Informing parents, educators, service providers, and policymakers of research-based and promising practices, state and federal laws and policies, and the successes and challenges of dedicated educational partners as they work to improve and strengthen special education services for students with disabilities in California

THE SPECIAL EDge

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Technology and Education

Otto Lana—Changing the world (page 3)

What's Inside. . .

Letter from the State Director

Rachel Heenan, Ed.D.
Director, Special Education Division, California Department of Education

Technology has the potential to empower all students in communication and learning. This edition of *The Special EDge* examines how students, both with and without disabilities, interact with technology—highlighting its benefits and challenges.

Two authors with lived experience provide highlights for this issue. Mr. Otto Lana, a vibrant and articulate young man, spent a decade in silence before a speech-language pathologist offered him the right keyboard—and the gift of communication (*page 3*). Ms. Dawn Hamilton, a parent and member of the California Advisory Commission on Special Education, shares the story of how her daughter Emerson started to communicate with the help of a quick-thinking speech therapist (*page 13*). The experiences of Otto and Emerson are helping to pave the way for other students with communication challenges.

More high- and low-tech tools are becoming available—and in some cases costs are decreasing. A story on *page 10* shows how classrooms and family resource centers in Sonoma and Santa Clara counties are using these tools in innovative and important ways to help students succeed.

These stories showcase the many ways technology enhances the growth, learning, and development of students with disabilities. Over the years, assistive and augmentative communication (AAC) devices have evolved into sophisticated tools that remove barriers for many learners. Additionally, writing and planning tools support students—both with and without disabilities—in organizing and expressing their thoughts and ideas. Meanwhile, artificial intelligence (AI) holds the potential to ease teacher workloads, allowing for more meaningful one-on-one interactions with students (*page 6*).

Technology, while valuable, can also be overused or misapplied. Children require meaningful real-life interactions—not excessive screen time—to develop essential social-emotional and organizational skills. Experts agree that time on screens must be kept in healthy balance with non-screen activities and habits (*page 8* and *page 18*). Toward this end, Los Angeles and other school districts have passed bans on smartphones in schools (*page 15*), looking to replicate the improved outcomes that some schools have already experienced with these kinds of restrictions in place.

The stories in this issue emphasize key reminders for parents, educators, and planning teams: always presume competence when engaging with individuals with disabilities. Approach solutions to communication and learning barriers with energy, creativity, and innovation. Most importantly, listen attentively to what students express and to what they learn.

The neurologist Oliver Sacks said, "I wish for a world that views disability, mental or physical, not as a hindrance but as unique attributes that can be seen as powerful assets if given the right opportunities." When students gain access to the right technology, we gain invaluable access to their perspectives and voices—insights that are crucial to making informed decisions on their behalf.

I hope you enjoy this issue. ▯

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The Making of a Multimodality Communicator

By Otto Lana, entrepreneur, motivational speaker, poet, and actor

Communication is basic to authentic human life, a starting point, a launch pad, a portal. It is estimated that more than seven million people in the United States have speech-related disabilities that may cause or contribute to a need for Augmentative or Alternative Communication (AAC) . This means they cannot rely on speech alone to be heard or understood. Unfortunately, many of these people are overlooked and underestimated. They are not given access to and support for communication tools.

Otto Lana getting his thoughts out in several ways

It is no surprise that this population is not accurately assessed by state or federal agencies to determine unmet needs. How can someone be assessed if they have no means to communicate? For a decade, I was stuck in such a world, without functional communication, without a way to share my thoughts.

Before I was ten, my world was small, isolated, and insular. The only tool I had to communicate my wants and needs was a handful of small, laminated cards, some with icons—stick figures and the like—and others with actual photos. These were called Picture Exchange Communication System cards (PECS). Various therapists and educators gave them to me—people who had already decided what my capacities were, based on their preconceived notions and attitudes about individuals with Autism who lacked oral fluency.

Somewhere, someone decided that oral fluency indicates intellectual capacity. (I have heard a lot of ostensibly smart people say really stupid things, so I am not sure that oral fluency is the best indicator of intelligence.) And because I didn't have oral fluency, I was given cards with picture icons of sweet or savory snack foods, a generic card for candy, and a card with a toilet. Anyone who knows me knows that this set of communication tools was woefully lacking. I have a discerning palate. I am a snack food snob. I prefer freshly baked cookies, salt-and-vinegar potato chips, and red Starbursts (the only Starbursts worth eating). But nobody knew these things because I had no way to tell them. And no one bothered to dig deeper. They presumed I didn't understand the concept of the candy card or the concept of a token economy. They presumed incompetence.

With these cards, there was no exchange and very little communication.

Another communication tool, the dynamic display device, was a coveted item. Oddly enough, one had to show the ability to effectively use a dynamic display device in order to have access to one. At school I was assessed by a speech therapist who deemed me incapable of understanding language. I was denied access.

My IEP amounted to a checked box on the action page. "We gave him a device. I don't know what else you want us to do," was the general consensus at annual IEP meetings. There was never real support with any device. Real,

authentic, individualized support is often the missing piece.

I believe my therapists, educators, and paraprofessionals were well-meaning. They were working within their preconceived pedagogy. I do not believe anyone intentionally prevented me from exercising my First Amendment Right of Free Speech. The problem was that no one considered me as an individual. I was a label. I was a "nonverbal, profound, severe autistic." Nothing more. And I had no way to tell them that I was a lot more.

It is ironic that people spent countless hours trying to teach me to button my shirt independently while ignoring and even resisting my need to voice opinions and demonstrate critical thinking skills. I was openly mocked when I wanted to participate in my IEP. Student-led IEPs should be the norm.

Otto Lana addressing his 2024 high school graduating class

What else was horrible was being in a segregated classroom. Repetitive and meaningless table-top tasks in a perpetual preschool setting was enough to drive anyone to the level of hopelessness I experienced. I was bored beyond belief for a decade.

After the many failed attempts at different communication tools, I met a speech therapist named Darlene Hanson (https://www.gokindred.com) who provided the simplest form of communication: 26 letters, a space bar, and a few punctuation marks. She was the first person to assume that I was competent and could be literate. She gave me the ability to share my most intimate thoughts and to tell people my name.

Everyone had thought my favorite color was red because I always chose red Starbursts, Skittles, or Dum Dum lollipops. Favorite flavor is not the same as favorite color. Now, with a QWERTY keyboard and an augmentative and alternative communication (AAC) tool, I could finally tell people my favorite color is purple, not red.

