalem, *Redefining Literacy: The Realities of Digital Literacy for Students with Disabilities in K–12*, 7 J. EDUC. & PRAC. 205, 205 (2016).

[71] *See* Bach et al., *supra* note 70, at 33–34.

[72] *See* Alsalem, *supra* note 70, at 205.

[73] David F. Cihak et al., *Incorporating Functional Digital Literacy Skills as Part of the Curriculum for High School Students with Intellectual Disability*, 50 EDUC. & TRAINING AUTISM & DEVELOPMENTAL DISABILITIES 155, 156–57 (2015).

[74] *See* Kiersten Greene, *Transferable Digital Literacy Knowledge*, LANGUAGE & LITERACY SPECTRUM, June 2018, at art. 3, 6; *see also* Heitin, *supra* note 46, at 5.

[75] AM. LIBR. ASS'N, *supra* note 46 (emphasis added); *see also* Heitin, *supra* note 46.

[76] *See* Heitin, *supra* note 46.

[77] Hiller A. Spires, *Critical Perspectives on Digital Literacies: Creating a Path Forward*, 7 MEDIA & COMMC'N 1, 1 (2019).

[78] Donald J. Leu et al., *New Literacies: A Dual-Level Theory of the Changing Nature of Literacy, Instruction, and Assessment*, *in* THEORETICAL MODELS AND PROCESSES OF READING 1150, 1150 (Donna E. Alvermann et al. eds., 6th ed. 2013).

The first component of digital literacy, identifying and consuming digital content, can occur online or offline.[79] For example, an individual may consume digital information offline when using an e-reader, such as Amazon's Kindle.[80] Although the user must know how to operate the physical device, information appears similarly to how it might look in traditional print (such as a newspaper or magazine).[81] When consuming that same information online, however, the process becomes interactive and dynamic, requiring a complex set of skills and decision-making to engage with content.[82] For example, when a high school student reads a hard copy newspaper, they are consuming information from a physical, static page;[83] but when that student reads the same article online, they will likely encounter (and require the skills to navigate) hyperlinks, videos, audio clips, images, interactive graphics, share buttons, and comments.[84]

Before an individual is able to consume digital information, however, they must be able to locate that information, which will require a different set of skills depending on whether they are navigating content online or offline. For example, in the case of locating content in a hard copy source, a student may review a physical table of contents or search a stack of library books to find specific information. When searching for the same information online, however, that student must be able to effectively use a search engine (including identifying and framing keywords), and critically navigate the search results.[85]

In addition to identifying and consuming digital content, digital literacy requires the ability to create content and, relatedly, communicate that content across a variety of digital contexts. Creating and communicating digital content includes writing and developing communications across online settings, including email, blog posts and comments, social media, and other forms of media such as videos and podcasts.[86] Not only are these communications critical to navigating today's increasingly digital world, but the ability to create and communicate content in a variety of digital forms is also necessary for inclusion throughout today's inescapably hybrid learning environments.

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[79] *See* Heitin, *supra* note 46.
[80] *See id.*
[81] *See id.*
[82] *See id.*
[83] *See generally id.*
[84] *See id.*
[85] *See id.*
[86] *See id.*

### 2. *Digital Literacy in Today's Schools, Professional Settings, and Personal Lives*

Digital literacy skills are also necessary to access and participate in today's higher educational, personal, and professional settings.[87] Similar to the inescapable role of technology in today's K–12 classrooms, digital literacy is critical to engaging in higher education (as many colleges and universities centralize resources on course websites).[88] Relatedly, research shows that the vast majority of job seekers use the internet to identify job opportunities[89] and that many positions regularly require some form of digital literacy, such as evaluating or creating online materials, communicating by email, or tracking hours and pay through an online portal. Furthermore, digital literacy plays a critical role across a variety of personal settings, including social interactions and access to health-related material such as medical records or benefits information.[90]

Despite the need for digital tools and digital literacy skills to engage in these settings, data show that children with disabilities are less likely to have access to broadband and related devices than their peers.[91] As a result, as the vast majority of K–12 teachers assign homework that requires at least some online engagement, children who lack access to fundamental digital tools and skills are left behind.[92] Furthermore, research shows that the availability and quality of digital access matters—and that students who do not have consistent access to broadband and related technology struggle to complete homework, have lower grades, build fewer digital skills, and score lower on standardized assessments.[93]

This lack of connectivity has significant, long-term repercussions for children with disabilities, as research shows that limited digital literacy skills have a negative impact on children's interest in postsecondary education and career options.[94] Not only does this result in the exclusion of individuals with disabilities from educational and professional settings, but it also has significant financial and societal ramifications as research shows that children with disabilities who do not develop the skills necessary for long-term independence are more likely to struggle in the professional

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[87] *See* Tomer & George, *supra* note 42.

[88] Ogden & Menter, *supra* note 49, at 393.

[89] AARON SMITH, PEW RSCH. CTR., SEARCHING FOR WORK IN THE DIGITAL ERA 2 (2015), https://www.pewresearch.org/wp-content/uploads/sites/9/2015/11/PI_2015-11-19-Internet-and-Job-Seeking_FINAL.pdf.

[90] TOMER ET AL., *supra* note 42.

[91] Sen & Tucker, *supra* note 19, at app. at A2 fig. A-2.

[92] *See generally* Jessica Rosenworcel, *Bringing the Connected Future to All Americans, May 11, 2012 – January 3, 2017*, FCC (Dec. 30, 2016, 5:30 PM), https://www.fcc.gov/news-events/blog/2016/12/30/bringing-connected-future-all-americans-may-11-2012-january-3-2017.

[93] *See* HAMPTON ET AL., *supra* note 3, at 11.

[94] *See id.*

setting (potentially resulting in lower tax revenues), or rely more heavily on social programs.[95]

### C. *The Layers of the Digital Divide*

Throughout the past two decades, scholars have used a variety of models to describe the complex layers of the digital divide among K–12 students and their families.[96] Regardless of whether the digital divide is discussed using a two-, three-, or four-layer model, two overarching themes are consistent. The initial layer(s) of the digital divide ("first layer") refers to tangible access to digital hardware and software.[97] The subsequent layer(s) of the divide ("second layer") relates to skills-based knowledge regarding how to meaningfully use digital tools.[98] And while the digital divide has significant implications for any individual's educational, professional, and personal life, for individuals with disabilities, these barriers to access are further complicated by unique technological and skills-based needs.[99]

#### 1. *First Layer: Physical Access to Broadband and Personal Computers*

There are two distinct components of the digital divide's first layer—physical access to necessary digital tools and frequency of access to those tools.[100] The first component, physical access to digital tools, includes access to both broadband internet and the tools necessary to use that access (such as a laptop, tablet, or another personal computer). Broadband, or high-speed internet, allows users to access and engage with the internet at significantly higher and more consistent speeds than outdated "dial-up" internet or cellular networks.[101] Following the passage of the Infrastructure Investment and Jobs Act in 2021,[102] sufficient broadband internet requires

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[95] *See* Janet Currie & Robert Kahn, *Children with Disabilities: Introducing the Issue*, 22 THE FUTURE OF CHILDREN 3, 8–9, 67 (2012); *see also* HAMPTON ET AL., *supra* note 3, at 11.

[96] First & Hart, *supra* note 33, at 385–411; *see also* Patricia A. Tyson, *The Digital Divide and Inequities for Students with Disabilities: Needed….A Bridge over Troubled Waters!*, J. AM. ACAD. SPECIAL EDUC. PROS., Spring-Summer 2015, at 151; Jennifer Rowsell et al., *Confronting the Digital Divide: Debunking Brave New World Discourses*, 71 READING TCHR. 157–65 (2017); Ebrahim Talaee & Omid Noroozi, *Re-Conceptualization of Digital Divide Among Primary School Children in an Era of Saturated Access to Technology*, 12 INT'L ELEC. J. ELEMENTARY EDUC. 27, 27–35 (2019).

[97] Tyson, *supra* note 96, at 153.

[98] *Id*.

[99] *Id*. at 153–54.

[100] *Id*. at 153; *see also* CHANDRA ET AL., *supra* note 4, at 8.

[101] FCC, GETTING BROADBAND Q&A (2020), https://www.fcc.gov/sites/default/files/getting_broadband_qa.pdf.

