Council for Professional Recognition

CDA Child Development Associate® National Credentialing Program

TECH FOR EVERY TOT:

Bridging the Digital Divide

You've probably heard all the hype about the world's new generation. The news is abuzz with talk of Generation Alpha, digital natives who were born after 2010. "They will be the most formally educated generation ever, the most technology-supplied generation ever and globally the wealthiest generation ever," predicted the *New York Times*.[1] They will be "richer, smarter and more tech savvy" than any generation before, the *Daily Telegraph* enthused.[2] "Not only is Generation Alpha more likely to grow up overindulged, but they also are the most materially endowed and technologically literate generation to date," *Forbes* observed in *The Complete Guide to Generation Alpha*.[3]

HYPE VERSUS THE HARD FACTS

But that's not really the alpha and omega, or entire story, when it comes to our newest generation. Not every Alpha is being raised by tech-savvy parents, as the news would have you believe. They're not all born to be in the vanguard of the ongoing digital revolution that's changing every aspect of our lives; they can't all work their way through an iPad and a smartphone while still in diapers. And they're not all hard-wired to join the "world's first generation of multi-millionaires."[4]

The Alphas make up the most diverse generation we've ever seen, and there are vast cultural and financial gulfs among them. Not all of them grow up in homes where technology is the norm, and this digital inequality can increase educational and economic inequality as these children mature.[5] But the early childhood setting can level the playing field by helping to bridge the digital divide. And while bringing tech to tots, educators can harness the power of computers to build cultural bridges by exposing children to new languages and ways of life.

As we integrate technology into learning, we should embrace the ideal of equity in education. "The design of the educational system—particularly what opportunities it provides and to whom — is central to the design of the just society," urged Kenneth R. Howe, a specialist in educational ethics.[6] In line with this compelling thought, technology should be more than a tool to traverse space and time. It also should promote social change and more chances for all.

It's clear that digital fluency helps fling open the doors of opportunity. By 2003, more than 56 percent of employed Americans used computers in the workplace. By 2008, those with higher-paying jobs, including managers and professionals, were especially likely to use computers in the workplace. Those who used technology on the job earned 14 to 27 percent more than those who didn't. And projections of the U.S. labor market indicate that much of the country's future job growth will be concentrated in areas that require

use of technology at work.[7] So how well are we equipping our children for what's ahead? Apparently not too well, declare the many headlines like "Pandemic Highlights Disparities in Technology in Schools"[8] and "A Digital Divide Haunts Schools Adapting to Virus Hurdle."[9]

A SPOTLIGHT ON A PERSISTENT PROBLEM

The web has been filled with grim phrases like this for the past couple of years, ever since COVID forced Americans' lives online. As internet usage surged, American broadband networks passed the stress test, and for families with a home connection, broadband was a system that worked.[10] But many families were left out, according to a Pew Research Center survey from April 2021. "Fifty-nine percent of parents with lower incomes who had children in schools that were remote during the pandemic said their children would likely face at least one of three digital obstacles to their schooling, such as lack of reliable internet at home, no computer at home or needing to use a smartphone to complete schoolwork."[11]

School districts responded by buying computers and other devices for families without them and arranged for low-cost internet service. Yet the digital divide remained stubborn, the survey pointed out. "The digital lives of Americans with lower and higher incomes remain markedly different. In fact, the shares of Americans in each income tier who have home broadband or smartphones have not significantly changed from 2019 to 2021."[12]

And the number of digital have-nots is huge, the survey found. Forty-three of adults with lower incomes said they had no broadband services, and 41 percent said they had no desktop or laptop computer, things that were nearly universal in households earning at least $100,000 a year. Meanwhile, low-income families rely on smartphones to perform tasks "traditionally reserved for larger screens." And students trying to do their homework on a smartphone are certainly at a disadvantage to those who have larger screens.[13] Their struggles took the spotlight during the pandemic, but the roadblocks hey faced are far from new.

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Long before COVID drove most schools to adopt some form of remote learning, classrooms increasingly embraced the role of technology in teaching. And this development led to a "homework gap" between those who do and do not have access to the internet and digital devices at home. Pre-pandemic census data showed that roughly 2.9 million children lived in households without internet access and about 2.1 million lived in households without

a laptop or desktop computer, putting many students behind in school.[14] For our youth to be successful, they need to be connected and they need access to computers at home. It's a 21st-century must, even for our youngest learners.