That same speech therapist explained apraxia to me. I never understood why my body moved in weird ways and why I could not get the words in my head to come out of my mouth. I had so much going on inside and no way to effectively express it. She taught me to slow down and move with intention — that way I could use the text-based system of communication. Her positive attitude and encouragement gave me hope. I regained confidence in myself. I was no longer a statistic, a diagnosis. I mattered. I was a three-dimensional person with purpose.

Lucky for me, the pandemic stopped the world, and I was given the opportunity to experience a virtual education in a college prep setting. And I thrived. The staff in the private school where I was enrolled had no preconceived notions of me.

Once I was proficient with a text-based system of communication, I was placed back on an academic track and received a literacy-based education. I graduated from high school with a diploma and gave my graduation speech with my iPad.

While my messages on my device are my independent, authentic thoughts, I do require trained support to assist me in accessing my device. This interdependence is often discounted and often a point of contention. So much of my time

at school was wasted on attempting to do tasks independently—ignoring interdependence as a viable option.

I am a dependent person, but my thoughts are independent. I have the freedom now to choose the level of support I need, and that is what independence really is.

This past decade is a stark contrast from my first ten years. With just 26 letters, I have launched a lucrative public speaking career, started my freshman year in college, and interned at several nonprofits. But the thing I am probably most proud of is designing and selling my waterproof letterboard.

I prefer the outdoors to almost anything. I am never far from a body of water. And while my high-tech assistive technology tools in my augmentative and alternative communication setup are cool, they are not practical for my active lifestyle. I designed what I needed.

I call myself a multimodality communicator because I use several methods of communication. I type on a letterboard, I use AAC, I use gestures and a few basic signs. The people in my support network know and accept all these methods as modes of authentic communication. But it is not the method that is important, it is the message.

I was a "nonverbal, profound, severe autistic." Nothing more. And I had no way to tell them that I was a lot more.

New trends in understanding neurodivergence and steering away from deficit-based labels are steps toward correcting general attitudes (and, after all, everyone is dependent on others to some degree).

Right now, I love my life. And I love sharing how it unfolded, one letter at a time. ▯

For more information on my moonshot life, I invite you to check out my Instagram @otto_types **and my website** www.ottosmottos.com**.**

Hard copies are back!

A limited number of printed copies of each issue of The Special Edge will be available starting in 2025. To be added to the list of those who would like to receive a hard copy, email EdgeNewsletter@cde.ca.gov

Milestones in the Development of Assistive Technology

The brilliant physicist Stephen Hawking communicated through Augmentative and Alternative Communication or AAC. When Hawking twitched his cheek muscle, a sensor in his glasses worked through a computer tablet mounted on his wheelchair which ran a program that allowed him to select characters from an on-screen keyboard.

Hawking had been diagnosed with Amyotrophic Lateral Sclerosis at the age of 21. His groundbreaking theories on black holes, quarks, time and space—popularized through his bestselling books such as *A Brief History of Time*—made him a celebrity. Assistive technology allowed him to share his brilliance with the world.

Not everyone needs equipment as sophisticated as Hawking's. AAC can take many forms—from visual schedules to voice recognition and word prediction. These technologies increasingly provide benefits for students with and without disabilities.

The Analog Age

Before the 1980s, low-tech, manual devices such as personal communication boards and binders were important early communication tools for students with disabilities. "Students used to walk around with these really thick three-ring binders," says Paul Richard, associate professor of Assistive Technology and Augmentative and Alternative Communication (AAC) at California State University, Dominguez Hills. "They'd open it up and look through the pages and maybe point to a page that had food items on it."

Students also used devices such as Eye Transfer boards (E-tran)—a clear piece of plexiglass with the centerpiece cut out that facilitates communicating through eye movements. This type of technology is valuable for being "very concrete," Richard says, "very inexpensive, and easily replicable." The devices are durable and require minimal maintenance. And they are easy to learn.

Switch technology started to emerge in the 1970s, enabling those with significantly limited movement to operate communication devices through a light touch, a breath, or movement of a specific body part. This technology was later adapted to computers.

The Digital Age

Personal computers were introduced to the public in the early 1980s. During that time, the Trace Research & Development Center[1] began devising accessible interfaces for individuals with disabilities. Many independent developers followed suit, offering products and software for communication.

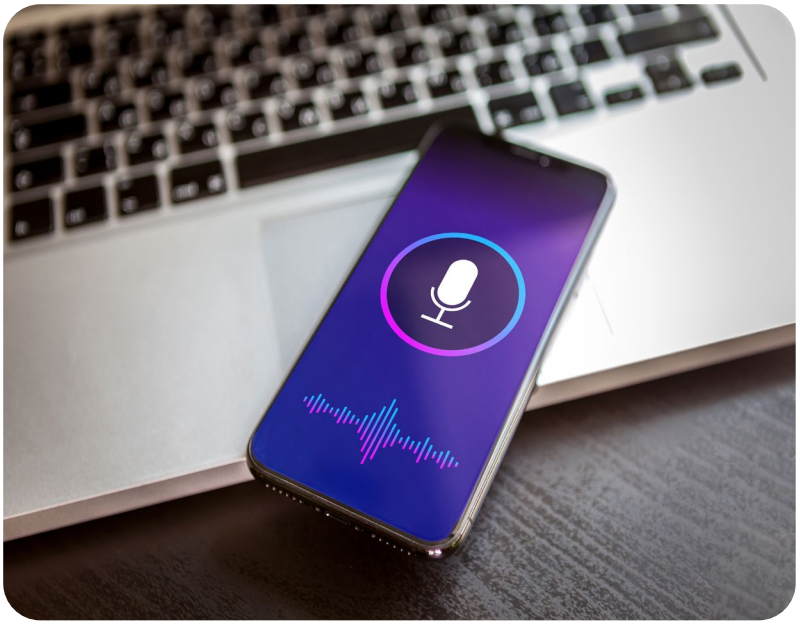
Word predictors and talking word processors emerged to help students with disabilities express their thoughts in writing. Expanded keyboards with large keys made typing possible for people with fine motor challenges.

Eventually computers made their way into the classrooms, says Richard, "and it was not uncommon to see three or four of them along the wall, with students rotating through them while the staff are working with the other students on one-to-one activities. It was like having an extra set of hands in the classroom." Schools began to see a real advantage to having tech in the classroom.

