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The iGeneration: Technology Guidelines for Parents and Teachers

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Ah, children and technology! At times, it can be overwhelming for families and educators to sort out the usefulness and danger of technological innovations in the hands of our youth. Often naïve of the outcomes of sending out personal information and photos, they worry us with their lack of understanding of consequences of "viral" messages and videos or about how much information they can safely share when others are willing to exploit their innocence. Yet when all else fails, we ask a 10-year-old for help in solving a computer problem and are usually astonished at the confidence and competence demonstrated in easily finding the solution.

As children crave and demand more time with media in order to socialize and explore, adults are unsure if we're abandoning them to the grown-up world when they're far too young or if we're preparing them with sophisticated and useful skills for graduate school. Researchers report that today's parents are doing a great deal of both, but are understandably concerned about mapping this unchartered territory when future outcomes are uncertain. How much computer time is enough to enhance a child's skills for a competitive world? How much is too much when a teen is isolated in a bedroom playing computer games? If their friends are all on social media, should we restrict our own children because we know that predators may be reading their messages? And

will abbreviated words written in a frenzied pace continue to replace those phone calls we hold so dear?

Yet, the latest in technology fascinates us all and expedites so much in our lives. We adults are typically "hooked in" ourselves, checking email and social networks while simultaneously talking on our phones and surfing the internet as we wait for texts or other instant messages. How quickly we've all slipped into responding "LOL" and "BTW" as we take great pleasure in keeping in touch with family and friends.

The Digital Divide

Researchers Ortiz, Green, and Lim (2011) reported that parents responded repeatedly that they personally place a very high value on their own computer use, viewing it as a necessity both for daily living activities and job success. In his explorations of the way we use technology, Larry Rosen (2011) found that there is no one pattern, that there are huge differences based on what each generation finds most satisfying. He notes that while the Traditional Generation (1925-46) and Baby Boomers (1946-64) typically prefer face-to-face and telephone conversations, Gen Xers (1965-79) are more transitional, mostly using cell phones, email, and text messaging, with a willingness to adopt additional technology as professional and social interactions expand. Defining a more modern era of communication, the Net Generation (1980s-90s) embraces social networks (such as Facebook, MySpace, and Twitter), Skyping, and instant messaging.

And then there is the iGeneration (1990s+), so called because of their use of the iPhone, iPod, iPad (and iEverything), who have redefined communication not only by their acceptance of and hunger for new devices, but because of their sometimes

overwhelming reliance on technology for being in touch with others and interpreting their world. Along with Rosen's research, both the Kaiser Family Foundation and The Pew Internet and American Life Project (2010) reported that many of today's children and teens spend almost all of their waking hours involved with media and technology, often using several types simultaneously. Data collected by the Nielson company (2010) indicated that the average teen sends approximately 6 messages every hour not spent sleeping, or approximately 3,339 texts per month, in contrast to making or receiving about 191 phone calls.

So, when viewing childhood from their own generational perspective, it's not surprising when grandparents are disappointed if they don't receive those phone calls or when 15-year-olds roll their eyes at adult lack of with-it-ness. Yet, I observe 75-year-olds texting friends and enjoying Skype and Face Time with family members far away while their grandchildren volunteer to support them with their own unbelievable skills.

Across the world, video capability on smart phones has resulted in governmental failure to restrict media access, permitting an amazed audiences to witness social/political/economic revolutions such as the Arab Spring and the need for humane assistance to address human tragedies from Haiti to North Korea. Closer to home, images on television and internet terrorized us during the shooting of Congresswoman Gabby Giffords and the massacre in a Colorado movie theater. At the London Olympics, we cheered Michael Phelps' countless medals and South African Oscar Pistorius' amazing skills as the first amputee runner every to compete. So very often, technology brings us together in sharing these profoundly human experiences. Nothing seems to have had a greater impact on our modern world, and we all realize that despite our

concerns and uncertainty, adult reliance has become so profound that we're not going back to less complex times where we were unable to access information or each other immediately.

Children share our enjoyment of online socializing as a way to keep in touch with friends and family. As parents, the trick becomes teaching them ways of navigating through the harms and risks, avoiding "stranger danger" and the pitfalls of social networking sites and computer games while using technology to its fullest to support learning and positive interactions with others. As we guide our children through the maze of these positive and negative outcomes, the most effective paths we cut will be based on a knowledge of research and the use of our own common sense.