THE DEPTH OF THE DIGITAL DIVIDE

The seeds of digital fluency, like those of literacy or math, often take root at an early age. The expanding use of technology in K-12 education makes it increasingly vital for children to have some grasp of technology when they start their first kindergarten class. The Common Core Standards—an initiative to align diverse state and local curricula—mentions technology more than one hundred times in 66 pages of national standards for English and language arts.[15] And this focus on tech in the United States puts many students from minority homes at risk of falling behind from the beginning. Just consider some data that points to the depth of the digital divide and the barriers many families and their children face:

- Most low- and moderate-income families have some form of internet connection, but many are under-connected with mobile-only access and inconsistent connectivity. For example, 23 percent of families below the median income level and 33 percent of those below the poverty level rely on mobile-only internet access.
- Families headed by Hispanic immigrants are less connected than other low- and moderate-income families. Ten percent of immigrant Hispanic families have no internet access at all compared with 7 percent of U.S.-born Hispanic residents, 5 percent of white residents and 1 percent of Black residents. And 44 percent of immigrant Hispanic parents don't use computers at all.
- The main reason some families don't have home computers or internet access is because they can't afford it, and discounted computer programs are reaching very few. Forty percent of parents without a home computer or internet access say the main reason they don't have these items is that they are too expensive.
- Parents acknowledge the value of technology use in the preschool setting but also have concerns. Seventy-four percent say they worry about their child being exposed to inappropriate content online, 63 percent say they think time spent with technology detracts from time spent on other important activities and 34 percent say they worry that teachers know less about their child's individual needs due to the time spent using technology—a concern that's most common among immigrant parents.[16]

SWIMMING WITH THE TIDE

The parents' reservations reflect ongoing debate about appropriate use of technology in early childhood education. Some physicians, policymakers and educators also are concerned that technology use among the young might hurt social and gross motor skills, contribute to obesity and diminish development of skills in areas beyond digital literacy. There is no doubt that "nothing will ever take the place of one person actually being with

another person," as eloquently put by Fred Rogers, the late creator and host of the iconic preschool TV show *Mr. Roger's Neighborhood*. "There can be lots of fancy things like TV and radio and telephones and internet, but nothing can take the place of people interacting face to face."[17]

At the same time, there's growing consensus that ignoring technology in the preschool setting is like "swimming against the tide." In a society that's increasingly connected, most educators are trying to bridge the gap between the real world and early childhood settings.[18] After years of debate, early childhood educators are less inclined to wonder whether technology is right for young children and more prone to ask how it can foster their development and learning. Proper use of technology, they now admit, can provide a wide range of positive experiences for young learners and make progress toward narrowing the digital divide.[19]

Studies show that technology use among low-income children, many of whom are immigrants or people of color, can increase engagement, boost achievement in academics and motor skills and, in some cases, boost socio-emotional development. If technology is excluded entirely from early childhood settings, we might miss some of the opportunities it can provide to support learning through exploration, interaction, communication and creation.[20]