[102] Pub. L. No. 117-58 § 60102(a)(1), 135 Stat. 429, 1182–83 (codified at 47 U.S.C. § 1702(a)(1)). The Act "invests $65 billion to help ensure that every American has access to reliable, high-speed internet by investing in broadband infrastructure deployment and helping to lower service prices." NAT'L F. ON EDUC. STAT., FORUM GUIDE TO DIGITAL EQUITY 9 (2022), https://nces.ed.gov/pubs2022/NFES2022098.pdf.

download speed of at least 100 megabits per second (Mbps) and upload speed of 20 Mbps.[103]

The second component of the first layer of the digital divide is reliable[104] access to an appropriate digital device.[105] For many students, an appropriate device is one that connects to high-speed internet, plays embedded video, and includes a touchscreen as well as a keyboard (such as a laptop, tablet, or other personal computer).[106] For an individual with a disability, an appropriate device may require additional or alternate components to support their unique needs.[107] For example, a child with a speech-language disability may require speech-to-text or word prediction software to engage with online assignments,[108] while a child with a learning disability such as dyslexia or dysgraphia may require software that reads text aloud and breaks text into individual syllables.[109]

It is important to note that while a laptop, tablet, or specialized device may provide the tangible tools necessary to engage with digital content, smartphones—even those that have large screens and are connected to cellular data—are insufficient to provide children with appropriate access to online educational content.[110] Research consistently shows that access to a handheld device does not provide comparable digital access to information as on a personal computer.[111] In fact, research shows significant, persistent discrepancies in the performance and skills of students with access to reliable broadband and an appropriate personal computer as compared to students who rely on a smartphone to complete homework, access assignments, and engage in other digital learning activities[112]—creating a gap in skills equivalent to three grade levels.[113] And yet, despite the well-established insufficiency of smartphones as a substitute for broadband

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[103] 47 U.S.C. § 1702(a)(1) (defining an "unserved location" as one that "lacks access to reliable broadband service offered with" at least 25 Mbps download speed and 3 Mbps upload speed (25/3 Mbps) and defining an "underserved location" as one that lacks broadband service of at least 100/20 Mbps). FCC Commissioner Jessica Rosenworcel has stated that, practically, today's households require download speeds of at least 100 megabits per second. Rosenworcel, *supra* note 92 ("I think anything short of that shortchanges our children, our digital economy, and our future.").

[104] Although public libraries may offer access to internet and a personal computer, they are unable to provide frequency of access and guaranteed availability and are frequently only available for specific time periods or during certain hours. *See* Braverman, *supra* note 51, at 19.

[105] Tyson, *supra* note 96, at 154; *see also* CHANDRA ET AL., *supra* note 4, at 8.

[106] *See* CHANDRA ET AL., *supra* note 4, at 18.

[107] *See* Gina Biancarosa & Gina G. Griffiths, *Technology Tools to Support Reading in the Digital Age*, 22 FUTURE OF CHILDREN 139, 143 (2012).

[108] Micah Castelo, *Using Assistive Technology to Empower Students with Disabilities*, EDTECH MAGAZINE (Mar. 31, 2020), https://edtechmagazine.com/k12/article/2020/03/using-assistive-technology-empower-students-disabilities-perfcon.

[109] *Id.*

[110] *See* Rosenworcel, *supra* note 92; HAMPTON ET AL., *supra* note 3.

[111] *See* HAMPTON ET AL., *supra* note 3, at 5.; CHANDRA, *supra* note 4, at 18.

[112] *See generally id.*

[113] *Id.* at 8.

and personal computers, millions of students rely on smartphones and cellular service, which is often unreliable and congested,[114] to access digital educational content outside of the classroom every day.[115]

### 2. *Second-Layer: Skills-Based Access and Digital Literacy*

Less obvious, however, is the second layer of the digital divide—the digital skills necessary to navigate and engage with both broadband and appropriate digital devices.[116] As discussed above, the ability to meaningfully interact with digital content requires a variety of cognitive and technological skills.[117] However, many children, especially younger students, may require additional guidance with educational tasks. As a result, it is often crucial that both the child *and* any adult providing assistance, much like Jeremiah and his mother,[118] have access to the core digital literacy skills necessary to engage with online educational activities (such as researching, navigating group projects, and communicating with peers and teachers online).[119] Without these skills, many children—even those who may have physical access to broadband and an appropriate device—cannot meaningfully access and engage with online material, resulting in fewer skills, lower grades, and ultimately, a delay in developing critical digital skills necessary for future independence.[120]

## D. *Barriers to Access*

For many children and families, the barriers to accessing reliable broadband and an appropriate personal computer are insurmountable[121] and disproportionately impact students with disabilities,[122] students of color,[123] and students from lower-income households[124]—in effect, further widening existing gaps in educational access and outcomes.[125] And while the barriers to the digital divide are complex and multifaceted, these barriers generally

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[114] *Id.* at 12.

[115] *See generally* GRAY & LEWIS, *supra* note 44.

[116] Braverman, *supra* note 51, at 16–20; *see also* Heitin, *supra* note 46.

[117] *See supra* note 46.

[118] *See supra* note 11 and accompanying text.

[119] Braverman, *supra* note 51, at 19–20.

[120] *See* HAMPTON ET AL., *supra* note 3.

[121] *See* KEWALRAMANI ET AL., *supra* note 20, at 59; *see also* TITILAYO TINUBU ALI ET AL., COMMON SENSE, LOOKING BACK, LOOKING FORWARD: WHAT IT WILL TAKE TO PERMANENTLY CLOSE THE K–12 DIGITAL DIVIDE 5 (2021), *available at* https://commonsensemedia.org/sites/default/files/research/report/final_-_what_it_will_take_to_permanently_close_the_k-12_digital_divide_vfeb3.pdf.

[122] *See* Sen & Tucker, *supra* note 19, at 9, app at A-2 fig. A2.

[123] ALI ET AL., *supra* note 121, at 7.

[124] *Id.*

[125] *See* Saro Mohammad, *Is Technology Good or Bad for Learning?*, BROOKINGS (May 8, 2019), https://www.brookings.edu/blog/brown-center-chalkboard/2019/05/08/is-technology-good-or-bad-for-learning/.

fall into three overarching categories:[126] cost,[127] broadband infrastructure,[128] and adoption.[129] Furthermore, children and families do not experience these barriers in a vacuum but, rather, frequently face multiple barriers simultaneously. For example, a child with a disability who lives with their family in a temporary shelter may face both financial and infrastructural barriers to accessing the digital learning tools necessary to complete their homework. As a result, for many children (especially low-income children with disabilities) and their families, access to today's educational, personal, and professional environments requires simultaneously addressing these frequently interconnected barriers.[130]

### 1. *Cost of High-Speed Internet and Technology*

The most commonly cited barrier to accessing fundamental digital learning tools is cost—both the cost of internet access[131] as well as the cost of a personal computer (such as a laptop or tablet).[132] In the United States, an estimated nine million K–12 students lack access to reliable high-speed internet or an appropriate digital device,[133] with a significantly higher proportion of students from low-income households lacking access as compared to those from higher-income households.[134] A recent Brookings study notes that although there is a lack of clear data regarding consumer broadband pricing, due in part to a lack of federal reporting standards, limited competition among internet service providers contributes to high pricing as a systemic barrier to broadband internet.[135]

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[126] *See* Haochen Sun, *Bridging the Digital Chasm Through the Fundamental Right to Technology*, 28 GEO. J. POVERTY L. & POL'Y 75, 77–78 (2020); ALI ET AL., *supra* note 121, at 4–6.

[127] KEWALRAMANI ET AL., *supra* note 20, at 58–59.

[128] ALI ET AL., *supra* note 121, at 9.

[129] *Id.* at 5.

[130] It is important to note that the American Rescue Plan and the Bipartisan Infrastructure Law demonstrate great strides in reducing barriers to access and digital equity. However, it will take time to see the physical infrastructure built out, further challenged by states' limited tech administrators and logistics. Meanwhile, students are in need of broadband internet and appropriate personal devices to learn right now. *See generally* Danielle Hinton et al., *Are States Ready to Close the US Digital Divide?*, MCKINSEY (June 1, 2022), https://www.mckinsey.com/industries/public-and-social-sector/our-insights/are-states-ready-to-close-the-us-digital-divide. *See also* Tomer & George, *supra* note 42 (discussing the need for digital equity offices).

[131] U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-535, BROADBAND: OBSERVATIONS ON PAST AND ONGOING EFFORTS TO EXPAND ACCESS AND IMPROVE MAPPING DATA 1–2 (2020). *See also* Hinton et al., *supra* note 130 ("As things stand, 24 million Americans lack access to high-speed internet, and many more cannot connect due to gaps in digital equity and literacy and/or because the service is priced beyond their reach.").

[132] *See* Lyons, *supra* note 15, at 807 (2018) (explaining that "the high cost of computers" is a "significant barrier[] to Internet adoption").

[133] ALI ET AL., *supra* note 121, at 5.

[134] Rachel F. Moran, *Persistent Inequalities, the Pandemic, and the Opportunity to Compete*, 27 WASH. & LEE J. C.R. & SOC. JUST. 589, 614 (2021) ("[N]early 25% of fifth-graders from low-income families lacked access to a computer or other device compared to just 8% of students from higher-income families.").

[135] TOMER ET AL., *supra* note 42, at 4, 9, 15.

This is especially problematic in the context of special education as data show that children living in poverty are more likely to be found to have a disability, and potentially require costly technological adaptations or specialized supports,[136] than children who live in homes with household incomes above the poverty threshold.[137] Despite federal efforts to decrease financial barriers to broadband internet, millions of households with school-aged children cannot afford broadband or an appropriate device for reliable internet access.[138] And while many school districts have loaned students computers during the health crisis, it is important to note that this access to technology is temporary, and many districts have required that families return laptops and hot spot devices with the return to in-person learning.[139]

### 2. *Infrastructure and Digital Redlining*

Additionally, a significant proportion of K–12 students live in homes that lack digital access because of broadband infrastructure barriers,

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[136] It is important to note that students from low-income households are disproportionately represented in special education, and that additional research is required to fully understand the reasons behind this disproportionate representation. *See* Laura A. Schifter et al., *Students from Low-Income Families and Special Education*, CENTURY FOUND. (Jan. 17, 2019), https://tcf.org/content/report/students-low-income-families-special-education/ (While "[p]ast research has assumed a positive correlation between poverty and special education assignment to be appropriate, because children in poverty have experiences (lead exposure, low-birthweight, malnutrition) that tend to be more associated with disability . . . , the assumed appropriateness of higher special education identification for low-income students can be problematic because it allows educators, researchers, and policymakers to ignore potential systemic biases that may also result in higher rates of identification for special education."); NAT'L CTR. FOR LEARNING DISABILITIES, SIGNIFICANT DISPROPORTIONALITY IN SPECIAL EDUCATION: CURRENT TRENDS AND ACTIONS FOR IMPACT (2020), https://www.ncld.org/wp-content/uploads/2020/10/2020-NCLD-Disproportionality_Trends-and-Actions-for-Impact_FINAL-1.pdf.