Technology in Social Settings

It's Saturday evening and finally the Jenkins family has found time for that dinner in their favorite restaurant. As parents ask about school, volleyball, and orchestra, Sophie and Andy appear disconnected from the conversation, answering with words like "fine" and "the same." But they're very connected to their smart phones, texting friends and checking constantly for new messages. As he plays computer games, Andy glances up infrequently from the phone in his lap, barely acknowledging his parents and then immediately looking back down. His face is serious and his fingers move amazingly quickly, with his occasional "Yes!" or muttered curse as his only contribution to the family gathering. Sophie says "Cool!" or "No way!" as she reads her messages and clicks back quick responses. She's stopped looking up at all. As their parents shake their heads, Mrs. Jenkins' phone rings. "Better take this," she says as she answers. "Poor Rita's been trying to get in touch with me all day about our new boss."

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With no one else talking at the table, her husband checks his email and sends a few messages to work colleagues as well.

A very common story and if we were to look around the restaurant, the Jenkins "dinner out" would be the same at many tables. Engagements with technology rather than each other have become the norm. Yet, as youth and their families block out personal interactions, researchers and onlookers voice deep concerns about the outcomes. MIT professor and psychologist Sherry Turkle (2012) observes that we may be confusing conversation with connection, as we talk to machines and not people. Machines can serve as a non-threatening diversion, while conversations may involve more emotional and difficult interactions that we would prefer to avoid. Sophie may not want to answer her parents' questions about school grades and Andy is tired of their asking if he'd like to sign up for more activities. So their phones provide an important, convenient escape from difficult discussions.

Not only is it important to limit how much time youth spend on-screen, but when and where it is socially appropriate to use technology. In the restaurant, Mr. and Mrs. Jenkins should have turned off their own phones and insisted that their children do the same. Remembering that children are always watching our behavior, it begins with adult modeling. At the family dinner with texts, games, email and a phone conversation all underway, it was impossible for there to be any real interaction or conversation. Everyone was too distracted by others to pay attention to the most important people in their lives, right there at the table. It was important for Sophie to hear her mom say that she would not return her colleague's call during dinner, modeling that Sophie could respond to her own texts later as well. To avoid addiction, Andy needs to have his

game time restricted and to be told firmly that playing games in the midst of social occasions is simply not acceptable. Yet, in order to do that, his parents need to put their phones away as well.

Supported by years of research indicating that families who have dinner together each evening have children who perform better in school with fewer behavioral problems and less delinquency, Turkle (2012) recommends the creation of "sacred spaces" at home, such as the kitchen and dining room. In these areas no media (from TV to smart phones) are in use during meal times. She adds that we should make our cars "device-free" zones so that adults can talk to children and allow them to talk to their brothers and sisters. A 2-year old watching a video and a 14-year-old with headphones on while texting will never be available to us during those very important moments where we can have them to ourselves to interact, and especially, to listen. If we're talking on the phone as we drive or eat and our youth are instant messaging, they've found someone who will listen to them – but it may be a peer stranger giving different advice than we would ever consider. We have to model our own availability by focusing on our children.

One of the allures of computer games is their interest to adults as well as children. So it's not uncommon for families to play these games together. These times provide a good opportunity for adults to experience the type of persona their children are adopting and the level of sex and violence to which they're being exposed. As with tuning in to our children's music, we broaden our understanding of the information they're receiving through media – and, when necessary, can limit and counter them with our family values. If we find ourselves getting "hooked" on a game, it's important for us

to step back and monitor our own time on it personally as well. Game time together can be fun, but it shouldn't take the place of conversation and other experiences such as sports and the arts or of just "hanging out" with our kids.

It's also important to teach children how to manage technology when they're outside the home. Despite the presence of close friends and extended family at a celebratory event for a teen's high school graduation, she spent almost the entire occasion on her smart phone, sending and laughing at messages she received. Watching her balance food briefly on a fork in one hand while typing messages onto Facebook, her closest friend, sitting next to her, commented, "Darn! I left my phone in the car," feeling that she was missing something by not being part of the on-line conversation. There were many quiet moments at the table while others looked around or checked their own phones, feeling left out of an important occasion.

Of course, it's not just at celebrations, but in more frequent everyday gatherings that it's common to see children and teens together and not making eye contact or talking, but focusing on their phones. The same occurs during game-playing, where the screen message provides that entertainment rather than engagement with others. Again, parental modeling and direction are important. When observing their children using smart phones during visits with others, ranging from special times such as the graduation event to everyday "hanging out" with friends, it's important for adults to ask them to spend "real" interactive time instead of being focused on messages or games that exclude occasions for normal social development.

It's not uncommon for teens to be concerned about required interactions at a job or in discussions with adults, claiming "I don't even know how to have a conversation."

We can support their social growth by talking to them daily during media-free times we establish in our homes and cars and by insisting that they not turn to media during shared times with family and friends and become part of discussions.

A colleague observed that some parents seem afraid to just use common sense and limit children's media use. "While we feel in our hearts that kids' always being plugged into technology is wrong, we accept it anyway, allowing media to have a greater place in their lives than we do. Since everyone else seems to be letting their children to do it, we're convinced that ours will be excluded from the peer group if we limit their telephone, game or TV time. Why are we so afraid to be good parents?"