TEACHERS OVER TECHNOLOGY

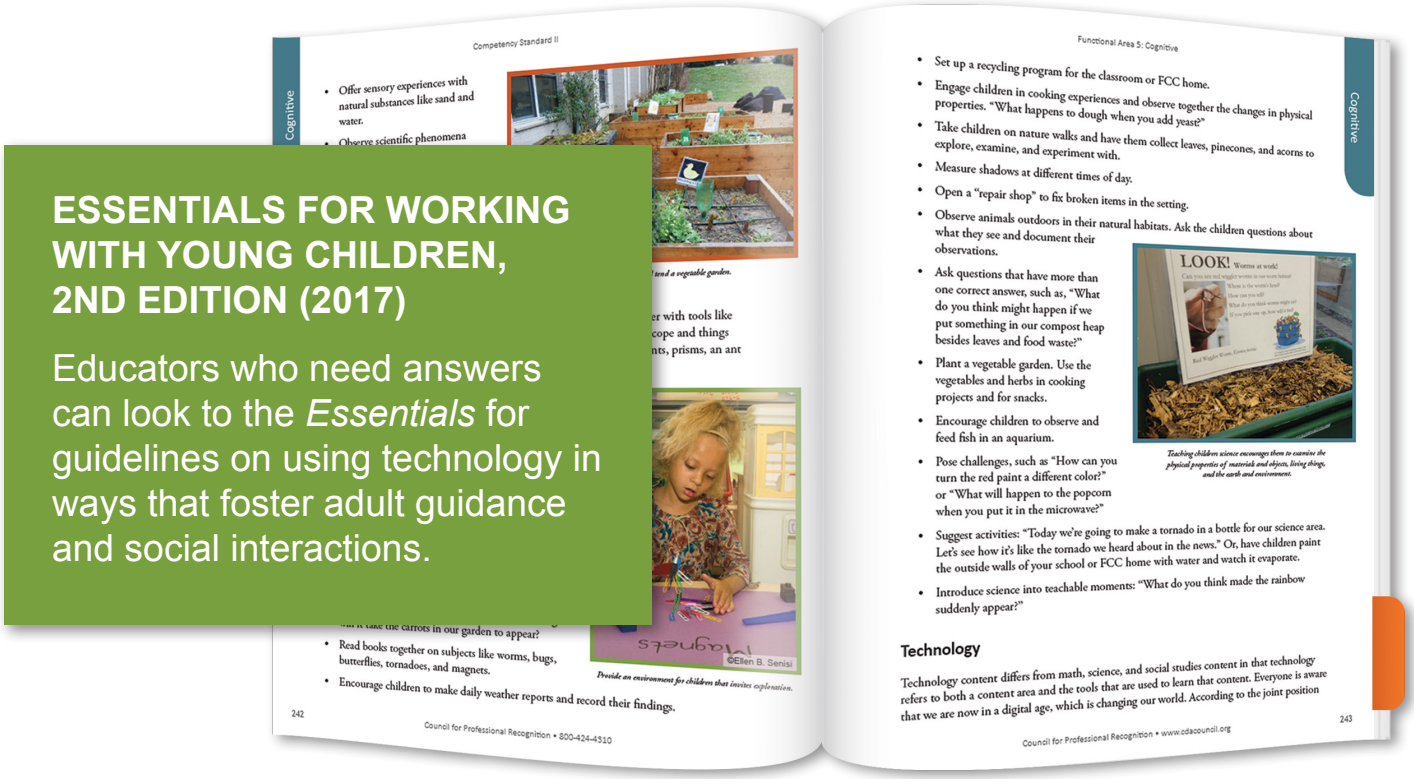
As we strive to help children get the full benefits of technology, we must not put machine over man. Children need adult guidance, too. For example, in Bridgeport, CT, preschoolers from low-income families in an urban Head Start center who received daily access to computers and were supported by an adult mentor showed more positive attitudes toward learning, greater self-confidence and increased kindergarten-readiness skills than children who had computer access but no support from a mentor. Access to technology is vital for 21st-century children, but it can't replace a connection with a caring human being.[21]

Early childhood educators play an essential role, as Rogers presciently put it in 1994. "No matter how helpful computers are as tools," he explained, "and, of course, they can be very helpful tools, they don't begin to compare in significance to the teacher-child relationship, which is human and mutual. A computer can help you learn to spell HUG, but it can never know the risk or the joy of actually giving or receiving one."[22]

Educators have long been accustomed to handing out hugs, but they face roadblocks as they try to put technology to productive use. There are access challenges since many educators lack appropriate devices, high-quality software and adequate internet connections. Uncertainty about standards for technology use leads to confusion, so educators might worry that introducing new technology to children could do more harm than good. Many of them lack adequate training on technology use or don't have enough time to become comfortable with the technology so they can introduce it into their programs. In addition, educators who are used to continuity in curricula might have trouble adjusting to the rapid technology development cycle and adopting tools that are largely unfamiliar.[23]

These challenges have led to a digital divide among educators on the value of computers, as shown by opposing views expressed by young educators at the start of their careers. When asked how soon preschoolers should begin using computers, one educator said, “They should learn to use a computer at any age because today there are so many good learning programs that you have for the computer.” Another worried that “society is getting more and more media dependent” and felt “kind of annoyed with the influence society has on the school and the degree to which they design learning programs for preschool.” One educator enthused at how “pleased the children become when they get appraisal from the computer that they did something right,” while another observed, “The children lost their focus very fast, and the program did not engage them very much. I think the children felt confused and then I had to help them more than I thought I ought to.”[24]