[137] Natalie A.E. Young & Katrina Crankshaw, *U.S. Childhood Disability Rate Up in 2019 From 2008: Disability Rates Highest Among American Indian and Alaska Native Children and Children Living in Poverty*, U.S. CENSUS BUREAU (Mar. 25, 2021), https://www.census.gov/library/stories/2021/03/united-states-childhood-disability-rate-up-in-2019-from-2008.html ("In 2019, children living in poverty were more likely to have a disability (6.5%) than children living above the poverty threshold (3.8%). The difference in the prevalence of disability between children below and above the poverty threshold is noteworthy. Families in poverty tend to have fewer financial resources to care for a child with a disability . . . [who] may have additional needs that prevent one or more family members from participating in the workforce. This can create financial strain for families, and in some cases may contribute to a family's entry into poverty.").

[138] *See* Lyons, *supra* note 15, at 805–07; *see also* U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 131. Congress has recently made efforts to address the affordability of broadband by extending a COVID-19 pandemic emergency program providing eligible households with a discount on broadband services. Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 § 60502, 135 Stat. 429, 1238–44 (codified at 47 U.S.C. § 1752); *see Affordable Connectivity Program*, FCC, https://www.fcc.gov/affordable-connectivity-program (July 27, 2022).

[139] Alyson Klein, *During COVID-19, Schools Have Made a Mad Dash to 1-to-1 Computing*, EDUC. WK., April 21, 2021, at 3, 3. A mobile hotspot device allows personal computers to access the internet by connecting to a cellular network. *What Is a Hotspot? - WiFi Hotspot Definitions and Details*, INTEL, https://www.intel.com/content/www/us/en/tech-tips-and-tricks/what-is-a-hotspot.html (last visited Oct. 23, 2022).

resulting in a lack of access irrespective of cost.[140] In fact, data show that the same student demographics that are overrepresented in special education (including children who identify as Black, Latinx, or American Indian/Alaska Native)[141] are most likely to be impacted by broadband infrastructure barriers.[142] These barriers impact children with disabilities living in both rural and urban communities[143] and stem from years of underinvestment in broadband infrastructure.[144] Internet service providers often fail to invest in rural markets because of the high costs necessary to build out service for a limited number of potential consumers.[145]

However, many lower-income children living in urban communities similarly lack access to broadband internet.[146] Critically, the infrastructure barriers in urban and suburban communities are primarily the result of digital redlining—the practice of internet service providers systematically underinvesting in, or "skipping over,"[147] majority lower-income Black and Latinx neighborhoods.[148] Although data about the prevalence of digital redlining are limited,[149] studies show that many urban communities that were historically redlined by banks prior to the Fair Housing Act are the same communities that lack access to reliable broadband infrastructure today.[150] Research also shows that children living in suburban and higher-income urban communities frequently have access to regularly updated broadband infrastructure.[151] As a result, children with disabilities living in rural communities, on tribal lands or reservations, or in urban communities with a history of redlining, are more likely to live in a community without access to broadband infrastructure (and high-speed internet) than those living in suburban and higher-income urban communities.[152]

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[140] ALI ET AL., *supra* note 121, at 5, 19, 23.

[141] NAT'L CTR. FOR LEARNING DISABILITIES, *supra* note 136, at 2.

[142] *See generally* Hinton et al., *supra* note 130; *see also* Katharine Shilcutt, *Digital Divide Disproportionately Affected Education for Black and Hispanic Children During Pandemic*, RICE UNIV. OFF. PUB. AFFS. (Mar. 29, 2021), .

[143] *See generally* ALI ET AL., *supra* note 121, at 5, 9.

[144] *Id.* at 10.

[145] TOMER ET AL., *supra* note 42, at 16.

[146] ALI ET AL., *supra* note 121, at 9; *see also* TOMER ET AL., *supra* note 42, at 4, 12.

[147] *Id.* at 16–17.

[148] *See* ALI ET AL., *supra* note 121, at 10; *see also* TOMER ET AL., *supra* note 42, at 16–17, 22; Shara Tibken, *The Broadband Gap's Dirty Secret: Redlining Still Exists in Digital Form*, CNET (June 28, 2021, 5:00 AM), https://www.cnet.com/home/internet/features/the-broadband-gaps-dirty-secret-redlining-still-exists-in-digital-form/.

[149] Tibken, *supra* note 148.

[150] *See* ALI ET AL., *supra* note 121, at 10. *See also* VINHCENT LE & GISSELA MOYA, GREENLINING INSTITUTE, ON THE WRONG SIDE OF THE DIGITAL DIVIDE: LIFE WITHOUT INTERNET ACCESS, AND WHY WE MUST FIX IT IN THE AGE OF COVID-19 (2020), https://greenlining.org/publications/online-resources/2020/on-the-wrong-side-of-the-digital-divide/.

[151] *See* Hinton et al., *supra* note 130.

[152] *See id.*

### 3. *Adoption and Digital Literacy*

Lastly, an estimated six million K–12 students live in homes that have not adopted broadband despite availability and affordability.[153] Research shows that this lack of adoption in some households is the result of a variety of barriers including limited digital literacy skills, language barriers, lack of interest, and online privacy concerns.[154] Lack of broadband adoption may be disproportionately faced by English language learners, children of undocumented immigrants, and students experiencing homelessness.[155]

## E. *Technology, Digital Literacy, Access, and Inclusion for K–12 Students in Today's Digital Classrooms*

Access to today's digital learning spaces, and ultimately today's K–12 classrooms, requires access to the digital tools and skills necessary to support a child's individual learning needs and the development of critical twenty-first century skills. Consider a third-grade child enrolled in an integrated co-teaching class[156] that includes the following four children with different levels of access to technology and individual learning needs.

TABLE 1

| CHILD | INCOME | DISABILITY |
|---|---|---|
| A | ABOVE POVERTY LINE | NO |
| B | BELOW POVERTY LINE | NO |
| C | ABOVE POVERTY LINE | YES |
| D | BELOW POVERTY LINE | YES |

Child A is a student without a disability and whose family lives above the federal poverty line; Child B is a student without a disability and whose family lives below the federal poverty line; Child C is a student with a disability and whose family lives above the federal poverty line; and Child D is a student with a disability and whose family lives below the federal poverty line.

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[153] ALI ET AL., *supra* note 121, at 10; s*ee also* KEWALRAMANI ET AL., *supra* note 20, at 59 (providing survey data showing why some students do not have broadband internet).

[154] ALI ET AL., *supra* note 121, at 10; *see also* KEWALRAMANI ET AL., *supra* note 20, at 59; Lyons, *supra* note 15, at 807–08.

[155] ALI ET AL., *supra* note 121, at 10.

[156] Integrated Co-Teaching classes (ICT classes) are classrooms that include both children with and children without disabilities and include specially designed instruction to meet the needs of each child with a disability. *See* Rachel Nobel, *Integrated Co-Teaching Classes*, UNITED FED'N OF TCHRS. (Oct. 25, 2019), https://www.uft.org/news/you-should-know/qa-on-issues/integrated-co-teaching-classes.

Like the majority of students in the U.S. public-school system,[157] each child regularly receives homework and assignments that require access to the classroom's online learning spaces (as learning and reinforcing concepts continues outside of the classroom). Research shows that children situated as Child B, Child C, and Child D are the most likely to face some sort of barrier accessing the classroom's online learning spaces. However, it is members of the final group, children situated like Child D, who face the greatest barriers to access, are most likely to fall behind their peers, and ultimately experience worse outcomes. It is this group that federal special education law and policy has failed, and continues to fail, in today's increasingly digital classrooms.[158]

### 1. *Children Without Disabilities Living Above or Below the Federal Poverty Line*

Child A, a student without a disability whose household income is above the federal poverty line, will likely face the fewest barriers accessing the digital tools necessary to engage with their classroom's online learning spaces and, ultimately, develop the skills necessary for future education, employment, and independence in an inescapably digital world. Child A is far more likely to live in a home with access to reliable broadband and a personal computer,[159] and does not require specialized tools or software to engage with digital learning spaces. As a result, Child A is able to consistently engage with their classroom's online learning spaces, using off-the-shelf technology (such as a laptop without any adaptations or specialized programs), reinforcing and synthesizing content taught in the physical classroom, and building critical digital literacy necessary for every aspect of daily life.

Child B, a student without a disability whose household income is below the federal poverty line, is more likely to lack consistent access to the technology necessary for engaging with the same online learning spaces as Child A. Although Child B does not require specialized tools or software to engage in online learning, research shows that they are less likely to have access to reliable broadband or a personal computer outside of the physical classroom that is not a smartphone.[160] And while Child B may be able to access classroom technology after school hours in order to bridge the gap in access to digital tools outside of the physical classroom, this is dependent on a variety of other factors, including the student's schedule and after-school

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[157] *See* HAMPTON ET AL., *supra* note 3, at 6 ("82% of students in grades 8–11 report that they sometimes or often receive homework that requires Internet access.").