Legislation spurred innovation. The Individuals with Disabilities Education Act (IDEA) was amended in 1990 to

1 For more information about the Trace Research & Development Center, go to https://minds.wisconsin.edu/handle/1793/6747

include the definition of an Assistive Technology Device[2] and Service.[3] In 2001 Medicare began to cover the cost of speech-generating devices (SGDs) for people with communication disabilities.



In the early 2010s, the Apple iPad and other tablets were introduced. Static displays changed to dynamic ones, and touch technology allowed students to interact with an image or icon. Instead of a few computers, classrooms could have carts full of relatively inexpensive tablets. Other interactive technology and app/software options began to be offered at increasingly lower costs.

The Artificial Intelligence Age

Artificial Intelligence (AI) presents the next major advancement in technology, and Richard believes that its use has tremendous potential for teachers. By reducing the teachers' workloads, he says, AI can make it easier for them to develop modified lesson plans—and then have more time to work directly with students to meet their goals and objectives.

Many technologies are now available with artificial intelligence built in. ChatGPT can provide human-like responses to a variety of questions. "Think Siri and Alexa, but much smarter," says Richard. Google's Gemini is also poised to revolutionize the Google search experience utilizing AI.

Richard says that in the education world, most of the discussion has been centered around how students might use AI to cheat on assignments. "While this is an important discussion," he says, "we can't overlook the immense benefits of using AI for teaching and learning in the special education classroom."

Instead of a few computers, classrooms could have carts full of relatively inexpensive tablets. Other interactive technology options began to be offered at increasingly lower costs.

He sees AI as "a great equalizer" that allows assistive technology to adapt and be customized to meet the specific needs of individual students. For example, voice recognition software uses artificial intelligence to process audio input and convert it into text, to adapt to individual speaking styles and accents over time, and to suggest relevant words or phrases based on the surrounding text and context. This combination of technologies provides a more accurate and personalized speech-to-text experience for the student with disabilities.

How students now can interact with technology is as varied as the individuals themselves. More and more vendors of mainstream technology are building accessibility right into their products for use by all students. With options increasing and costs decreasing, it's likely the next Stephen Hawking will have a voice. ▯

Resources

- Two California State Universities—Dominguez Hills and Northridge—offer assistive technology certificates: https://www.csudh.edu/ccpe/assistive-technology/ and https://w2.csun.edu/cod/training-programs/assistive-technology-certificate-program
- Myths and Facts Surrounding Assistive Technology Devices and Services from the U.S. Department of Education: https://sites.ed.gov/idea/files/Myths-and-Facts-Surrounding-Assistive-Technology-Devices-01-22-2024.pdf

2 For definitions, go to https://sites.ed.gov/idea/regs/b/a/300.5
3 For definitions, go to https://sites.ed.gov/idea/regs/b/a/300.6

Technology and Human Connection

The title was startling: *Technology Might Be Making Education Worse.*

The author of that 2023 paper was Antero Garcia, an associate professor in the Graduate School of Education at Stanford and a former high school teacher. While acknowledging the benefits of technology, Garcia bemoaned the pervasive influence that large platforms—digital spaces such as Google, Apple, and Amazon—have on society as a whole and on schools in particular. And he lamented the ways in which these platforms have replaced human relationships.

As a society, he said in a recent interview, we now have "shifted our attention from human connections to online social networks." As a result, these platforms have "unfathomable amounts of information about almost every individual in the United States, including young people."

In schools, these platforms have become a vital part of the educational infrastructure. "The proposition from the tech companies," Garcia says, "is, 'We'll provide you with a better learning system, a better way to track things. We'll offer you the magic D word: lots of data about what's happening in your classroom—everything from attendance to attention, even eye-tracking'" when students were all online during the pandemic.

"We essentially let them into our schools over time," says Garcia. "Google Classroom is used everywhere. Facebook is a similar kind of competitor." There are many other competitors as well, and artificial intelligence "is only going to further complicate this situation."

For school districts, he sees the pervasive use of technology as a tradeoff: "With good intentions, districts hungry for data to better understand what's happening at the classroom and student levels give over our learning outcomes to technology rather than to teachers."

The overall effect of this tradeoff, Garcia says, is that while the data may show how students perform on a given task or learning metric, or if they are prepared for assessment tests—what he calls "focusing on the trees"— "we are not thinking about other ways that we might interact with young people." These other ways, Garcia says, represent the "forest" of human relationships. Because of the "the way technology operates today, as teachers we don't evaluate the whole student in front of us."

Garcia returns to own youth and experience as a high school English teacher to show what he thinks is missing in education now. As a younger person, he says, "I was a strong reader and I actually liked books. The way I liked books was I had peers and adults—parents, grandparents, librarians, teachers—who could recommend good books to me. We would have conversations about books. It wasn't through a relationship with a computer."

He has written about how, as a teacher in South-Central Los Angeles, he used technology "to create impressive and immersive experiences for my students, to build on their interest in pop culture and the world around them." The students made films; they created social media profiles for the literary characters they studied; they digitally shared their understanding of what they were learning in class.

But, Garcia says, "I've continued to understand that the aspects of technology I loved weren't actually about technology at all. They were

about creating authentic learning experiences with young people." Technology offered the tools for creating those experiences, he acknowledges, but "at the heart of these digital explorations were my relationships with students and the trust we built together."

That's what often missing today, he says. "We are missing out on the human relationships between young people, between teachers and young people. That's where the drawbacks of technology often are."

While Garcia says he is "terrified" of the ways technology has "kind of taken over the ways we develop relationships in classrooms," he also says he is "pretty much against the kind of sweeping cell phone bans that are the latest fad in U.S. educational policy."

So many of the relationships that young people have today are "mediated by the social networks that I'm also very frustrated by," he says. "If we take cell phones away, we're taking away a large part of young people's social lives when," he suggests, there might be positive ways they could be used in school. "It's only, when they get in the way of person-to-person interactions that I think they are particularly pernicious." What's needed instead of a ban, he says, are "meaningful conversations about technology in schools. What are the ways we talk to young people about their technology use? What are the ways we talk to parents about their kids' technology use?"

Since technology isn't going away and is only get to get more expansive, what can be done about the dominance of these platforms in education? Garcia acknowledges that their size and influence may make change difficult. But not impossible.