Teachers, too, still needed help, dealing with tech after COVID prompted a wholesale switch to remote learning. Only 66 percent of teachers said they were very confident using digital media resources, according to a 2021 survey by GBH Education. This number may reflect the added finding that one in seven teachers had not used digital media services before, GBH explained. And this influx of first-time users into the digital learning space, as well the abrupt move to remote learning, pointed to the need for teachers to get targeted training. Even teachers who were more tech savvy told GBH that that they wanted help using media to support diverse learners and integrating the media into teaching.[25]



ESSENTIALS FOR WORKING WITH YOUNG CHILDREN, 2ND EDITION (2017)

Educators who need answers can look to the *Essentials* for guidelines on using technology in ways that foster adult guidance and social interactions.

TIPS FOR USING TECH WITH TOTS

Educators who are seeking tips on effective use of technology in their programs can get advice from the Council for Professional Recognition, a Washington, DC, nonprofit that promotes improved performance and recognition of professionals in the field of early childhood education. As part of its mission, the Council has published *Essentials for Working with Young Children*, a guide to competency in the classroom. This comprehensive manual for early childhood teachers includes a technology section that reflects the Council's thoughts on how we can use our knowledge of child development and care to help the Alphas succeed.

"We really need to think about what the 21st-century skills are," *Essentials* points out. "That means we need to put more emphasis on problem solving than memorizing since you can always go online and get the facts. But how do you solve a problem and what creativity skills will you need to bring to work?"

Educators who need answers can look to *Essentials* for tips on using technology in ways that foster adult guidance and social interactions:

- Introduce new technology to children during group meetings
- Have children interact with the technology on their own while you are there as a facilitator; there is no need to try to teach children how to use technology once you have introduced it
- Provide opportunities for children to use technology in dramatic play by talking on a smartphone or using a tablet in imitation of their family members
- Make technology interactive through the choice of appropriate software and apps
- Set up search functions to show images rather than words and let children come up with the search words
- Use a digital camera to document children's work.[26]

Educators also should take advantage of new digital tools to connect with immigrant children whose home language isn't English. Computer programs can teach educators the correct pronunciation of words in other languages so they can communicate better with dual-language learners and their family members, as *Essentials* points out.[27] Educators can use technology to adapt existing materials by adding new languages to classroom labels, translating key words in books and games or providing models of writing. In addition, they can use technology to record a child's speech for later translation and documentation of their progress. With thoughtful use, technology can help meet the individual needs of dual-language learners and enhance their chances of success.[28]

As U.S. classrooms become increasingly diverse, it becomes even more vital to ensure equity in education for all children, whatever their ethnic, cultural or linguistic background. The right use of technology can help by enhancing learning in ways not otherwise easily achieved. For example, technology can introduce children more directly to new cultures and places than print resources and increase the amount of content immediately on hand for them on a given topic. Technology also can make

it easier for children to create their own materials, author their own stories and share their experiences with others, increasing the amount of diverse and culturally relevant content in the early childhood setting.[29]

Educators who are looking for ways to use technology in culturally responsive ways should ask themselves a number of questions when choosing apps and other media: Do children see different types of people and characteristics? Do they hear a variety of sounds, music and voices? Are a variety of family structures and lifestyles being depicted?[30]

Besides posing these questions, educators should look for ways to make their curriculum and instruction as multicultural as possible. They can do this by taking children into the community and also bringing the community to them. Consider just a few of the ways that educators can use technology to expand children's view of the world beyond the confines of their school or early childhood program:

- Take children on a virtual field trip to another country and explore its food, language, culture and customs.[31]
- Guide children in finding similar programs in other countries and then help them conduct an internet correspondence. Doing so helps them learn about the different ways that children their own age live, play and go to school.[32]
- Take children on walks around different communities and have them observe printed materials of all kinds: traffic signs, advertisements and artwork. Take pictures of the things that catch their attention. Then download the pictures into a computer and use them to produce journals, class books and parent newsletters.[33]
- Use a multimedia app so dual-language learners can create digital stories with a tablet to share details about their lives at home. The stories, complete with photos and narration in both English and the child's home language, will show the group how people from different cultures live.[34]