[158] The failure also impacts the child's peers, who lose the opportunity to meaningfully engage with and benefit from interactions with every child in the classroom setting.

[159] *See generally* Hinton et al., *supra* note 130.

[160] *See* HAMPTON ET AL., *supra* note 3, at 21 ("Students from families near or below the poverty line . . . were 25% less likely to have fast Internet access from home, and twice as likely not to have Internet access at all, or to depend on a cell phone for Internet access at home.").

commitments (for example, they may have athletic, extracurricular, employment, or family responsibilities). Ultimately, although Child B faces barriers accessing the physical technology necessary to engage with integrated online learning spaces, when they do have access, they are likely able to engage with those tools without accommodation, reinforcing material learned in class and developing critical digital literacy skills for the immediate and long-term.

#### 2. *Children with Disabilities Living Above or Below the Federal Poverty Line*

Child C, a student with a disability whose household income is above the federal poverty line, is less likely to face financial barriers accessing fundamental technology (such as reliable high-speed internet or a personal computer) than their peers from low-income households. However, although Child C may have the fundamental technology necessary to access their classroom's online learning spaces, they may require additional specialized supports and software to navigate and engage with those online learning spaces. Depending on Child C's individual learning needs, additional tools such as speech-to-text software may be necessary for them to have the same level of access to the same online learning spaces as Child A or Child B, and, ultimately, access to the learning environment necessary to build the same digital literacy skills necessary for long-term independence.

Like Jeremiah, Child D—a student with a disability whose household income is below the federal poverty line—is even less likely than Child B or Child C to have access to the fundamental technology necessary to engage with the same online learning spaces. Like Child B, financial barriers are more likely to impact Child D's access to high-speed internet or a personal computer; however, even if financial barriers were overcome to remedy access to these basic tools, much like Child C, Child D may require additional specialized supports and software to engage with the online learning spaces that Child A and Child B can access using off-the-shelf technology. As a result, Child D is uniquely and "doubly burdened,"[161] facing additional barriers that must be overcome to access the same online learning spaces as their peers and build the digital literacy skills necessary for future education, employment, and long-term independence.

## II. THE IDEA'S FAILURE TO MEET THE NEEDS OF LOW-INCOME CHILDREN WITH DISABILITIES IN THE DIGITAL CLASSROOM

Historically, children with disabilities "were either totally excluded from schools or sitting idly in regular classrooms awaiting the time when

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[161] *See* BLICK ET AL., *supra* note 68, at 1 (explaining that data regarding individuals with disabilities frequently fail to discuss "added sociopolitical challenges," resulting in a "double burden" that amplifies social determinants of health).

they were old enough to drop out."[162] For generations, the exclusion of children with disabilities from the public school system was legally sanctioned by statute and upheld by the judicial system.[163] It was not until the mid-twentieth century, when Congress passed the Elementary and Secondary Education Act (ESEA), that federal funds were allocated to support educational services for some of the nation's most vulnerable students—first, for children from households living below the poverty line, and later, for a limited number of children with disabilities.[164]

The following decades saw a growing body of case law that "establish[ed] a right of education for all handicapped children."[165] In 1971, the Pennsylvania Association for Retarded Children brought a class action against the Commonwealth of Pennsylvania regarding a state statute that sanctioned denying children with disabilities access to public schools if the public school found the child "uneducable and untrainable."[166] In an Injunction and Consent Agreement, the court found that individuals with disabilities "are capable of benefitting from a program of education and training" and that "with such education and training, are capable of achieving some degree of self-care."[167] The court further found that the state, "[h]aving undertaken to provide a free public education to all of its children . . . may not deny any mentally retarded child access to a free public program of education and training."[168]

### A. *The History and Purpose of the IDEA*

In 1975, Congress passed comprehensive federal special education law, since renamed the Individuals with Disabilities Education Act (IDEA), entitling all children with disabilities access to a "free appropriate public

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[162] H.R. REP. NO. 94-142, 1, 2 (1975); *see also* Ruth Colker, *A Brief Overview*. *in* SPECIAL EDUCATION ADVOCACY 1 (Ruth Colker & Julie K. Waterstone eds., 2011) (explaining the context in which the litigation developed); Edwin W. Martin et al., *The Legislative and Litigation History of Special Education*, 6 FUTURE CHILD. 25, 26 (1996).

[163] *See, e.g.*, State *ex rel.* Beattie v. Bd. of Educ., 172 N.W. 153, 154 (Wis. 1919) (finding that a school district's exclusion of a child with a disability from public school was justified because the child's "physical condition and ailment produce[d] a depressing and nauseating effect upon the teachers and school children").

[164] William S. Koski & Rob Reich, *When "Adequate" Isn't: The Retreat from Equity in Educational Law and Policy and Why It Matters*, 56 EMORY L.J. 545, 573 (2006); *see also* Martin et al., *supra* note 162, at 26–27 (1996) ("The Elementary and Secondary Education Act (ESEA) of 1965 was the first major federal effort to *subsidize direct services* to selected populations in public elementary and secondary schools, and it remains the primary vehicle for federal support of public schools today. While the original ESEA did not provide for direct grants on behalf of children with disabilities, in the second year of that Congress, Public Law 89-313 provided that children in state-operated or state-sponsored schools 'for the handicapped' could be counted for entitlement purposes . . . .") (emphasis in original).

[165] S. REP. No. 94-168, 1, 6 (1975); *see also* Bd. of Educ. v. Rowley *ex rel.* Rowley, 458 U.S. 176, 192 (1982).

[166] Pa. Ass'n for Retarded Child. v. Pennsylvania, 343 F. Supp. 279, 282 (E.D. Pa. 1972).

[167] *Id.* at 307.

[168] *Id.*

education" (FAPE).[169] At the time, Congress found that over three million children with disabilities were not receiving the educational services necessary to meet their specific learning needs,[170] and that an estimated one million children with disabilities were being excluded from the public school system entirely.[171] In response to these findings, Congress passed the IDEA to ensure that all children with disabilities have access to a "free appropriate public education which emphasizes special education and related services designed to meet their unique needs . . . and to assess and assure the effectiveness of efforts to educate" all children with disabilities.[172]

In addition to grounding the IDEA in the substantive right to a FAPE, Congress incorporated significant procedural safeguards[173]—providing parents[174] with powerful processes to participate in developing, enforcing, and, if necessary, challenging their child's special education program.[175] Parental involvement is critical to understanding the services and supports necessary to ensure that a child with a disability can access, engage with, and make meaningful progress in their educational setting. Today, Congress states the IDEA's purpose as "to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and *prepare them for further education, employment, and independent living*."[176]

## B. *The IDEA's Core Principles of Access and Inclusion*

### 1. *Free Appropriate Public Education*

At the heart of the IDEA is the substantive right to a FAPE for eligible children with disabilities.[177] However, the meaning of FAPE has been the

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[169] 20 U.S.C. § 1400; *see also* Samuel R. Bagenstos, *Educational Equality for Children with Disabilities: The 2016 Term Cases*, *in* 2016–2017 AMERICAN CONSTITUTION SOCIETY SUPREME COURT REVIEW 17, 17 (S.D. Schwinn ed., 2017).

[170] Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, § 5, 89 Stat. 773, 776; Martin et al., *supra* note 162, at 29.

[171] Bagenstos, *supra* note 169, at 18; *see also* Bd. of Educ. v. Rowley *ex rel*. Rowley, 458 U.S. 176, 198–201 (1982).

[172] Education for All Handicapped Children Act § 3; *see also* Nicole Tuchinda, *The Imperative for Trauma-Responsive Special Education*, 95 N.Y.U. L. REV. 766, 775 (2020) (citing Education for All Handicapped Children Act § 3(a)(c)).

[173] *See Rowley*, 458 U.S. 176 at 192 (1982).

[174] 20 U.S.C. § 1401(23) (defining "parent" as a "natural, adoptive, or foster parent of a child . . . guardian (but not the State if the child is a ward of the State) . . . individual acting in the place of a natural or adoptive parent (including grandparent, stepparent, or other relative) . . . or an individual who is legally responsible for the child's welfare").

[175] Although the IDEA outlined extensive due process rights for parents of children with disabilities, it is important to note that lower-income families were frequently unable to access these rights because of the cost of private enforcement. For an in-depth discussion of the relationship between private enforcement, poverty, and special education law, see Eloise Pasachoff, *Special Education, Poverty, and the Limits of Private Enforcement*, 86 NOTRE DAME L. REV. 1413, 1424 (2011).

[176] 20 U.S.C. § 1400(d)(1)(A) (emphasis added).