Two years ago Garcia and a colleague, T. Philip Nichols, offered both short- and long-term approaches. Teachers, they said, can use "technoethical audits," a process of evaluating a technology based on its ethical implications, to assess how certain technologies work with, or against, their values and the needs of their students.This approach of questioning the platforms, Garcia and Nichols said, also can be applied in classroom lessons, "where students investigate the place and power of platform technologies in their own lives." These exercises, they said, can "empower teachers and students to make demands of the platforms."

Longer term, they suggested, school districts can amend procurement policies to "put pressure on platform providers" to take educators' concerns about security and privacy seriously–or "lose out on valuable contracts." And they raised the possibility of state and federal action, such as the European Union's recently approved Digital Services Act,[1] which requires transparency and accountability on the part of online platforms.

Today, Garcia says, "I think nothing substantively positive has happened" to challenge the dominance of the platforms.

And yet, he is not without hope that schools can preserve and strengthen the human connections in their classrooms.

"As pessimistic as I often feel," he says, "I think there is a lot of hope, and the reason is that every day teachers show up in classrooms, and no teacher comes in and says, 'I can't wait for the algorithm to tell me what to do with my kids today.' Every teacher is there because at some base level. . . they are in love with the idea of learning, in love with the idea of supporting young people.

"Nowhere in the premise of schooling does it say our classrooms need to be digitally connected to these big complex systems. Until the day that we give up the premise of schooling as a relationship between adults and young people, there's always a possibility of transformation and change." ▯

1 For more information on the Digital Services Act, go to https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package

High and Low Tech in the Classroom

It can be as low-tech as a stepstool that allows an orthopedically challenged child to reach the table. It can be as high-tech as Monarch, a new device that integrates graphics and Braille for students who are visually impaired.

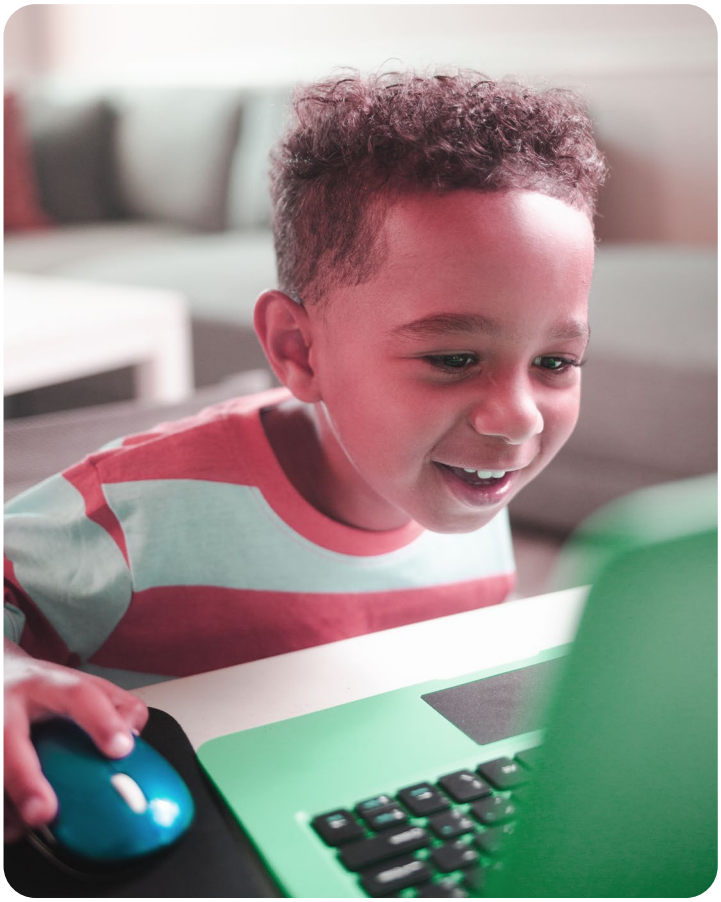
It's all technology at work in the classroom.

Parents and educators are rightly concerned about the possible negative effects of technology, but if you add the words assistive or augmentative, technology becomes a means for students with disabilities to succeed in school.

Any equipment that maintains or improves the functional capabilities of a student with a disability—in short, helps students do something they couldn't do because of their disability—is assistive technology (AT). And any devices that make it possible for nonverbal students or those with speech or language impairments to communicate belong under the category of Augmentative and Alternative Communication (AAC).

What is obvious in classrooms that use AT and ACC is the synergy between them and Universal Design for Learning (UDL) with its principles of providing multiple ways of accessing the curriculum and demonstrating what is learned. The use of technology is often what makes it possible for students in a UDL classroom to access their lessons and complete their assignments..

The students In Xochitl Lopez's seventh grade science class at Willow Glen Middle School in San Jose are studying the periodic table of elements.



There are 30 students in the class; six have Individualized Education Programs (IEPs). "The assignment," says Lopez, "is to write their name using the periodic table," which they are viewing online. All are working on the assignment, but one student has a graphic organizer, a visual tool that helps him organize ideas and problem-solve. Another has a study carrel, a three-sided piece of plastic or cardboard that sits atop the desk and turns it into the semi-private workspace the student may need in order to focus on the lesson.

Elsewhere on campus, the students in Maverick Sy's special day class are solving their math problems on laptops while Sy monitors their work in real time. With his background in engineering, Sy has created individualized math programs for his students with color-coded answers. "Imagine they are all on the same train track but traveling at different speeds," he says. Schedules and assignments are clearly mapped out. "It's very structured, so they know what to expect. That takes away the anxiety." Off to the side of the room, a boy is bent low over a tablet. For this visually impaired student Sy has designed a special set of problems with larger numbers.

Jessica Rosenberg, an assistive technology specialist at the San Jose Unified School District, had observed Sy's students when they were in elementary school and says, "I've seen what a difference this class has made for them. In elementary school there were lots of behavior issues. It's so different here."

It doesn't require Sy's electronic wizardry for AT to be effective. In an inclusive first grade class at San Jose's

Canoas Elementary School, the teacher wears a simple magnifying device around her neck as she leads a lesson, and her voice resounds from a speaker at the back of the room. There is a student with hearing loss in the class, and she—and every other student—will be able to hear wherever the teacher is in the classroom. When she reaches middle school, the student with hearing loss will receive an customized hearing device.

