Technology in Our Children's Lives: How Do We Make Wise Choices?
The Newsletter of The Alliance for Early Childhood
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Last week my four-year-old grandson Jake who lives in Guatemala called my husband in his office on *Skype.* No one seems to know how Jake managed to get onto the computer and make the call. And yesterday, as I sat talking to a friend, her three-year old got ahold of her iPhone and found his way to a video of *Cat in the Hat.*

It wasn't long ago that we were talking about how much TV kids should watch. And now here we are in the midst of a technology revolution that is happening so fast we can barely keep up with the number of devices and the options for screen time available to kids—on computers, tablets, cell phones, iPhones, flip down car monitors, interactive "app" toys, and on and on.

There has not been time to reflect on how this cascading influx of technology is affecting us all or to study the potentially far ranging influence it is having on our children. While electronic games for young children are flooding the market (72 percent of iTunes' top-selling "education" apps are designed for preschoolers and elementary school children), the research on their impact is scant. A great many adults these days tell me how impressed they are with their young kids' facility with technology or with what they think the kids are learning as they interact with screens. But let's back up a little, think about what we know about how children grow and learn, and consider this pervasive new influence through that lens.

Starting with What We Know

We have many decades of theory and research in child development that tell us so much about how young children learn. We know that, like children all over the world and throughout time, children need to play. We know that learning in the early years is active—that kids learn through direct play and hands-on experiences with people, with materials, and in nature. Kids need first-hand engagement—they need to manipulate objects physically, engage all their senses, and move and interact with the 3-dimensional world. This is what maximizes their learning and brain development. A lot of the time

children spend with screens takes time away from the activities we know they need for optimal growth.   We know that children today are playing less than kids played in the past. Researchers who have tracked children's creativity for 50 years are seeing a significant decrease in creativity among children for the first time, especially younger children from kindergarten through sixth grade. This decline in creativity is thought to be due at least in part to the decline of play.

The Importance of Play

Play is a remarkably creative process that fosters emotional health, imagination, original thinking, problem solving, critical thinking, and self-regulation. As children actively invent their own scenarios in play, they work their way through the challenges life presents and gain confidence and a sense of mastery. When they play with materials, children are building a foundation for understanding concepts and skills that form the basis for later academic learning. And it's not only concepts that children are learning as they play, they are learning how to learn: to take initiative, to ask questions, to create and solve their own problems.   Open-ended materials such as blocks, play dough, art and building materials, sand and water encourage children to play creatively and in depth. Neuroscience tells us that as children play this way, connections and pathways in the brain become activated and then solidify.

Technology, Play, and Learning

What children see or interact with on the screen is only a representation of things in the real world. The screen symbols aren't able to provide as full an experience for kids as the interactions they can have with real world people and things. And while playing games with apps and computers could be considered more active than TV viewing, it is still limited to what happens between the child and a device—it doesn't involve the whole child's body, brain, and senses. In addition, the activity itself and how to do it is already prescribed by a programmer. What the child does is play according to someone else's rules and design. This is profoundly different from a child having an original idea to make or do something. For example, my granddaughter Isabella decided recently to make a house at a city park for a little caterpiller she found there. She spent over an hour

finding building materials (sand, sticks, leaves) and creating the tiny house. To make the house in the first place was Isabella's idea—her invention. How to make it, the materials to use, the design, the process were all up to her. With an interactive screen game, the deeper, more creative aspects of an activity such as these are not within the child's control.

Many of the companies that market electronic products for young children make claims that these things are educational. While the research on the impact of apps on learning is meager and mixed, I can imagine studies might show that children can learn specific facts or skills by playing interactive games--such as how to count to 10. But parents should not be fooled into thinking this kind of learning is significant or foundational. Games and apps encourage kids to hit icons that lead to right (or wrong) answers. This promotes a kind of rote learning, but it is superficial. For example, a child could get right answers on simple addition problems: $3 + 2 = 5$ and $2 + 4 = 6$ by repeatedly playing an electronic math game, but still not grasp the underlying concepts of number.

How Might Time on Screens Affect Relationships?