Adults experience similar issues in their own lives. It's not uncommon to see colleagues wearing headphones or glued to a computer screen, sending us the message that it's better not to interrupt them. Turkle reflects, "In the silence of connection, people are comforted by being in touch with a lot of people – carefully kept at bay." Noting these trends, she adds, "We expect more from technology and less from one another and seem increasingly drawn to technologies that provide the illusion of companionship without the demands of relationship (pp. 1-2)."

As I walk across college campuses, I experience a frequent sense of "something lost, something gained." Instead of making eye contact and conversation, students are reading messages or talking on their phones. A nod is often the only acknowledgement of another student walking by, and the sense of intense engagement with the phone seems too important to interrupt. Potential friendships are ignored as instead we count the number of machine "friends" we accumulate on social media. In the library, as in professional offices, students multi-task on phones and laptops, with earphones

indicating lack of availability for conversations. As Turkle notes, "We are tempted to think that our little 'sips' of online connection add up to a big gulp of real conversation. But they don't. E-mail, Twitter, Facebook, all of these have their places – in politics, commerce, romance and friendship. But no matter how valuable, they do not substitute for conversation (p. 1)."

Turkle's comments stirred up quite a storm among tech-advocates who felt that their exchanges are indeed "real" conversations similar to the brief ones we might have with a stranger or when needing to make our point quickly and succinctly during our very rushed lives. Yet, even among those dedicated to their technology, there was a general acceptance that some of us – adults and children alike – are rude to others in its use, often not intentionally, but through our own preoccupation. The common sense response was to manage our interactions so that we don't neglect others – without feeling the need to throw away our smart phones. It seems unfair to blame the iGeneration for this preoccupation, as most adults have slipped into it as well. Mrs. Jenkins can't wait to talk to her colleague, and her husband is happy for a few minutes to respond to emails during this "family time."

With access to social media literally in our hands, when we want to share our most mundane or intimate moments, we have an automatic audience. Sadly, teens rarely go to their parents for advice about relationships or very personal issues. For youth who feel that no one else may be listening, technology provides powerful eyes and ears.

It also provides ways for busy adults to communicate with others while "on-the go." While in a crafts store one Saturday, I observed a boy of six or seven years,

chatting away as he trailed behind his father, who was laughing and talking animatedly on his phone.

"Dad, see those extra-thick pencils over there," as he pointed.

His father ignored him and talked louder.

"Dad, look! The teacher gets those for me 'cause I can't write with the regular ones. I'm the only one in the class who has to use them. I think she even buys them with her own money."

His father snapped in irritation, "Stop talking! Can't you see this is an important conversation?"

Indeed, the boy hung his head and did stop talking. But what a critical message that father missed. His son was having fine motor problems with handwriting and was lagging behind peers. The teacher paid attention and cared enough to buy him those pencils. Had the dad listened, he could have learned more about his son's problem, perhaps then discussing it further with the teacher about how to help at home. He could have bought some pencils so she wouldn't have to spend her own money. How sad that the dad was involved in another conversation that he felt was more important. Likely, he would consider himself a good and caring father, but the seduction of the phone took over the moment.

As we watch parents walking with their children in strollers and talking on their phone, other moments are lost: to point out a bird, a pretty flower, or just chat with a young child. Technology provides immeasurable and instant connectivity, and we can't do without the way it supports our daily lives. But when our focus removes us from live conversations and interactions, we have to make choices about enjoying and sharing

the actual moment with a family member and friend, or cutting off that moment to post the memory on Facebook. We can do both – enjoy and share – but maybe we can't do it all at once. The critical issue is balance. Perhaps we can take a photo of our child or grandchild during that special time together, but post it later on. If we wait a few minutes to send that message, we can enjoy both our live interactions and connectivity.

Indeed, children are always watching. From interrupting shared times in a restaurant to texting while driving, adults set a standard. The Jenkins children may be modeling on their parents' behavior, so if the parents themselves adapt and set rules for the entire family, it's likely that Sophie and Andy will understand the need to monitor themselves in social situations.

Television and Young Children

While phones and computers have become incredibly powerful forces, television remains a primary source of information and entertainment in our homes. From favorite shows and movies to news and sports, we can't imagine a world without images that take us from startling mountain views to kitchens where a dessert recipe awaits – or from a close-up of our favorite team's struggles to how we can help others when a devastating earthquake occurs. The advent of 24/7 entertainment across hundreds of channels provides amazing choices to meet our moods and cravings for information. But as adults know too well, there can be a dark side for children who are too young and not developmentally ready for everything they see on television.