In another Canoas class, nonverbal students with autism are communicating by TouchChat, a tablet screen with multiple words and pictures. The tablets are their "talkers," says teacher Lorraine Kane. Students can ask for what they want or need, respond to questions, or express feelings by tapping the appropriate word or picture. It's an intensive program in which the students work one-on-one with teachers in 15-minute increments. "They all have IEPs and are working on their goals," Kane says.

Up in Sonoma County, Jennifer Bluebird and Karinne Defanti are co-teaching an inclusive transitional kindergarten class at Thomas Page Academy in the Cotati-Rohnert Park Unified School District. All the four- and five-year-old students have tablets. A teacher is conducting a lesson at a large touch screen that resembles their tablets. Bluebird (general education) and Defanti (special education) have been teaching together for three years, and both say they have seen significant improvement in language skills among the students. With everyone having access to the same material, Defanti says, "It opens up ways of communicating. It's been amazing, the language model [the students with disabilities] get from their general education peers."

Whether it's high-tech or low-tech, effective use of AT/AAC requires "a learning curve," says Rosenberg. "Teachers need to know what to use and how to use it. Implementation is the hardest part."

That's where someone like Dianah Marr plays a role. An AT specialist at Parents Helping Parents, a family resource center in San Jose, Marr says, "Everybody has a right to communicate. The key is finding the right medium of assistive technology to provide the support needed in specific environments." She travels to schools with a kit that she calls "UDL in a box," which includes such items as mini keyboards for students with one hand and egg-shaped crayons for children who have difficulty grasping a standard crayon. The aim of her school visits is to show the many ways that AT can be used to help students learn.

But assistive technology isn't just about supporting academics. When tempers or tensions rise, a respite or some physical exertion may be just what is needed. Many classrooms, whether inclusive or special day classes (SDCs), often have a "quiet corner" where students can chill until they are ready to return to class. This place may not look like "technology," but those plush cushions and stuffed animals are AT, too. The occupational therapy room at Canoas and the sensory room at Thomas Page have a trampoline and a swing, and Thomas Page also has a tent. "Everyone has a threshold of what they can handle," says Program Specialist Alexis Casey. "Kids who have movement or sensory needs come here to regulate themselves or to feel safe in their bodies."

For students who are blind, visually impaired, or have a print disability such as dyslexia, the California Department of Education's Clearinghouse for Specialized Media & Technology offers accessible versions

of textbooks, workbooks, and literature books in such forms as Braille, large print, and audio, as well as advanced devices like a tablet that will "pop up Braille" rather than print it, says the Clearinghouse's James Morrison. Much new technology has been developed in this field, he says, mentioning a tablet that allows a low-vision student to adjust the size of text. The student "could zoom in on text and may not need large-print books."

And then there is Monarch, which Morrison calls a "super important technology" that integrates graphics and Braille. The state has purchased 20 of the devices as a pilot program.

Nothing that fancy awaits Jessica Rosenberg as she returns to her office at San Jose USD to unpack boxes of AT that have just arrived—everything from a wheelchair to pencil grips, magnifying devices, and Bouncy Bands, essentially a large rubber band that hooks onto the legs of a chair and allows students to release tension by bouncing their feet on it. All will soon be on their way to support students in the classroom. ▯

Resources to explore

- Bookshare is an online library of accessible ebooks for people with print disabilities: ***https://www.bookshare.org***
- Edutopia has a list of free assistive technology tools for students with suggestions on how to use them: https://www.edutopia.org/article/free-assistive-tech-tools-support-academic-success/
- Universal Design for Learning (UDL) is a framework that aims to ensure that all learning experiences in school, the workplace, and life are thoughtfully designed to elevate strengths and eliminate barriers: https://www.cast.org/what-we-do/universal-design-for-learning/
- Wisconsin Department of Public Instruction has information to assist IEP teams in supporting students' unique disability-related needs for assistive technology: https://dpi.wi.gov/sped/educators/consultation/assistive-technology/resources

Emerson's Assistive and Augmentative Communication Journey

By Dawn Hamilton, Parent of a student with a disability and member of the California Advisory Commission on Special Education

"For most people, technology makes things easier. For a person with a disability, it makes things possible."

—Mary Pat Radabaugh, Former Director of IBM's National Support Center for Persons with Disabilities

Assistive technology has opened the door to endless possibilities for my 13-year-old daughter Emerson, who has cerebral palsy. A wheelchair that provides mobility, switches that allow her to control adaptive scissors or a fan to adjust her environment, a computer mounted on her wheelchair that allows her to communicate— these are just a few of the many assistive devices that help her live life to the fullest every day.

Communication is often overlooked for children with the most significant support needs.

Thankfully, Emerson's communication journey began when she was about 18 months old. On her first day at the CHIME Infant/Toddler program[1] —a full inclusion early education program for children with and without disabilities—the speech therapist asked me what Emerson liked to do. The one thing I knew for sure was that she liked to swing. She got

Emerson learning to raise her hand to indicate she wanted more swinging

Emerson swinging, and a few minutes later she stopped the swing and asked Emerson to raise her hand if she wanted more swinging.

The therapist had observed that Emerson often raised her right hand and determined that this was a movement she could somewhat control. Sure enough, within a minute or two, Emerson raised her hand to indicate she would indeed like more swinging. This process was repeated a few more times, and each time Emerson successfully raised her hand indicating she wanted to continue swinging.

The discovery that Emerson could hear, comprehend, and respond was monumental for me. In that moment I committed to doing everything I could to help her find her voice so I could always know what she wanted or needed. It was also the moment when we identified that her right arm was her best access point for using a communication device.

Sadly, I also learned that finding communication support for a young, complex child such as Emerson was challenging. Our Early Start program only offered speech therapy for children who had some level of verbal speech. Emerson didn't exhibit the prerequisite abilities they required. By the time I was able to convince the staff that she would benefit from speech therapy, and found a provider available to work with her, she had aged out of Early Start.

Thankfully, we stumbled upon an amazing speech-language pathologist (SLP) named Ali Steers, whose areas of

1 Communities Honoring Inclusive Model Education: *https://www.chimeinstitute.org*

expertise included both children with complex communication challenges and Augmentative and Alternative Communication (AAC).

Ali started working with Emerson when she was about three years old using a low-tech PODD (Pragmatic Organization Dynamic Display) book that included partner-assisted auditory scanning. Emerson developed some proficiency with this approach using a switch, and Ali introduced an iPad that Emerson accessed with automatic auditory switch scanning. This gave my daughter more autonomy to communicate on her own terms and without a partner to assist her. Her slow and steady progress using high-tech devices continued as she entered elementary school. There she also gained a school team committed to her communication development.