GETTING FAMILIES ONBOARD AND ONLINE

Family engagement helps support learning for students from different backgrounds and strengthens relationships between home and school, so educators also should use technology to connect with immigrant parents. A few good ways for getting immigrant families onboard and online come from Comienza en Casa/It Starts at Home, a home-based family engagement program in Millbridge, Maine:

- Invite family members to make videos of early learning activities at home or take photos that their children can discuss with their peers.
- Recommend high-quality educational apps to parents via a weekly newsletter or blog and ask them to share their favorites.
- Hold family nights where you demonstrate activities families can do at home, such as digital storytelling, using free apps that allow children to draw, import photos and record audio or video to create stories.
- Network (the old-fashioned way) by encouraging families to get together so they can trade ideas about online resources, recommend tutorials that have improved their computer skills and share ways to feel more comfortable using technology to help their children learn.[35]

CLOSING THE DIGITAL DIVIDE

Connecting with families is a vital part of bridging the digital divide for all the young members of Generation Alpha. And families may now be more willing to listen, according to a recent survey of Houston-area schools. That's especially true for the many families of color whose children faced extra roadblocks when learning went remote. The survey revealed parents' feelings about children's education since the start of the pandemic and stressed how the digital divide made a disproportionate impact on Black and Hispanic children. While only one in 10 white families had issues accessing the internet or digital devices, one in three Black families and one in four Hispanic families faced challenges, especially those who didn't speak English.[36]

"Not everyone was affected equally," said Daniel Potter, associate director of the Houston Education Research Consortium and author of the study. Sure, "COVID impacted everyone," and more than half of all families worried that their children would not be ready for the 2020-2021 school year. But families were most concerned if they didn't have computers or internet access their children could use for schoolwork. And their responses to the survey "provided a clear picture of how inequities present long before COVID-19 were intensified by the pandemic," Potter explained. And he considered their persistence to be cause for concern going ahead. "The consequence of these early days on students' learning, to say nothing of the continued impact on schooling and education more than a year later are only starting to be known."[37]

A REVOLUTION FOR ALL

And there are strong indications that the continued digital divide will make a major impact on our children's future earnings, as well as their ability to help their own children succeed. And federal government has acknowledged this by launching an "Internet for All" initiative to bring affordable, reliable internet access to everyone in the nation by the end of the current decade. The program will be run by the U.S. Department of Commerce, and Commerce Secretary Gina M. Raimondo described it as an investment in the future on a recent visit to Durham, North Carolina. "In the 21st century, you simply cannot participate in the economy if you don't have access to reliable, affordable high-speed internet," she said. So, "we are going to ensure every American will have access to technologies that allow them to attend class, start a small business, visit with their doctor and participate in the modern economy."[38]

"In the 21st century, you simply cannot participate in the economy if you don't have access to reliable, affordable high-speed internet," she said.

The new federal program will build internet infrastructure, teach digital skills, and provide needed technology to ensure everyone in America—rural communities, older Americans and communities of color—has the digital access and skills they need. And it's a vital part of bridging the digital divide for all the young members of Generation Alpha. This push to get more people online will help

close the gap between the hype and the hard facts about the Alphas as digital citizens of the world. So, there is a silver lining to COVID since it put the spotlight on cultural, economic and language barriers that stop many children from getting the full benefits of the digital revolution and reduce its total impact. "If the technology revolution only happens for families that already have money and education," said former U.S. Secretary of Education Arne Duncan, "then it's not really a revolution."[39]

The ideals of equity should drive us to help all Alphas be part of the digital age and prepare for the workplace of tomorrow. We should steer our approach to technology use in early childhood settings by the human value of social justice. And we should use technology in ways that foster growth in children from diverse and disadvantaged backgrounds. We should invest more in tech for homes and for classrooms—but we shouldn't ignore the value of the human touch.

Let's not get swept up by all the hype about tech as we help children ride the wave of the future. The hard facts are that technology matters, but it's not at the heart of great teaching and learning. Teachers don't just teach subject matter and show children how to engage with screens. They also serve as child advocates, role models and mentors who can make every young learner feel safe and loved. Connecting online still doesn't have the impact and the power of an in-person connection. So, let's remember the wisdom that Mr. Rogers passed on long before the pandemic dawned and made learning go online. Even the fastest broadband connection can't compete with a pair of loving arms as they spread wide to hug a child.

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