[177] 20 U.S.C. § 1401(3), (9).

subject of much litigation since the IDEA's enactment. For decades, parents, advocates, educators, and courts have struggled to define a standard for "appropriateness" within the context of the IDEA.[178] In 1982, the Court first considered the substantive level of educational benefit necessary to meet the FAPE standard under the IDEA. In *Board of Education v. Rowley*, the Court found that, under the IDEA, the FAPE standard did not entitle children with disabilities to the best education possible, but rather to a "basic floor of opportunity" that "consists of access to specialized instruction and related services which are individually designed to provide educational benefit."[179] The Court revisited the *Rowley* standard thirty-five years later in *Endrew F. v. Douglas County School District RE-1*,[180] finding that a school has met the FAPE standard if the child's educational program is reasonably calculated to enable the child to make appropriate progress in light of their unique circumstances.[181]

Although *Endrew F.* did not go as far as many scholars and advocates sought,[182] it did clarify that a child's right to a FAPE requires more than a mere "floor of opportunity." And, when read within the statutory language of the IDEA's purpose, *Endrew F.* tells us that an eligible child with a disability has a right to a free appropriate public education that consists of special education and related services that facilitate meaningful progress which is markedly more than progress that is merely *de minimis*.[183] Consistent with the Act's longstanding purpose, these standards help facilitate the child's preparation for future education, employment, and independent living.[184]

2. *Least Restrictive Environment*

Another core tenet of the IDEA is the right for a child with a disability to be educated to the "maximum extent appropriate"[185] with children who do not receive special education services. More specifically, the IDEA requires that public schools provide eligible children with disabilities a free appropriate public education in the "least restrictive environment" (LRE) capable of meeting the child's unique educational needs.[186] Functionally, this means that eligible children with disabilities are guaranteed an educational program that is (1) tailored to their individual learning needs so

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[178] *See generally Rowley*, 458 U.S. 176 (1982); Endrew F. *ex rel.* Joseph F. v. Douglas Cnty. Sch. Dist. RE-1, 137 S. Ct. 988 (2017).

[179] *Rowley*, 458 U.S. at 201.

[180] 137 S. Ct. 988 (2017); Bagenstos, *supra* note 169, at 17, 20.

[181] *Endrew F.*, 137 S. Ct. at 1000–01.

[182] Terry Jean Seligmann, *Flags on the Play: The Supreme Court Takes the Field to Enforce the Rights of Students with Disabilities*, 46 J.L. & EDUC. 479, 480 (2017).

[183] *See Endrew F.*, 137 S. Ct. at 999–1000.

[184] *See* 20 U.S.C. § 1400(c)(3), (d).

[185] 20 U.S.C. § 1412(a)(5)(A).

[186] *Id.*

as to allow them to make meaningful academic, social-emotional, and developmental progress in (2) the least restrictive environment that ensures—"[t]o the maximum extent appropriate"—that children with disabilities "are educated with children who are not disabled."[187] And while special education law does not require that the education of a child with a disability maximize the child's educational progress,[188] the LRE mandate requires that the educational environment maximize the child's inclusion with peers who do not have a disability.[189]

It is also important to note the complexity of the relationship between the IDEA's FAPE standard and the LRE requirement. While it is beyond the scope of this Article to examine the various judicial approaches used to evaluate the IDEA's LRE requirement,[190] the statute's plain language clearly states that a child with a disability can only be removed from the general education setting "when the nature or severity" of the child's learning needs "cannot be achieved satisfactorily" in the general education classroom even "with the use of supplementary aids and services."[191] As a result, and consistent with the IDEA's assistive technology provisions,[192] if a device or service can be used to maximize access to the general education setting for a child with a disability, then the public school district must provide the child with that technology to comply with the Act.

### C. *Technological Advancements and the Amendment of the IDEA*

Over the past four decades, Congress has repeatedly amended the IDEA in response to technological advancements. These amendments reflect the IDEA's emphasis on gathering, reviewing, and acting upon data and evidence-based practices.[193] Data-informed amendments advance the IDEA's

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[187] 20 U.S.C. §§ 1400, 1412(a)(5)(A); *see* Madeleine M. Plasencia, *Disabling Fascism: A Struggle for the Last Laugh in Trump's America*, 23 HARV. LATINX L. REV. 287, 300 (2020) ("Public schools guarantee compliance with federally-enacted civil rights laws protecting against discrimination based on dis/ability. Specifically, the Individuals with Disabilities Education Act (IDEA) requires public schools to make available to eligible children with dis/abilities a free and appropriate public education in the least restrictive environment appropriate to their individual needs. In operation this means that such students in a public school setting are guaranteed two key rights: a) access to a public education and that schools must provide necessary accommodations, services, and auxiliary supports, and b) integration of children as much as possible.").

[188] *See* Bd. of Educ. v. Rowley *ex rel.* Rowley, 458 U.S. 176, 189–90 (1982); *see also Endrew F.*, 137 S. Ct. at 1001.

[189] *See* 20 U.S.C. § 1412(a)(5)(A).

[190] *See* Edmund J. Rooney, *Considering the Costs: Adopting a Judicial Test for the Least Restrictive Environment Mandate of the Individuals with Disabilities Education Act*, 45 J. LEGIS. 298 (2019).

[191] 20 U.S.C. § 1412(a)(5)(A).

[192] 20 U.S.C. § 1400 (c)(5)(H) ("[T]he education of children with disabilities can be made more effective by . . . the development and use of technology, including assistive technology devices and assistive technology services, to maximize accessibility for children with disabilities.").

[193] *See* Tuchinda, *supra* note 172.

purpose: to ensure that children with disabilities have access to a FAPE that prepares them for future education, employment, and independence.[194]

1. *The IDEA's Assistive Technology Amendments*

In 1990, Congress amended the IDEA to incorporate definitions for "assistive technology device" and "assistive technology service."[195] These amendments were made in response to Congressional findings that technological advancements offered greater opportunity for children with disabilities to participate in educational programs.[196] The decision by Congress to define assistive technology as both a device and a service reflects its findings that a broad range of assistive technology is available and should be considered to support the educational needs of children with disabilities.[197]

Seven years later, Congress amended the recently added assistive technology (AT) provisions. In the 1997 amendments, Congress emphasized that the purpose of the individualized education program (IEP) is to tailor educational services to meet a child's unique learning needs,[198] and noted that in order to comply with this purpose a child's IEP team must grapple with several essential considerations in developing the child's special education program,[199] including "whether the child requires assistive technology devices and services."[200] In amending the IDEA to explicitly define AT, Congress framed AT as constituting a special education service, a related service, or simply a supplementary aid or service.[201]

The IDEA specifically notes that the purpose of the assistive technology provisions is not only to ensure that children with disabilities have access to today's classrooms, but to "maximize" access to those classrooms.[202] As

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[194] 20 U.S.C. § 1400.

[195] H.R. REP. NO. 101-544, at 8–9 (1990), *as reprinted in* 1990 U.S.C.C.A.N. 1723, 1730–31.

[196] *Id.* at 8 (1990), *as reprinted in* 1990 U.S.C.C.A.N. 1723, 1729–30.

[197] *Id.* at 8–9 (1990), *as reprinted in* 1990 U.S.C.C.A.N. 1723, 1731.

[198] H.R. REP. NO. 105-95, at 103–04 (1997), *as reprinted in* 1997 U.S.C.C.A.N. 78, 101–02.

[199] *Id.* at 104 (1997), *as reprinted in* 1997 U.S.C.C.A.N. 78, 102 ("[T]he Committee believes that a number of considerations are essential to the process of creating a child's IEP. The purpose of the IEP is to tailor the education to the child; not tailor the child to the education. If the child could fit into the school's general education program without assistance, special education would not be necessary.").

[200] Individuals with Disabilities Education Act Amendments of 1997, Pub. L. No. 105-17, § 614, 111 Stat. 37, 86.

[201] *See* Allan G. Osborne, Jr., *Providing Assistive Technology to Students with Disabilities Under the IDEA*, 280 EDUC. L. REP. 519, 519–20 (2012) ("Interestingly, assistive technology is not specifically included in either the definition of special education or related services. Even so, depending on the services provided, assistive technology fits within the definition of special education as specially designed instruction and within the definition of related services as a developmental, corrective, or supportive service. Rather than include assistive technology within either of these two definitions, however, Congress chose to create assistive technology as a category separate from both special education and related services. Thus, assistive technology may be considered to be either a special education service, a related service, or simply a supplementary aid or service. School districts are required to provide students with disabilities with supplementary aids and services to allow them to be educated in the least restrictive environment.").

[202] 20 U.S.C. § 1400(c)(5)(H).

discussed above, although the statute does not entitle children with disabilities to the best education possible, it does require that public school districts educate children with disabilities in the least restrictive environment.[203] As a result, if an AT device or service can be used to maximize the child's access, then it must be used to do so.

2. *Defining Assistive Technology as a "Device" and "Service"*

The IDEA broadly defines both "assistive technology device" and "assistive technology service,"[204] though the statute provides considerably more guidance for special education teams considering adding technology services to a child's special education program. First, the IDEA defines an assistive technology device as "*any* item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain or improve functional capabilities of a child with a disability."[205] The Act explicitly notes a single exception—that the "[t]erm does not include a medical device that is surgically implanted, or the replacement of such device."[206]

Assistive technology devices encompass a wide array of tools, ranging from no-tech or low-tech—such as a magnifying glass—to medium-tech and high-tech—such as a computerized communication system[207] or a laptop that includes specialized software to support a student's unique learning needs.[208] Although there is little case law regarding the IDEA's assistive technology provisions,[209] courts have recognized an iPad as high-tech assistive technology[210] and found that a prosthetic arm does not necessarily constitute assistive technology.[211] Importantly, federal regulations explicitly state that a child may use AT at home,[212] indicating an acknowledgement

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[203] *See supra* Subsection II.B.2.

[204] 20 U.S.C. § 1401(1)–(2).

[205] *Id.* § 1401(1)(A) (emphasis added).