Since Emerson had shown success using an iPad, the next step was to give her more control and flexibility through a dedicated device. Around second grade she upgraded to a Tobii i110 device designed to generate speech through a touch screen. Both the iPad and the Tobii required her to physically hit a switch which was now located behind her right hand. This movement was fatiguing, though, and her body didn't always cooperate. But it was the best option we had at the time.

By the time I was able to convince the staff that she would benefit from speech therapy, and found a provider available to work with her, she had aged out of Early Start.

A few years later, in the fifth grade, we learned about a new technology: a motion-activated Bluetooth switch called NeuroNode that she could wear on her wrist and that required less precision and smaller movements. The device also offered more flexibility, since the switch is worn on her wrist, and Emerson could access communication even when not sitting in her wheelchair. We jumped at the opportunity to try it, and it turned out to be far less fatiguing than pressing a switch, which in turn increased her output. Since getting this new system three years ago, we've watched Emerson's communication continue to improve and expand.

Communication for Emerson is a slow and arduous process but starting young and having access to evolving technology has been key to her success. "My hope for all AAC users is to have access to robust language early enough so that they never not think of themselves as communicators," says Steers. "I believe Emerson embodies this. She knows that when she has something to say, people listen and, because of this, she possesses agency, drive, and a sense of self she might not otherwise have developed." ▯

Emerson and Ali using a PODD book

Resources

- For more about the Programmatic Organization Dynamic Display (PODD), go to *https://www.right-fitspeech.com/podd*
- For more about the Tobii communication devices, go to *https://us.tobiidynavox.com/*
- For more about the NeuroNode, go to *https://www.controlbionics.com/*

Not-So-Smart Smartphones

Nick Melvoin's position as a school board member for the Los Angeles Unified School District (LAUSD) brings him into classrooms every week. These visits have only served to strengthen a deep concern he has about the dangers cell phones pose to students.

Melvoin first noticed something amiss when he began his career as a middle school teacher in 2008. Almost immediately, he says, "I saw the deleterious effects of phones, with kids surreptitiously texting in class." Then with the advent of smartphones, he said, kids were "walking in the halls, sitting in lunch rooms, just glued to their devices." The distraction from academics was troubling enough. Melvoin was even more concerned about what was happening to the students' social connections and to school climate overall.

At the same time, the ubiquity of phones had created a sense of helplessness among many parents and educators. When he talked to people about his concerns, they responded along the lines of "The toothpaste is out of the tube." In effect, too late. Nothing to be done.

In the summer of 2024, something happened to change those dismissive attitudes. Melvoin points to a decade of new research that confirmed the negative effects of unrestricted use of smartphones among children and young people, especially as these devices provide immediate and constant access to social media. media.[1]

A few months earlier, "Jonathan Haidt's book came out," says Melvoin. "The Anxious Generation created a lot of buzz" by distilling the research that connected the use of smartphones and the presence of social media to the sudden spike in depression, anxiety, cutting, and suicidal ideation among children and young adults, in addition to cyberbullying, social media addiction, sexual harassment, violence, hate speech, human trafficking, body dysmorphia, and substance abuse.[2] These disturbing trends, along with declining academic scores and poorer physical health overall, created "a zeitgeist," says Melvoin, that could no longer be blamed solely on the COVID pandemic.

His response was to write a resolution for a district-wide cell phone ban and present it to the LAUSD school board. The resolution passed in June 2024, five votes to two.

Melvoin's victory was among the first of a national trend. "About half of the school districts in America have now passed some kind of cell phone restriction," he says. "It's one of those rare bipartisan issues," bringing common cause to states as diverse as California, Florida, and Indiana. The day before Melvoin's resolution was passed, the U.S. Surgeon General called for social media companies to post on their products "warnings for teens, the way that alcohol and tobacco does." Then on September 23, 2024, Governor Newsom signed a bill[3] requiring schools across the state to restrict the use of cell phones among students.

1 DeAngelis, Tori. (2024). Teens are spending nearly 5 hours daily on social media. Here are the mental health outcomes. American Psychological Association. ***https://www.apa.org/monitor/2024/04/teen-social-use-mental-health***

2 In addition to Jonathan Haidt's book, The Anxious Generation, see the Organization for Social Media Safety, at https://www.socialmediasafety.org/programs-services/school-programs/

3 Lambert, Diana. (Sept. 2024). Newsom signs bill requiring schools to restrict student cell phone use. EdSource. https://edsource.org/updates/newsom-signs-bill-requiring-schools-to-restrict-student-cell-phone-use

Students with Disabilities

Melvoin is a fan of technology—when it's used for good. And smartphone technology can especially benefit students with disabilities. Those with hearing impairments, for example, may have their hearing aids programmed to their phones; and students with learning disabilities may have phone apps that are written into their Individualized Education Programs (IEPs).

Melvoin anticipated this conundrum. His resolution explicitly addresses the importance of ensuring that all students with disabilities receive appropriate accommodations. But, he says, schools often can provide the support these students need through technologies other than phones; they can instead use devices that do not make social media or texting available. "My hope would be that we could utilize those [other technologies] when possible. Ultimately if it's decided in the IEP process that the kid needs a smartphone," then the kid gets a smartphone.

But students with disabilities are especially vulnerable to cyberbullying[4] and social isolation.[5] And those with mental health or behavioral disabilities can find their conditions exacerbated by cell phones use and social media.[6] Efforts to restrict texting in school, limit access to social media, and create healthy school climates promise to benefit the mental health of students with disabilities and their efforts to learn.

Pushback

Some family members have questioned the ban. One of the challenges relates to "the school safety issue," says Melvoin. "Parents ask, 'What if there's a school shooting? What if there's a lockdown?'" Statistics show these instances to be "incredibly rare, but they're not as rare as they should be. I'm incredibly empathetic to this concern."

Melvoin has discussed the issue at length with public safety personnel "who will say, pretty much, that in those situations you don't want kids on their smartphones. You don't want kids calling their parents, who'll call 911 and then cram the switchboards; and you don't want parents clogging the roads to the school so that if—God forbid—emergency vehicles are needed, they can't get through. Empirically, it's actually safer not to have kids on their phones in emergencies." And, he says, teachers and school staff have phones, along with the capacity to send text and email messages to parents and families in a matter of seconds if there is important information to be shared.