Because of its presence for generations, TV has been studied intensely, with particular concern about the impact of violent and sexual images on child viewers. Parental monitoring and modeling of alternate moral and ethical behaviors provide a

critical counterbalance by showing that our personal reality can, and often should, be far different than those observed on screen.

Researchers agree on one critical point: *Parents need to limit the amount of television and the types of shows that children see daily.* In studying what young people learn about the world from watching television, Morgan (2007) notes, "Television can potentially affect young people's behaviors regarding violence and aggression as well as sex; it can affect what they buy, how they want to dress and act, how they define their identities (and see others), and how they come to understand their place in the world…It can open them up to rich new ways of envisioning the world or numb them with mindless, unimaginative formulaic fare that discourages broader intellection exploration…(p. 153)."

Americans 2 years of age and older are spending an average of almost 5 hours a day in front of a television, an increase of 20 percent between 2000 and 2010 (Medina, 2010). While for years The American Academy of Pediatrics has strongly recommended that children watch no television before age 2, a survey of 1,384 parents by Common Sense Media (2011) found that about half of the children under age 2 spent 2 hours daily watching TV or DVDs. They reported that among all children under 2, the average was 53 minutes in front of the screen – more than twice the time spent reading with parents. While school performance is most closely related to how often parents read to their young children, screen time is greater than ever for children under 8 years.

Author of the Kaiser Foundation study of the negative effects of media and young children, Victoria Rideout (2010) reflects, "I get the impression that a lot of parents do not take the recommendation (of the American Academy of Pediatrics) that

seriously. Part of it may be wishful thinking. Parents like their media, and it's really tough to resist the lure of putting your kid in front of something that purports to be educational and will keep them occupied (cited in Lewin, para. 11)."

While parents are expecting educational stimulation from media, the opposite is actually true as their children may begin to lag behind peers. Extensive use of technology by young children is associated with developmental delays (Thakkar, Garrison, and Christakis, 2006; Zimmerman, Christakis, and Meltzoff, 2007). These findings have caused the French government to ban TV programs for children under 3 years of age. Between 2005 – 2010, infant "flat head" incidence increased 600% ((Rowan, 2010). More than two-thirds of Physical Therapists in America reported low muscle tone in infants and a failure to reach common motor development milestones (Jennings, 2005).

Researchers have found that approximately 75 percent of very young American children live in homes where the television is on most of the time (Parker-Pope, 2008). Parents may be watching the news or their own preferred shows while children play nearby. University of Massachusetts researchers found that while children aged 1 to 3 only appeared to glance at the TV screen for seconds at a time, the noise disrupted them significantly. They played with each toy for shorter periods of time and with less focus than when the television was turned off.

Medina (2010) writes that second-hand TV damages children through distracting them from any activity, including use of their imagination, a skill critical for their cognitive development. He notes how language experts have found that engaging in imaginary play by children under 5 is a better indicator of future academic success than any other

skill usually measured, including quantitative and verbal competencies. He adds, "TV

also poisons attention spans and the ability to focus, a classic hallmark of executive

function (including problem solving, planning, and organized thinking patterns). For

each additional hour of TV watched by a child under the age of 3, the likelihood of an

attentional problem by age 7 increased by about 10 percent. So a preschooler who

watches 3 hours of TV per day is 30% more likely to have attention problems than a

child who watches no TV (p. 146)."

In Canada, researchers Courage, Murphy, and Goulding (2010) explored

response patterns of 6- and 18-month-old infants. They found that when infant-directed

videos were on, mothers talked and played less with their children. This lack of

interaction has a negative impact, as young children need conversation to model and

develop language. Indeed, children who listened to Baby Einstein recordings had lower

vocabulary scores than did children whose parents engaged them in conversation.

While the results had been well-substantiated, the manufacturer's response was to sue

the researchers and continue encouraging parents to purchase the products.

There are also "app gaps" between affluent and low-income families, where

children in wealthier homes play mobile games while their counterparts are more likely

to have a television in their bedroom. Lewin (2011) notes that some parents are

handing their children under age 2 their mobile devices as a "shut-up toy" while others

continue turning on the television to keep them occupied. With this additional audience

and potential as future consumers, manufacturers have taken note as they market

greater numbers of educational and game apps for young children. It is not unusual to

see a parent's mobile device propped up in front of a child in a car seat. Learning very

young to touch the screen for a favorite movie or game, the child can be inconsolable if media are not available for entertainment. As one parent noted about her two-year-old, "Even during short car trips, he screams for his favorite show. I figure it's either him or me, so I keep my sanity by letting him watch it."