[206] *Id.* § 1401(1)(B); *see, e.g.*, J.C. *ex rel.* C. v. New Fairfield Bd. of Educ., No. 3:08-cv-1591, 2011 WL 1322563, at *18–19 (D. Conn. Mar. 31, 2011) (finding that a myoelectric prosthetic arm did not constitute an assistive technology device because the child was able to receive a free appropriate public education without the prosthesis).

[207] *See* JACQUELINE HESS & ANA-MARIA GUTIERREZ, CTR. ON TECH. & DISABILITY, ASSISTIVE TECHNOLOGY 101, at 1 (2018), *available at* http://pathfinder-nd.org/resources/77.pdf (last visited Oct. 20, 2022); *see also* Alexandra Abend, *Achieving the Promise of Assistive Technology: Why Assistive Technology Evaluations Are Essential for Compliance with the Individuals with Disabilities Education Act*, 38 CARDOZO L. REV. 1171, 1173 (2017).

[208] Osborne, Jr., *supra* note 201, at 520.

[209] *Id.* at 524.

[210] E.F. v. Newport Mesa Unified Sch. Dist., No. SACV 14-00455-CJC, 2015 WL 3867982, at *10 (C.D. Cal. June 23, 2015), *aff'd*, 684 F. App'x 629 (9th Cir. 2017), *cert. granted, judgment vacated sub nom.* E.F. *ex rel.* Fulsang v. Newport Mesa Unified Sch. Dist., 138 S. Ct. 169, 170 (2017), *and aff'd sub nom.* E.F. *ex. rel*. Fulsang v. Newport Mesa Unified Sch. Dist., 726 F. App'x 535 (9th Cir. 2018).

[211] *New Fairfield Bd. of Educ.*, 2011 WL 1322563, at *18–19.

[212] See 34 C.F.R. § 300.105(b) (2021).

that an AT device (such as a tablet) may be necessary for learning outside of the physical classroom.

The IDEA provides significantly more guidance regarding the meaning of AT services. Specifically, the IDEA defines an "assistive technology service" as "*any* service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device"[213] and specifies that the term includes:

> (A) the evaluation of the needs of such child, including a functional evaluation of the child in the child's customary environment;
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> (B) purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by such child;
>
> (C) selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;
>
> (D) coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
>
> (E) training or technical assistance for such child, or, where appropriate, the family of such child; and
>
> (F) training or technical assistance for professionals (including individuals providing education and rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of such child.[214]

### 3. *The Requirement that Special Education Teams Consider "Special Factors"*

In developing a special education program for a child with a disability, the special education team (consisting of teachers, evaluators, parents, and others who can speak to the child's unique learning needs) must consider several special factors when determining an appropriate special education program for the child.[215]

Among these factors is a requirement that the special education team considers "whether the child needs assistive technology devices and services."[216] If a child may require assistive technology to satisfy the FAPE standard, the school must evaluate the child's assistive technology needs

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[213] 20 U.S.C. § 1401(2) (emphasis added).
[214] *Id.* § 1401(2)(A)–(F).
[215] *Id.* § 1414(d)(1)(B).
[216] *Id.*

(regardless of whether the child ultimately requires an assistive technology device or an assistive technology service).[217] Although the IDEA does not specify how an AT evaluation must be completed,[218] it does consider an AT evaluation to be a service that "assists . . . in the selection, acquisition, or use of an assistive technology device"[219] and requires that the assessment include a "functional evaluation of the child in the child's customary environment."[220]

The IDEA's general requirements for evaluations under the Act provide additional guidance for the AT evaluation process. These requirements mandate that when a public school district evaluates a child to understand their special education needs, the evaluation must be comprehensive.[221] This includes using varied assessment tools and strategies (i.e., not relying on any single measure) and employing technically sound instruments that assess the contribution of cognitive, behavioral, physical, and developmental factors.[222] As with any support under the Act, a comprehensive evaluation in accordance with the IDEA's evaluation criteria is likely the first step in understanding the role that AT may play in a child's special education program.[223]

Unfortunately, without additional guidance, school districts have come to narrowly interpret the IDEA's AT language, especially the meaning of assistive technology "device," and frequently fail to incorporate assistive technology evaluations into a child's initial evaluation or re-evaluation for special education services.[224] Although a parent may request an AT evaluation at any time, the frequent failure to initially consider AT delays the process of securing critical AT supports, resulting in lost learning time[225] and, for many children, exclusion from the classroom's digital learning spaces. As such, a comprehensive initial AT evaluation is critical in satisfying the FAPE standard, as it can provide valuable insight regarding the technological tools

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[217] 34 C.F.R. § 300.105 (2021).

[218] Osborne, *supra* note 201, at 525.

[219] 20 U.S.C. § 1401(2).

[220] *Id.* § 1401(2)(A); *see also* 34 C.F.R. § 300.6 (2021).

[221] 34 C.F.R. § 300.304 (2021).

[222] 20 U.S.C. § 1414(b)(2) (2018); *see also* Wilson v. Colbert Cnty. Bd. of Educ., No. CV-05-J-1093-NW, 2008 WL 11424188, at *22 (N.D. Ala. Apr. 17, 2008) ("The IDEA requires schools to ensure assistive technology devices and services are available to a child who needs them. Such a requirement includes evaluation of the need for devices, procuring the devices, coordinating their use in therapy and education and training children and their educators to use the devices. The required evaluation must include a functional evaluation of the child in the child's customary environment.") (citations omitted).

[223] In general, under the IDEA, the public school district must conduct a comprehensive evaluation to assess a child's unique learning needs in all areas of "suspected disability" and use the information to inform the development of the child's special education program. 34 C.F.R. § 300.304(c)(4) (2021); *see also* Adrián E. Alvarez, *Special Education No Man's Land*, 95 ST. JOHN'S L. REV. 1, 10 (2021).

[224] *See* Abend, *supra* note 207, at 1174.

[225] *See id*. at 1189–90.

that will allow the child to engage with materials, peers, and content to the greatest extent possible[226] in the least restrictive environment.[227]

### D. *Children with Disabilities Are Not Receiving the Assistive Technology Necessary to Access and Engage with Today's Digital Classrooms*

As digital instruction is widely integrated throughout K–12 education,[228] many children with disabilities are not receiving the technology necessary to access and engage with today's increasingly digital classrooms and inescapably digital world. As discussed above, research has consistently shown that children who lack access to reliable broadband and a personal computer (that is not a smartphone) outside of the classroom experience lower academic outcomes and develop fewer digital literacy skills than students who do have access to this technology.[229] This matters because as a twenty-first century skill,[230] digital literacy is critical in accessing higher education, pursuing employment, and navigating the many personal spaces that increasingly require digital skills, including healthcare, benefits, and social settings.[231]

And for children with disabilities, the barriers to building these critical digital literacy skills are even greater. Unlike peers who do not have a disability, many children with disabilities require specialized software to use basic technology and engage with online learning spaces. Furthermore, for children with some diagnoses, additional time, and instruction—beyond mere exposure to a computer in the classroom setting—may be necessary to build the same digital literacy skills as a student who does not require additional time to process and retain information.

Without the appropriate digital tools and supports to ensure that children with disabilities are able to access classrooms' digital learning spaces, children with disabilities are once again being excluded from the K–12 classroom—failing to fulfill the longstanding purpose of inclusion that underlies the IDEA. Ultimately, the inability to access the breadth of today's K–12 classroom and build the digital literacy skills necessary for long-term

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[226] *Id.* at 1189.

[227] 20 U.S.C. § 1412(a)(5).

[228] Patrician Burch et al., *Improving Access to, Quality, and the Effectiveness of Digital Tutoring in K–12 Education*, 38 EDUC. EVALUATION & POL'Y ANALYSIS 65, 65 (2016) ("Digital instruction—using a digital platform (such as computer, netbook, or handheld device) as an integral and consistent part of an instructional delivery strategy—is rapidly becoming a commonplace component of K–12 classroom and supplemental instruction.").

[229] *See* HAMPTON ET AL., *supra* note 3, at 121.

[230] *See* KEWALRAMANI ET AL., *supra* note 20, at 142; *see also* Oakland, *supra* note 53, at 451.

[231] GRAY & LEWIS, *supra* note 44, at 1; *see also* Joanna Goode, *Mind the Gap: The Digital Dimension of College Access*, 81 J. HIGHER EDUC. 583, 583 (2010) ("[W]ithout any formal technology prerequisites, students come to college with differing technological skills, stratified by gender, socioeconomic status, and racial backgrounds. Beyond skills, students' varied computing histories can result in a range of technology identities that impact their relationship with technology in their academic, social, and career aspirations.").

independence is especially harmful for many children with disabilities who face so many additional barriers to classroom access and developing these skills. And while not every child with a disability requires assistance accessing basic technology and tools (such as students situated as Child C, *supra*), those who do require assistance cannot receive a free appropriate public education in the least restrictive environment without such supports.

## III. THE LIMITATIONS OF THE IDEA'S ASSISTIVE TECHNOLOGY PROVISIONS IN AN INCREASINGLY DIGITAL WORLD

### A. *Vague Statutory Language*

Given the breadth and limited guidance of the IDEA's current definition of an "assistive technology device," special education teams have few parameters to guide discussions regarding potential technological supports for a child with a disability.[232] As a result, educators, parents, advocates, decision makers, and other stakeholders must evaluate the appropriateness of technology outlined (or not outlined) in a child's IEP without any guidance regarding the breadth of technology that the special education team should have discussed prior to finalizing the IEP—resulting in confusion and lost learning time.