Quite a few years ago, I began noticing how easy it was for parents to turn to screens in challenging moments with their children. This first hit me when I saw a little girl who was in tears over saying goodbye to her good friend and her mom offered her a TV program to watch. Now today, there are almost endless opportunities to quiet our kids with entertaining games, apps, and screen time. But when we do that, are they missing out on the chance to feel, to argue, to sit in silence, to listen, to be?

Screens can occupy, distract, and entertain children for sure; the appealing game or show really "works" in the short term. But harmful habits set in early on both sides: for the child, learning to look outside of oneself for happiness or distraction in tough times; for parents, learning to rely on screens instead of our own ingenuity to soothe and occupy kids.

I thought about how using screens could easily bypass kids' chances for building emotional and social competence a few years ago when embarking on a family trip. My husband Doug and I were taking our grandsons Jackson and Miles away for the weekend for the first time. We were all packed up and ready to go when Miles's eyes (he was five

years old then) began to fill with tears. "I have to say goodbye to Mama," he said, struggling. I could see the powerful sadness sweeping over Miles now that the concrete reality of our leaving was upon him. I gently rubbed Miles' chest (I felt so badly for him) and said, "When we go away from Mama, we have sad feelings." I wanted to acknowledge the feelings he was having, but I wanted to help him too. "But you know what? We're going to New York, we'll sleep one night, then we come back the next day and Mama will be right here waiting for you!" Then we got two photos of their family for each boy to carry with him on the trip. Miles was reassured. I knew that if he got through this, he was going to have a big accomplishment in his repertoire that would help him deal with other emotional transitions he'd have to make in the future.

What if when Miles had started to cry, I had handed him a phone app to play with to distract him from his sadness, or offered a *Dora the Explorer* episode to watch on my computer to cheer him up? It's so easy to reach for this solution and it's a sure success. But is it interfering with our longer term goals of helping our kids develop inner resilience and social skills? I've become concerned that many children today are learning to cope with their feelings and relationships by distraction, and that screens of all kinds have become easy substitutes for the inner life experiences and personal interactions children need to have.

What Guidance Can We Find?

The American Academy of Pediatrics (AAP) and the White House Task Force on Childhood Obesity recommend keeping children under the age of two as screen-free as possible and limiting screen time for older children. I think this is a standard we should aim for. And as we try to limit screen time, we can do a lot to foster our children's play as well. Children need uninterrupted playtime every day. The chance to play with materials that are open-ended will encourage the deepest, most creative and expanded play possible.

We can avoid buying electronic toys, games and apps as much as we can. If a child is playing with an electronic game, we can try to introduce a more open-ended material such as blocks. I did this the other day with Evan, a three year old who was visiting us. It was hard to get him away from his mom's computer, but when I pulled out some

construcion toys, Evan jumped at the chance to start building. When our kids are involved with any toy or material, we can ask ourselves, "What is the potential of this activity for fostering imaginative play and creative problem solving?" Is there a more beneficial, more fully engaging, direct experience available for my child right now?"

Not long ago, a parent asked me if I thought the computer game called *Concentration* was good for her 4-year old daughter to play. "Well," I answered, "I think the question is, could your daughter have a richer, fuller experience if she were playing the actual game of *Concentration*—if she were manipulating the picture cards, matching them, lining them up and sorting them, playing the game with another person instead of alone?"

Finally, as we try to make wise choices in using technology, we can ask ourselves: When and why do I choose to use screens with children? We can remember that our kids grow socially and emotionally by interacting with us and through direct experiences with others, and make sure we aren't bypassing important everyday social and emotional "lessons" by how we use screens.

The fact that parents today have the option of so much technology can seem like both a gift and a curse. At certain times and in certain situations, when no other choice seems right, we can breathe a sigh of relief that we have a screen activity available to us. But at other times, we can agonize because our kids are begging for screen time and we want to see them engage in more beneficial activities. Trying to follow the AAP Guidelines is often challenging and takes a lot more effort than the "quick tech fix." But remembering what we know about how kids learn and grow helps to guide us. And our own ingenuity and inventiveness as parents is the best and sometimes most untapped resource of all.