Addiction to Games

The presence of violent and aggressive images has grown exponentially in computer games, with an impact that may be even greater than television viewing. Not all media are created equal in their influence on children's behaviors (Richards, 2011). An international concern, years of study by Turkish researchers Tahiroğlu, Çelik, Bahali, and Avci (2010) found that media violence can result in increased and permanent aggressive behaviors. While such violence appeared regularly on TV, they found that it was even more pronounced on computer and internet games because of active learning processes. We observe a story on television, but we become the character in a computer game, often adopting the persona of a warrior and winning the game or moving progressively to higher levels as we kill others. We are no longer just watching the action, but have become a part of it – often, as initiators in destruction and rewarded for our success.

Indeed, observing his grandchildren playing a video game with extreme intensity and, at times anger, a colleague asked me why it's called a "game" when players take it so seriously. Since they become the character, the game is personally competitive, and it's not uncommon to hear a child say, "I stink at this!" or to be really upset about not being able to move to the next level. Because children have difficulty distinguishing

fantasy from reality, they may also be adopting some of the intense, pressured behaviors observed on screen.

In reviewing the history of early video games, Anderson (2012) noted that they were designed to be played on televisions or desk-top computers and involved quests, wars and the building or destruction of civilizations. Requiring time and taking place primarily at home, their focus was teenage boys. In 2007, with the advent of the iPhone, the gaming industry changed dramatically as we carried our game console with us on a tiny screen, and independent game designers had the ability to reach us all, any time and any place. Game apps were on everyone's phone and easily portable, so the market expanded dramatically, to include "not just hard-core gamers, but their mothers, their mailmen and their college professors…. Stupid games are rarely occasions in themselves. They're designed to push their way through the cracks of other occasions. We play them incidentally, ambivalently, compulsively, almost accidentally. They're less an activity in our day than a blank space in our day; less a pursuit than a distraction from other pursuits (pp. 29-30)." Anderson reflects that in 2011, the CEO of Rovio claimed that players of their Angry Birds game were spending 200 million minutes inside the game each day!

It's of no surprise that as we adults become addicted to games, our children will too. But the results may have a physiological impact on the development of the young brain. Chan and Rabinowitz (2006) surveyed 9th- and 10th-graders and their parents about the adolescents' daily time spent on the internet playing games. They associated the results with specific measures of teens' behavioral and social functioning. They found that students who spent more than one hour a day on computer games had a

significantly lower grade point average at school. They also had significantly greater

symptoms of Attention-Deficit/Hyperactivity Disorder and Inattention, which clearly

impacted their ability to focus on and complete school assignments. Another important,

but not surprising, conclusion was that students playing more than one hour each day

had scores indicating they were highly addicted to video games.

A Head of a high school told me that their policy is not to allow use of smart

phones during school hours. Yet, teachers reported that one student repeatedly broke

the rule and looked at his phone constantly during class, unable to concentrate on

assignments and discussions or to complete class work. Never disrespectful but

discernibly agitated, he told the Head that he was incapable of leaving his phone in his

pocket and not checking for messages, that he was very worried that he would receive

something to which he really needed to respond immediately. He said that he felt that

part of him was missing without his iPhone.

Similar concerns are international, as the Chinese and South Koreans have

developed "addiction camps" where children are separated from technology for an

extended period in order to help them return to normalcy. Canadian researchers

encourage parents to monitor and limit all media use as a counter to the serious

physiological and behavioral outcomes in children and teens. Discussing the resultant

"Unplug – Don't Drug" movement among professionals, Rowan (2010) notes, "The past

decade has seen an increase in personal use of electronic technology, with childhood

television and video game use similarly increasing. Critical milestones for child motor

and sensory development are not being met. Simultaneously, there is an increasing

incidence of childhood physical, psychological, and behavior disorders, often

accompanied by the prescription of psychotropic medication. One in six children exhibits signs of poor health, mental stress, or problems at school (p. 60)."

Experts at the "Unplug – Don't Drug" program tell parents not to rush to their Pediatrician for AD/HD or behavioral medications if their child or teen is distracted, anxious, angry, aggressive, tired, or experiencing school-related problems. Instead, they advise adults to cut off all non-work and non-critical technology in their home for three months, including television, video games, movies, Internet, smart phones and other portable technology. Their experience shows that it takes several months for children to overcome their addiction and return to full physiological and emotional health.

But if we're being honest, their recommendations simply aren't realistic at all for most families. Few of us would give up our media for any extended time, feeling that even outside of work we couldn't survive – or put up with our children's upset. Yet, if the choice were between watching their behaviors worsen – at times even requiring medication – or limiting media use, it becomes more realistic to at least strongly monitor technology use in our own homes. A more acceptable and realistic change is to restrict children and teens to 45-60 minutes of screen time at home each day. Because of more "down time," children could use media for an additional hour on weekends. This time would be in addition to completing any on-line assignments for school.