### B. *Educator Training*

As discussed above, under the IDEA's existing AT provisions, special education teams must consider whether the child requires AT in order to comply with the FAPE standard.[233] Unfortunately, IEP teams have come to narrowly interpret these provisions (such as specialized keyboards in the physical classroom), and fail to discuss the role of broadband, personal computers, and digital skills in a child's overall educational picture[234]—even as the majority of K–12 educators assign work to be completed outside of school that requires access to the digital learning environment.[235]

As a result, in developing special education programs for children with disabilities, the child's IEP team may unintentionally consider a limited number of assistive technology devices, such as speech-to-text software, but fail to consider the fundamental tools necessary to engage with those specialized supports (such as broadband internet and a personal computer). This is not to say that special education teams are not discussing the necessity of fundamental technology for access to classrooms' digital

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[232] *See* 20 U.S.C. § 1401(2); *see also supra* text accompanying notes 215–20.

[233] *See supra* Subsection II.C.2.

[234] This assertion is based on the author's professional experiences working with the Health Justice Alliance (HJA) Law Clinic at Georgetown University Law Center. [hereinafter Professional Experience]

[235] *See generally* Adam Stone, *Is Dated Technology Contributing to the Great Teacher Resignation?*, EDTECH (Mar. 15, 2022), https://edtechmagazine.com/k12/article/2022/03/dated-technology-contributing-great-teacher-resignation.

learning spaces, but rather that the existing provisions fail to ensure that the wide range of technology available, and possibly necessary, is discussed in depth while initially developing a child's IEP.

### C. *Inaccessibility of the IDEA's Enforcement Provisions*

Although the IDEA's existing AT provisions and procedural safeguards provide an avenue to advocate for tools necessary to close the digital divide for students with disabilities, doing so frequently requires lengthy litigation which may result in the loss of valuable learning time.[236] Amending the IDEA to provide additional guidance regarding technology for students with disabilities will not only encourage discussion regarding the wide array of technology available to children with disabilities—as is already required by the IDEA—but will shift the discussion and consideration of these supports to earlier in the special education process, saving critical learning time and preventing exclusion from online learning spaces.

## IV. RECOMMENDATIONS TO BRIDGE THE DISCONNECT AND BRING THE IDEA INTO THE DIGITAL AGE

### A. *Enforcement*

The IDEA's broad but vague AT provisions provide a foundation for children with disabilities to access an array of technological supports necessary to receive a free appropriate public education in the least restrictive setting, regardless of whether that setting is a physical or digital classroom space.[237] As a result, under the IDEA's current AT language, a child is already entitled to an AT device or service if necessary for compliance with the FAPE and LRE standards.[238] However, if a child with a disability can access an IDEA-compliant education *without* the addition of AT, the public school is not required to provide that technology.[239] This is the case even if specific AT would provide additional benefit to a child.[240] Realistically, however, for many children with disabilities, today's hybrid learning environments require AT to engage with peers in the least restrictive physical and digital environments and as a result make AT

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[236] *See* Pasachoff, *supra* note 175.

[237] *See supra* Subsection II.C.2.

[238] 20 U.S.C. § 1414(d)(3)(B).

[239] *See* Osborne, *supra* note 201, at 526; *see also* High v. Exeter Twp. Sch. Dist., No. 09-2202, 2010 WL 363832, at *8 (E.D. Pa. Feb. 1, 2010) (finding that a child with a disability who was making meaningful progress toward her IEP goals and was receiving a FAPE with assistive technology was not entitled to assistive technology under the IDEA).

[240] Endrew F. *ex rel.* Joseph F. v. Douglas Cnty. Sch. Dist. RE-1, 137 S. Ct. 988, 1001 (2017) (finding that FAPE does not require schools to provide opportunities equal opportunities as afforded to children without disabilities (citing Bd. of Educ. v. Rowley *ex rel.* Rowley, 458 U.S. 176, 185–86 (1982))).

necessary to receive an appropriately ambitious education in light of the child's unique learning needs.[241]

### 1. *High-Speed Internet, Personal Computers, and Other Physical Tools as Assistive Technology Devices*

Although the IDEA does not define broadband or high-speed internet, both terms satisfy the IDEA's definition of an AT device as "*any* item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability."[242] Consider a tenth-grade student who has been diagnosed with a disability and receives special education services under the IDEA. When that student's teacher assigns a group project that requires students to complete the assignment using online collaboration tools, the student is unable to participate without reliable access to broadband that allows the student to connect with peers online. As a result, the broadband necessary to access and complete the assignment functions as a product system that maintains or improves the student's capabilities, without which the student cannot engage with peers in the digital learning space.

Although the IDEA does not explicitly state which devices constitute assistive technology under the Act, for some children with disabilities, a laptop or tablet—modified, customized, or directly off the shelf[243]—satisfies the IDEA's definition of AT device as an "item, piece of equipment, or product system . . . used to increase, maintain, or improve [the child's] functional capabilities."[244] And because laptops and tablets do not constitute surgically implanted medical devices, they would not be exempted under the Act's single AT device exception.[245]

As discussed above, although a laptop or tablet might benefit a child with a disability, a child is not necessarily entitled to the device.[246] A laptop, tablet, or other personal computer only constitutes an AT device if used to increase, maintain, or improve the functional capabilities of a child with a disability. In the case of the tenth-grade student above, a laptop, tablet, or personal computer is likely necessary to engage in online collaborative assignments with peers, and, as a result, necessary to maintain or improve the student's capabilities. As such, a personal computer in some form likely constitutes an AT device under the IDEA. And because the IDEA requires that public schools provide eligible children with disabilities a free

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[241] Osborne, *supra* note 201, at 523.

[242] 20 U.S.C. § 1401(1)(A) (emphasis added).

[243] *Id.*

[244] *Id.*

[245] *Id.* § 1401(1)(B); *see also* discussion *supra* Subsection II.C.2.

[246] *See* Endrew F. *ex rel.* Joseph F. v. Douglas Cnty. Sch. Dist. RE-1, 137 S. Ct. 988, 1001 (2017) (explaining that under the IDEA a child with a disability is not entitled to the best education possible); *see also* Osborne, *supra* note 201, at 526.

appropriate public education in the least restrictive environment,[247] a personal computer is necessary to engage in work alongside peers (rather than separately using a hard copy or alternate format).

2. *Skills-Based Training as an Assistive Technology Service*

The IDEA provides significantly more guidance regarding what constitutes an AT service under the Act. Training in how to use a laptop, tablet, or other high-tech AT device for a student or parent—regardless of whether that device includes specialized software or is provided without any adaptations—would very likely constitute an AT service. Such training is consistent with training and support that many parents receive under the IDEA, which obligates public schools to provide parent training if necessary to ensure the parent develops the skills required to help implement the child's special education program.[248] For example, it is not uncommon for an individualized education program to include parent training regarding techniques relating to the communication needs of a child with a speech-language disability so that the parent can support the child's homework and engagement with material outside of the physical classroom.[249]

B. *Educator Training*

It is also critical to ensure that educator training programs, whether in the context of higher education or ongoing professional development, require all educators—both general and special education—to understand the vast array of supports that constitute assistive technology under the IDEA and how to use those supports.[250] This is especially critical for low-income children with disabilities who face additional barriers accessing information in both the classroom's physical and digital learning spaces.[251] As in the case of Jeremiah, it is not enough to provide hard copy materials for the sake of recouping grade points lost through a child's inability to engage with assignments and material online.

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[247] 20 U.S.C. § 1412(a)(5)(A).

[248] 34 C.F.R. § 300.34(c)(8) (2021) (defining parent counseling and training as "(i) . . . assisting parents in understanding the special needs of their child; (ii) Providing parents with information about child development; and (iii) Helping parents to acquire the necessary skills that will allow them to support the implementation of their child's IEP or IFSP [Individualized Family Service Plan].").

[249] See 34 C.F.R. § 300.34(a) (2021) (defining related services "required to assist a child with a disability to benefit from special education"); *see also* Professional Experience, *supra* note 234.

[250] *See* Nicol Turner Lee, *Bridging Digital Divides Between Schools and Communities*, BROOKINGS (Mar. 2, 2020), https://www.brookings.edu/research/bridging-digital-divides-between-schools-and-communities/; *Stone*, *supra* note 235.

[251] *See supra* Subsection I.E.4.

## C. *Additional Guidance*

### 1. *Updating and Clarifying the IDEA's Assistive Technology Language*

Despite the IDEA's AT provisions, existing statutory language does not provide sufficient guidance for teams discussing and implementing AT within a child's individualized education program. As a result, IEP teams often read AT provisions narrowly, limiting discussions to include devices and services designed to support *physical* disabilities.[252] This lack of guidance demonstrates that, despite the increasing role of technology in the physical and digital classroom, IEP teams often fail to consider even the most basic technology necessary to *access* today's increasingly digital learning environments—such as broadband and personal computers—when formulating a child's special education program.[253] Although such guidance may not have been necessary in the past when the majority of students' work was completed in hard copy, the role of digital platforms to complete the most basic educational tasks—such as submitting assignments and completing projects—reflects the need for an update to ensure ongoing access to today's digital classrooms.