The second reason parents protest, says Melvoin, comes from a "culture of constant connection." Parents think they need to know where their kids are at all times. "I disagree," he says. "We need to build independence in our kids. And you shouldn't be texting them during their school day anyway. If you need to reach them because you're going to be late or there's a schedule change, then call the school." The office staff can deliver a note.

The third issue, he says, involves equity. "Eighty-five percent of the

4 Education Development Center. (2019). Is Social Media Harmful to Students with Disabilities? https://edc.org/insights/is-social-media-harmful-to-students-with-disabilities/

5 Lavoie, Rick. Helping the Socially Isolated Child Make Friends. LD Online. https://www.ldonline.org/ld-topics/behavior-social-skills/helping-socially-isolated-child-make-friends

6 Sultan, Ryan S, and Francis R. Levin. (2024). Smartphones, Social Media, and Their Impact on Mental Health. Columbia University Department of Psychiatry. *h*ttps://www.columbiapsychiatry.org/research/research-areas/child-and-adolescent-psychiatry/sultan-lab-mental-health-informatics/research-areas/smartphones-social-media-and-their-impact-mental-health

students in LAUSD live in poverty, and for so long we've been talking about bridging the digital divide. So parents, particularly low-income parents, have been thinking, 'I need to get my kid a cell phone. I need to give my kid the same opportunity.'" Even though recent research is proving phones to be as much a liability as a benefit, "that research is not getting to the parents who think they're doing their kids a service by giving them smartphones."

Melvoin also has received pushback from parents who insist on the importance of teaching responsible use rather than banning phones from schools. He agrees that "we need to do more around critical media literacy.[7] But I disagree that the way to do that is to let kids have these addictive devices all day." He makes an analogy with sex education. "We teach kids about sex," he says. "But we teach safety and responsible use. We don't allow unlimited opportunities to practice it."

"A child psychologist who testified in favor of my resolution said, 'Many adults can't control their use of cell phones. If you're at a dinner party with friends, everyone has a cell phone out, and the minute they have a vibration they're distracted. Research has proven that, if adults, whose brains are fully developed, can't handle this, how are kids, whose brains are still developing, going to sit in class and not want to check their phones when they're vibrating in the backpack. Or not develop that fear of missing out when their friends are texting.'"

As Melvoin sees it, "Parents want to do what is best for their children. If they're pushing back, it comes from a deep-seated belief that what they're doing is good." He is working to counter those beliefs with current research.

Melvoin praises the "many ameliorative effects of technology" and equates concerns with cell phones with those about artificial intelligence (AI). There are tremendous possibilities with AI in schools, he says, but he doesn't think we know what they are yet. "And there are also obviously a lot of risks and drawbacks. It means that, as with everything, we need to be healthy skeptics."

Efforts to restrict texting in school, limit access to social media, and create healthy school climates promise to benefit the mental health of students with disabilities and their efforts to learn.

He's also asking for some common sense. "We're talking about six or seven hours a day," says Melvoin, noting the amount of time that students would be required to be off their phoneas. "If it's really that revolutionary that parents don't want their kids to be off their phones for six or seven hours a day, it's just a sign of the cultural challenge we have right now and how addicted we are" to digital devices.

"We're not saying that kids can't have their phones on the bus or walking to school or later in the day. We're just saying that during the school day, they should be focused on academics and social cohesion. On being with one another."

LAUSD's cellphone ban is scheduled to begin early in 2025, but some of the district's schools already have bans in place. Melvoin says he hears a lot from the counselors and psychologists in these schools about students who struggle with anxiety. "The psychologists who would see these kids in their office a few times a week are seeing them much less frequently" because the students no longer need such intense support. And the students themselves, says Melvoin, "are really appreciative of being phone free—not necessarily right away, but once they've had time [without their phones], they realize they're less stressed, they're less tempted to look at their phone, they're not worried about missing a text. They can actually spend some time sitting down and talking to people." ▯

Resources

- ***The Great Exchange: How Social Media Convinced a Generation of Girls To Trade Their Mental Health for Social Status***. 2024. Lillie Brodie-Berge. Bard. https://digitalcommons.bard.edu/cgi/viewcontent.cgi?article=1268&-context=senproj_s2024
- ***The Smartphone Generation*** (video). Dr. Jean Twenge. https://www.ted.com/talks/jean_twenge_igen_the_smartphone_generation_jan_2018?subtitle=en

7 See UCLA's *Critical Media Literacy Guide* at https://guides.library.ucla.edu/educ466. Common Sense Media also provides guidance for parents and lessons for teachers to promote digital well-being. Find the organization at https://www.commonsensemedia.org/

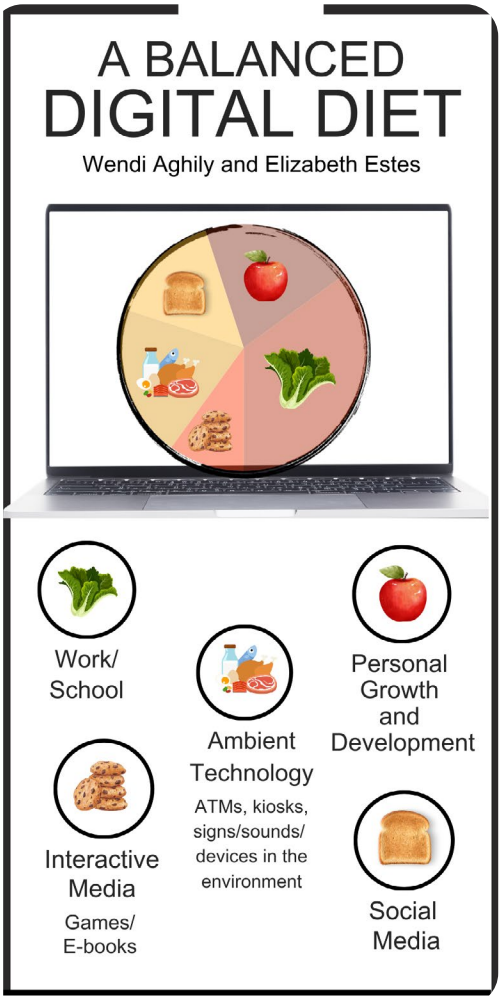
Staying Safe and Curbing the Craving: How to Help Students Manage Technology

Enforcing limits on children is often difficult. At the same time, limits are essential in providing a sense of security and safety.[1] Limiting the use of technology and social media can be especially hard—even as it's becoming clear they pose threats to health and safety.