One would expect that Bill Gates' children would have unrestricted computer use. Yet, when asked that very question during a 2007 Ottawa speech to business executives, Gates' reply was surprising and caused quite an audience stir. He explained that his oldest, a 10-year-old daughter, had never been a hard-core computer

user until she began attending a school where computers were used to complete almost every assignment.

"She became very avid and discovered a lot of computer games, including Viva Piñata, where you take care of your garden. She could spend two or three hours a day on this… because it's kind of engaging and fun."

He and wife, Melinda, discussed their daughter's addiction and set a limit of 45 minutes each weekday and an hour a day on weekends for her total screen time, not just for this particular game. They also set rules for the amount of time required to be spent on homework.

"It's very appropriate for a parent to get a sense of what they're seeing out there and be able to have conversations about it. My son said, 'Am I going to have limits like this my whole life?' I said, 'No, when you move away, you can set your own screen limits,'" Gates related, to great audience laughter.

Technology in Schools

On-line information sources such as Google amaze us with their instantaneous ability to provide us answers to almost any question or to direct us to others who can give us support. As I write this chapter, I rely on access to both historical library resources as well as publications as current as today – all of these made available to me through Internet connectivity. Indeed, "bricks-and-mortar" research has entered a new era, one welcomed for its ease and speed. Yet, there are dangers in the belief that everything we read on-line is accurate or that we can explore complex information briefly, process it immediately, and move on quickly with the next click of the keyboard.

As with traditional research, students need to trained in best methods and not to believe everything they read, see, or hear on media.

While certainly the most tech-savvy generation, educators are very concerned about a lack of in-depth knowledge of history, literature, and science methods that many graduates demonstrate. Without direction from parents and teachers, students may consider "research" to be surfing the Internet for a factual answer instead of exploring topics more extensively and understanding the deeper concepts behind them. One reason for this may be that in this fast-paced world, speed of response is equated with a good response. Anderson (2012) notes that the first level of Angry Birds takes around 10 seconds. Children may be requiring constant stimulation to draw and keep their attention and feel that a quick answer is the best answer.

Some schools report that because of students addiction, the only way they feel they can manage distraction and inattention is to take breaks from academics throughout the day so that students can check their messages, send texts, and even play games. Teachers' frustration with this practice is extreme, as student test scores continue to plummet and there is already insufficient time to teach skills, so these tech-breaks not only take students away from important content, but hold their attention afterwards as they continue to think about the messages they've just received, especially from peers. Despite rules and breaks, any teacher can relate amazing stories of the way that students secretly send instant messages to friends with one hand in a purse or pocket, while simultaneously looking directly at the teacher and feigning interest.

Educators also note that many parents interrupt their children frequently at school with texts and phone messages and feel that their student should be able to respond immediately. Understandably, since the Columbine massacre and subsequent school shootings, many consider their children safer with a mobile device such as a phone in case of emergencies. But as adults, it's important for us to distinguish between an emergency and a convenience. It's critical not to interrupt their focus on learning by contacting them while they're at school.

Rosen (2011) noted that many children have never known a life without technology. "To them, the smart phone, the Internet, and everything technological are not 'tools' at all – they simply are. Just as we don't think about the existence of air, they don't question the existence of technology and media. They expect technology to be there, and they expect it to do whatever they want it to do. Their WWW doesn't stand for World Wide Web; it stands for Whatever, Whenever, Wherever (p. 10)." As a result, it's important to understand children's acceptance and dedicated use, while not allowing them to become so all-consumed that they miss out on other important life experiences.

He adds that students have integrated multi-tasking as part of their daily existence and that they can learn and complete as much daily schoolwork and homework as past generations, but they require longer to do it because of the distractions and numbers of activities in which they're involved simultaneously. Of course, this raises a real dilemma for educators and parents. While children may feel a need to multi-task, there is more content expected to be taught at school than ever before, with only a finite number of hours in the day to learn and reinforce it with homework. So if schools allow smart phone use and multi-tasking during the day and

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parents permit it evenings at home, without modifications somewhere our children will simply be learning less.

Rosen recommends a dramatic change in the way we educate children so that we incorporate technology even more into their daily learning programs and adapt their skills toward underscoring school content. He observes that requiring "Screenagers" to focus on only one task at a time (such as completing worksheets, listening to the teacher present information, and engaging in solitary paper-and-pencil activities) is an uphill battle for this iGeneration that has cut their teeth often chewing on a smart phone. But he acknowledges the limitations and reasons schools have lagged behind. Teachers are trained to teach content and need to use technology as a support, not as a replacement. A student expected to read an essay on-line can usually be found sending and checking for messages instead. Assigning work on computers and not giving students the initial concepts they need through direct teaching will result in an unmotivated and unknowledgeable class.