#### i. Updating and Clarifying the IDEA's Findings to Acknowledge the Need for Children with Disabilities to Develop Digital Literacy Skills

First, the IDEA should include findings that acknowledge the growing and inescapable role of technology in today's K–12 educational settings. Congress has previously acknowledged the role of technology as a powerful means of access for children with disabilities, finding that "research and experience has demonstrated that the education of children with disabilities can be made more effective by . . . supporting the development and use of technology, including assistive technology devices and assistive technology services, to maximize accessibility for children with disabilities."[254]

This emphasis on maximizing classroom access is consistent with the IDEA's requirement that children with disabilities be educated in the least restrictive environment.[255] As such, Congress should include findings that acknowledge the increasing role of technology in completing foundational educational tasks like homework and research. Furthermore, Congress should acknowledge the fundamental technology necessary for those tasks, including reliable access to broadband and a personal computer, as well as

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[252] Turner Lee, *supra* note 250; Stone, *supra* note 235.
[253] Turner Lee, *supra* note 250; Stone, *supra* note 235.
[254] 20 U.S.C. § 1400(c)(5), (c)(5)(H).
[255] *Id.* § 1412(a)(5)(A).

the digital literacy skills needed to use those tools[256] and fulfill the IDEA's longstanding purpose of independence.[257]

ii. Expanding the IDEA's Definitions to Reflect the Role of Technology in Education, Employment, and Long-Term Independence

The IDEA should also be amended to include a definition of "digital literacy" to reflect the skills necessary for future education, employment, and independence in today's increasingly digital world.[258] In recent years, Congress has amended other education-related legislation to both acknowledge the importance of developing digital literacy and include a definition of digital literacy skills.[259] In 2010, Congress amended the Museum and Library Services Act to define "digital literacy skills" as "the skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information."[260] In 2018, Congress added "developing digital citizenship and the responsible use of technology" to the definition.[261] Acknowledging the importance of, and clearly defining, digital literacy is consistent with the IDEA's purpose to meet the unique needs of children with disabilities and "prepare them for further education, employment, and independent living."[262] Similarly, Congress should amend the IDEA to include a flexible, activity-based definition of "broadband" in accordance with the FCC's findings regarding upload and download speeds as necessary for educational purposes.[263]

Lastly, Congress should amend the IDEA to define "personal computer" in the context of education. Personal computers come in a variety of forms, such as a laptop, desktop, or tablet, and can be widely interpreted based on individuals' needs and experiences. The IDEA should include a definition of personal computer that reflects this variety and specifies that a mobile phone or smartphone does not constitute a personal computer for educational purposes, as research has repeatedly shown that smartphones are unable to facilitate the same access and digital literacy skills as a personal computer.[264]

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[256] *See* Tyson, *supra* note 96, at 153.

[257] 20 U.S.C. § 1400(d)(1)(A).

[258] *See generally* ANDERSON ET AL., *supra* note 21 (discussing the growing need for digital literacy skills).

[259] *E.g.*, Museum and Library Services Act of 2010, Pub. L. No. 111-340, 124 Stat. 3594, 3595 (codified as amended at 20 U.S.C. § 9101(2)).

[260] *Id.*

[261] Museum and Library Services Act of 2018, Pub. L. No. 115-410, 132 Stat. 5412, 5412 (codified at 20 U.S.C. § 9101(2)(B)).

[262] 20 U.S.C. § 1400(d)(1)(A).

[263] *See* sources cited *supra* note 17.

[264] *See* discussion *supra*, notes 58–62, 110–15 and accompanying text.

### iii. Updating and Clarifying the IDEA's Assistive Technology Language

Critically, Congress should amend the IDEA to provide guidance regarding technology that constitutes an assistive technology device under the Act. The IDEA's broad but vague definition of "assistive technology device" as "*any* item, piece of equipment, or product system . . . used to increase, maintain, or improve functional capabilities of a child with a disability"[265] parallels the Act's broad definition of "assistive technology service" as "*any* service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device."[266] The definition of "assistive technology service," however, is guided by a series of examples that illustrate high-level services that constitute an AT service under the Act, while the definition of AT device does not provide any such guidance.[267] For example, the Act notes six categories of AT services that may be necessary to maximize a child's educational access, including an AT evaluation, the process of acquiring any necessary technology device, and training for the child, educators, or the child's family.[268] These examples provide parents and educators with much-needed guidance and language regarding the general types of AT services to consider when constructing a child's special education program.

Unlike the IDEA's definition of AT service, the Act's definition of AT device does not include any guidance regarding the type of technology the term includes. As discussed above, this lack of guidance has led to confusion regarding the Act's definition of assistive technology device, with many special education teams interpreting the term narrowly.[269] For example, special education teams often consider whether the child requires a specialized keyboard, or text-to-speech device for school or at-home use, but fail to discuss whether the child has access to foundational technology necessary to engage with online learning tools used by the vast majority of educators in today's primary and secondary classrooms.[270] As a result, a child may have access to a specialized keyboard, but lack access to broadband or a personal computer at home with which to use that keyboard.

As such, the Act's definition of AT device should, like the definition of AT service,[271] describe the general categories of items, equipment, or product systems—regardless of whether they are modified—used to increase, maintain, or improve the functional capabilities of children with disabilities. This definition should include the fundamental technology

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[265] 20 U.S.C. § 1401(1)(A) (emphasis added).
[266] *Id.* § 1401(2) (emphasis added).
[267] *Id.* § 1401.
[268] *Id.* § 1401(2).
[269] *See supra* Subsection II.C.2.
[270] *See* sources cited *supra* note 207.
[271] *See* 20 U.S.C. § 1401(1)–(2).

necessary to access and engage with digital learning tools, including wireless hotspots and personal computers.

### 2. *Updating and Clarifying Federal and State Regulations Implementing the IDEA's AT Provisions*

Relatedly, the U.S. Department of Education (DOE) could update the federal regulations implementing the IDEA's requirements with additional guidance regarding what constitutes an "assistive technology device" under the statute. In fact, Congress explicitly granted the DOE the authority to issue federal regulations under the IDEA "to the extent that such regulations are necessary to ensure" compliance with the statute.[272] Providing additional guidance through federal regulations would clarify the meaning of the IDEA's technology regulations for the many stakeholders charged with implementing the IDEA's requirements,[273] and help ensure public school districts' compliance with the Act in the age of digital learning. Similarly, state regulations could also provide a powerful space to clarify the meaning of AT for children with disabilities in an increasingly and inescapably digital world.[274]

### 3. *Clarification Through Dear Colleague Letters*

Lastly, the DOE could provide additional guidance regarding the IDEA's AT provisions through "Dear Colleague Letters" addressing the role of technology in today's K–12 classrooms.[275] The DOE, including the department's Office of Civil Rights, functions as both an educator and enforcer of civil rights in the area of special education,[276] making it uniquely qualified to address the confusion regarding, and disconnect between, the statute's broad AT language and its narrow implementation on the ground.

## CONCLUSION

The Individuals with Disabilities Education Act (IDEA) guarantees children with disabilities access to today's classrooms, including the services and supports necessary to meaningfully benefit from instruction.

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[272] *See* 20 U.S.C. § 1406, *see also* Brian J. Levy, *20 U.S.C. § 1406(b)*, 62 BUFF. L. REV. 377, 388 (2014) (explaining that Congress limited its delegation of authority to prohibit regulations that "procedurally or substantively lessen the protections provided" to children under the IDEA).

[273] *See* Individuals with Disabilities Education Act (IDEA), *Statute and Regulations*, U.S. DEP'T OF EDUC., https://sites.ed.gov/idea/statuteregulations/#regulations (last visited Aug. 28, 2022).

[274] *See* 20 U.S.C. § 1407 (requiring that state regulations related to the IDEA are minimal and conform to its purpose).

[275] Department of Education officials commonly issue "Dear Colleague Letters" to provide nonbinding guidance on various policies. *See, e.g.*, Letter from Catherine E. Lhamon, Ass't Sec. for H.R., Off. for C.R., U.S. Dep't of Educ., Dear Colleague Letter and Resource Guide on Students with ADHD (July 26, 2016), https://sites.ed.gov/idea/files/OCR-letter-07-26-2016.pdf.

[276] Bryson King, *Addressing the Bullying and Harassment of Students with Disabilities Through School Compliance to Avoid Litigation*, 2018 B.Y.U. EDUC. & L.J. 67, 71 (2018).

But as U.S. classrooms increasingly incorporate both physical and digital components, Congress has failed to ensure that children with disabilities, especially low-income children with disabilities, have access to these hybrid learning environments. Ultimately, as today's classrooms evolve to include both physical and digital spaces, our understanding of what constitutes access to the classroom must evolve as well.

Congress, the U.S. Department of Education, and the states must acknowledge the changing landscape of today's K–12 learning environment, as well as the tools necessary to ensure that children with disabilities—especially those from lower-income families—have access to both the classroom's physical and online learning spaces. Failure to do so is failure to fulfill the purpose of the IDEA, denying children with disabilities access to the very classrooms from which they were historically excluded. To remedy the disconnect between the IDEA's principles of access, inclusion, and preparation for long-term independence, and the reality that many children with disabilities cannot access their classroom's hybrid spaces, Congress, the U.S. Department of Education, and the states must provide the language and guidance needed for parents, educators, and courts to implement the tools necessary for access in each child's special education program. Ultimately, acknowledging the importance of digital literacy and the need for fundamental technology (such as broadband and personal computers) to fulfill the purpose of the IDEA will help ensure that, like today's classrooms, the IDEA and the millions of children protected by it move into the digital age.