In 2023, the United States Surgeon General issued an advisory document on social media[2] that included warnings about its negative effects on children's brain development and mental health. Cell phones and other devices, as the delivery systems for social media, are implicated in this and other advisories.[3]

It's probably unrealistic to think that we can avoid technology altogether. Many commited caregivers and educators are helping students find balance in life by reducing the time spent on their devices. The good news is that when adults involve themselves in the digital lives of their children, screen time is generally lessened and its negative effects mitigated.4

Wendi Aghily, chief of pupil services and special education at Mt. Diablo Unified School District, says that not all technology use is the same. Working with Elizabeth Estes from Breaking Barriers, Aghily developed the concept of a healthy "digital diet." This approach advocates for reasonable amounts of tech engagement allocated to research, personal growth, entertainment, and other categories. She points out that "eating potatoes in itself isn't bad, but eating only potatoes is bad." The same is largely true of technology use. In effect, don't engage in what will hurt you, and keep the rest of it in balance.



Dr. James Bylund, a psychiatrist in Contra Costa County, reminds us that children are not all alike, so screens affect them differently. Some children are more vulnerable than others to the pernicious effects of technology and may need stronger measures. These might include tighter controls on access to screens, screen fasts and resets, or in-home behavior plans. Given the profound and serious effects of screen time and social media on some children, parents may need to be prepared to engage with formal behavioral and mental health services.

The guiding principle for all parents and educators is to stay involved in the lives of the children they're responsible for. When parents and other adults are genuinely interested in the life of each child, when they make the effort to learn the technologies and social media apps that the child is using, when they regularly engage in conversations with the child about what the child knows and thinks, then these adults are in a good position to provide guidance, safeguards, and help when needed.

In the end, it's important to be authentic and talk regularly and often with children about the difficulty—and importance—of healthy habits when it comes to technology and social media.

1 Better Brains for Babies. (2019). Setting Consistent Limits. https://www.bbbgeorgia.org/%20setting-consistent-limits
2 United States Department of Health and Human Services. (2023). Social Media and Youth Mental Health: The Surgeon General's Advisory. https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf
3 American Psychological Association. (May 2023). Health advisory on social media use in adolescence. https://www.apa.org/topics/social-media-internet/health-advisory-adolescent-social-media-use
4 HHS, ibid.

They will sense how you are feeling, and that will guide their response.

Safety

- Teach children that the information they share on the Internet is not private—and never goes away.
- Manage privacy settings on your child's phone, and disable location tagging (geotagging[5]) to keep strangers from knowing where your child is. This practice also extends a phone's battery life.
- Regularly review your child's browsing history.
- Teach children that there are real consequences of cyberbullying. Guide them on why they should not do it and how they can avoid it.
- Encourage children to have positive online interactions with people they know in real life rather than engaging with strangers.
- Ask children to save questionable messages so you can review them and discuss.

Home Life

- Avoid using technology to cope with children's behavior (e.g., giving a young child a phone or tablet to stop the child from whining). Don't give them the message that technology solves their problems or is the only way to feel good.
- Require children to take a break from social media to allow their brain to reset and let them see how it feels. Then talk with them about the experience.
- Make rules with your child about their use of devices—and enforce them. Ask yourself, "What does moderation look like for this child? What are the apps they can use, and what apps and websites does this child need to avoid?" Use screentime settings, Google family links, and timers.
- Teach children to manage and even invite boredom. Boredom "creates the space necessary for a new thought to form, without which we're endlessly reacting to stimuli around us, rather than allowing ourselves to be within our lived experience," writes Stanford Professor of Psychiatry and Behavioral Sciences Anna Lembke.

Ask yourself, "What does moderation look like for this child? What are the apps they can use, and what apps and websites does this child need to avoid?"

- Help older children manage their fear of missing out when they see others on social media. Find helpful tips at https://hammondpsychology.com/helping-kids-to-deal-with-fomo/.
- Keep electronic devices in common areas where they are easier to monitor.
- Create unplugged spaces and times. For example, make bedrooms screen-free zones. Create a non-tech bedtime routine where you read books, exercise, pray, or meditate with your child before bed. This teaches their bodies how to produce the right amount of dopamine and activate other feel-good mechanisms in ways that don't involve technology.

Information and Honesty

- Have conversations with your children about how technology is trying to affect their psychology and everyday habits. Use conversation starters from the California Partners Project's family guide.[6]
- Set a good example. If you're asking children to follow rules, consider following some of those rules yourself.
- Share any struggles you have with putting the phone down and turning off (and ignoring) notifications—and why these are good things to do.
- Talk with children about the addictive qualities of social media specifically and of the internet in general. Explain how addiction to social media behaviors leads to the same brain changes as addictions to drugs or alcohol[7] and how the interventions also are the same.
- Check your own assumptions about technology and take an open inquisitive stance. Use apps with your kids to see what they are like. Talk with them about what you think.

Independence and Self-advocacy

- Teach children to be choosy. Help them learn why not everything that trends is worth their attention.
- Tell them that it is okay to say "no" to online requests for personal information, money, or invitations to connect.
- Encourage them to think critically. Have them stop and reflect on why they use a particular technology or app, what it does for them, and

5 To learn more about geotagging, go to https://blog.credo.com/2022/04/28/

6 California Partners Project. *Tech/Life Balance: Helping Kids Thrive in a Digital World*. https://www.calpartnersproject.org/techlifebalance

7 Bruce Goldman. Addictive potential of social media, explained (October 29, 2021). Stanford Medicine Scope. https://scopeblog.stanford.edu/2021/10/29/addictive-potential-of-social-media-explained/

what they expect from it—and then ask them to compare those hopes and assumptions with their actual experience.

- Treat teens with respect and remember that they are the experts on being a teen in this age. ▯

Resources

- American Academy of Pediatrics. Center of Excellence on Social Media and Youth Mental Health. https://www.aap.org/socialmedia
- American Academy of Pediatrics. Family Media Plan. https://www.healthychildren.org/english/fmp/pages/mediaplan.aspx
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- Worklife Integration Project interview with Dr. Jenny Radesky. ***http://worklife.wharton.upenn.edu/2015/10/4247/***
- Your Child's First Phone: Are They Ready? Are You Ready? AT&T and the American Academy of Pediatrics. https://screenready.att.com/digital-parenting/

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