"Of course, using technology to enhance education doesn't mean that we should move classes totally online. Students need face-to-face social interaction, especially in the primary and middle school grades….The point is not to 'teach with technology,' but to use technology to convey content more powerfully and efficiently (Rosen, 2011, p. 2)." For example, he encourages educators to support concept learning through YouTube videos and pieces on educational networks, allowing students to be more involved in concept exploration. Teaching history through video reenactments of critical events in war, industrial, and arts development will certainly sustain student interest far greater than lectures.

Yet, as researchers direct teachers to "find someone" such as an older student to help locate these supportive pieces, educators are justifiably wary of the process. Not only is their time limited even to seek out others to help them with curriculum units, but this process can be disjointed. Volunteers searching for sporadically available media cannot give students the broad foundation they need to fully understand concepts. More promising is the development of online lesson plans that include media and continuity of curriculum units. These allow a teacher in first year American History to search for related lessons and media that would allow students to participate more actively without the teacher searching for information at midnight. On sites where "teachers help teachers," Science lessons and experiments need to be more readily available so that background for laboratory experiments can be available for students online. Math can become a basis for critically needed future engineers when students can visualize its application to construction, Chemistry, and heightened computer capabilities.

Individual teachers do not have the time or resources to find media programs on their own time. Yet, a curriculum team of teachers at each grade level could search and plan together to develop a library of available software and media to support student learning. From teaching reading skills in the elementary grades to reinforcing high school Physics, teachers are the ones who best know their students' needs and the curriculum content on their individual campus. So they should be included in this process, along with school district technology experts who can not only help them find available online information, but most importantly, teach the skills necessary for educators to use the information in their classrooms. We would then see fewer

computers sitting covered in classrooms where teachers have not been properly trained in their use. Frequently from a generation that did not grow up with computers by their side, it's unfair to put educators in a position of asking a student for help when they need to direct a lesson and to use class time most efficiently.

Teachers should be paid for their curricular planning and technology training, with additional funds allotted for media libraries and their annual updating. However, as we face severe economic constraints, most school districts and many private schools do not have this money available. So we continue to rely on educators' generosity of giving their time and free online resources. Yet, we need to prioritize training and technology integration so that media tools are not only available, but play a primary role in motivating and educating students with greater depth of knowledge.

Despite increased curricular use, it's important to note that there is a "digital divide" between the way that schools and students want to use technology. As social beings, our children will usually find instant messaging and chatting with friends more interesting than learning school subjects that require focus on facts and concepts. So the battle will continue between their desire to use smart phones during class and teachers' attempts to have them focus on the content of their subject areas. It's really important for parents to support teachers so that children will be able to focus at school for long periods of time. Learning cannot take place without attention and a mind free to solve problems imaginatively and creatively.

I visited recently with a parent who had rewarded her son's completion of homework the night before by allowing him to take a hand-held computer game toy to school the next day. "I know we're not supposed to send these, but it was the only thing

I could do to stop him from complaining and spoiling another evening. I felt really sorry for his teacher today, but she should be used to kids bringing them by now and there's probably a school policy for her to handle it."

How sad that the child has taken charge both at home and school.   His mother looked for a way to bribe him to do his homework without complaint, giving in to something she knew was wrong. Then she encouraged him to break a school rule. While feeling that she was doing a good job in requiring him to finish his homework, his mother solved a short-term problem for one evening, but has created a far greater one. With louder demands for taking the gaming device each day, the stakes will now be higher every night at home.

Likely the first thing he did the next morning was show the game toy to his friends at school, and the teacher had to take important time from reading or math from the entire class in order to engage in a power struggle. His mother's sense of "everyone's doing it" will result in his being unfocused at school and not learning as much as he could.   Far better to say, "We all work, and school and homework are your job. If you would like to have some play time later this evening, you'll need to finish your homework first and show me you've completed it carefully." Then the parent needs to walk away so that complaints lose their effectiveness and eventually stop. *The only way to win a game of control is not to play in the first place.*

Preventing Obesity

Accompanied by an increased diagnosis of Diabetes, physicians have described rising obesity rates as a childhood "epidemic," with hours of television and video games as primary causes (Rowan, 2010).   Parents know that their children should spend more

time outdoors and in exercise. Yet, bombarded with daily news reports of violence, it's understandable that they worry about children and their friends playing outside their view. Shared family activities such as bicycle riding, walks or runs can be limited by overly full schedules and adults working long hours due to economic needs. So while we know it's not the best thing to do, allowing our kids to watch TV or play computer games keeps them indoors where we feel they're safe and gives us some time to prepare dinner, do chores, and have adult conversations. But are children really safer? As we've discussed, there may be more "stranger danger" on their computer than outside our homes. So it's hard to know what to do.

Studying 200 families with children ages 2 - 4, researchers Schary, Cardinal, and Loprinzi (2012) found that not including naps and meals, all the children were sitting for 4 - 5 hours on a typical day and 5 - 6 hours each weekend day. In homes where electronic screen time was restricted, they completed quiet play such as coloring and working on a puzzle. While these are positive activities, researchers reminded us that at these young ages movement is essential to exploration and learning.

Children allowed to watch TV and play video games spent up to 30 additional minutes daily being inactive. While not appearing to be much time, when added up over a year, the "non-screen" children spent approximately four hours more every week in active play, setting the stage for the rest of their lives. Authors noted, "Early life movement is imperative for establishing healthy, active lifestyle patterns, self-awareness, social acceptance, and even brain and cognitive development (p. 2)."

They also found that parents who actively play with their children have the most impact on establishing healthy habits – but they add that adult involvement at any level,

from watching kids play to driving them to an activity, makes a difference. "When children are very young, playing is the main thing they do during waking hours, so parental support and encouragement is crucial. So when we see preschool children not going outside much and sitting while playing with a cell phone or watching TV, we need to help parents counteract that behavior (p. 2)."

Exercise is not just important for young children, but across all age levels. With a team of researchers in Cambridge, England, Dr. Ulf Ekelund (2012) compiled results of 14 studies of the impact of physical activity, including 20,871 children and teens from the United States, Brazil, Europe, and Australia. Findings indicated that no matter how much time older children and teens spend sitting, exercise improved their health. In those aged 4 - 18 years, moderate to high-intensity ranges of physical activity for an average of 30 minutes each day resulted in statistically significant improvements in waist size, systolic blood pressure, triglycerides, HDL cholesterol, and insulin levels. While all children benefitted, results were greatest for those with the least amount of sedentary time every day.

As we develop a plan for children and teens to be outdoors more, it's important to understand the current world and what's possible given our busy schedules. It's easy to become nostalgic over our own childhood walks through city neighborhoods or climbing trees, saddened that our family may not have the same connections to the natural world that often filled our summers. Yet, as science writer Carol Yoon (2012) observes, things change and this may be the first generation to have their experiences with the living world unfold on the screen. Their experience will be different than ours, as millions view incredible videos of animal behavior – from up-close cat and lemur interactions – to

bombardment of particles in space, viewed through the Hubble telescope. We're mesmerized as we view incredible underwater or mountaintop splendor that we would never see without technology. Closer to home, we may have a screen on our wall depicting a fireplace or our office may have projections of natural scenes instead of windows.

Do these changes mean that we can replace the outdoors and still fully experience nature? Not at all. In discussing our adaptation to this different form of response, Kahn (2011) writes, "…through technological innovation we lose a previous form of experience, often a more natural form of experience, sometimes of a form that is better for us physically and psychologically (p. 42)." He encourages us to adapt by deciding which types of outdoor, natural experience we can adopt into our lives during these changing times. While we may need videos to more easily visit archeological digs, are there parks in our neighborhood where we can spend quiet time with our children? Can we walk to the library instead of driving? Are bike rides or swims possible on Sunday afternoons?

A healthy adaptation to changing times has been the numbers of children enrolled in organized sports. While we cringe at the "Soccer Mom" syndrome and shake our heads at over-zealous responses by adults to referee calls, most parents and coaches appreciate the opportunity for kids to be physically active while developing team skills. Safety rules requiring helmets and restricting plays that cause concussions and other injuries have made sports safer and more developmentally appropriate. Title IX of the Educational Amendments of 1972 legislated that girls be allowed the same opportunities as boys in sports participation. Attendance at weekly practices and

games can cause us to reorganize our day, but selecting a team that fits our work schedule and carpooling with other families can create memorable times and a lifetime pleasure in physical activity.

Bombarded with ads for unhealthy foods as well as embedded labels that they may not even recall having seen, kids pester adults to buy what they've been sold psychologically by the media. Many of these products are loaded with salt and sugar, resulting in obesity for a sedentary lifestyle. Between lacking exercise and eating calorie-laden diets with high fat content, we've been watching the perfect storm roll into our homes.

It's encouraging that combining these research results provides a framework for raising healthy children across all ages. Each day, by replacing thirty minutes of screen time with thirty minutes of moderate to high-intensity physical activity, we can set the stage for a lifetime of good health. Since adults do the food shopping, we can replace junk food with fruit, and buy milk, water, and non-sugared juices instead of high-caloric, caffeinated drinks. Adults can't give in when children refuse to eat anything but fries and pizza. Kids get hungry and while they may complain at first, they'll eat what's available and what they see their parents eat. It's easier to start these habits when children are young, but a family can decide at any time to "go healthy" as everyone begins to eat better. Again, it's important to set the example even if children refuse a few meals. You may be saving your child's life.

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