



What SCREENS ARE DOING TO OUR KIDS

Bothered by your kids' screen time? You have good reasons. We'll explore some of them and find out what parents are doing to reverse the addiction epidemic.

by Lisa Shaw and Rebecca Terrell

Computer technology has the power to enrich our lives through unprecedented efficiency, convenience, and the unique opportunities it affords. Tablets and smartphones bring the world to our fingertips. Screens are commonplace and even necessary, with much of our work and schooling reliant on the Internet, and on-the-go families needing a way to easily keep in touch.

Like any tool, however, this modern miracle presents a double-edged sword. Sadly, many parents are blind to the risks, leaving their kids open to dangers that range from emotional reliance and addiction to physical endangerment and sexual exploitation/victimization. Let's take a look at some of the challenges faced by a generation raised on screens, and ways parents can help overcome the problems.

Techno-perversion

An online adult predator began grooming Lucie James (pseudonym) when she was only 10 years old. Using social media to befriend her, he built trust over the course of a year before arranging an in-person meeting where he sexually assaulted her for the first of many times. The abusive relationship lasted several years before her parents realized and stopped it. Authorities determined the man had been grooming and abusing other children at the same time, in a process that is becoming commonplace. *The Telegraph*, which reported the story, says that in the U.K. alone, police arrest "six people a day grooming children via social media apps."

"Grooming is really easy to understand once you give thought to it," explains Alicia Kozakiewicz in an interview with the nonprofit watchdog group Enough Is Enough. Kozakiewicz survived four days of sexual assault and torture when an Internet predator kidnapped her and chained her in his basement. He had spent a year grooming her online; thinking he was a peer, the 13-year-old corresponded with him on the family computer in the living room. In her youth and naiveté, it never occurred to her that she was befriending a monster. "Everybody wants to feel loved.... These people online are willing to make you feel that way. And

Young people "are inundated with sexual images and sexual conversation that allow them to very freely participate in those types of conversations and activities," relates "John Doe," former teacher and convicted sex offender.

they do it in the most subtle ways." Now founder of advocacy group The Alicia Project, Kozakiewicz works to protect children and teens who are both easily duped and swamped by the vast volume of porn available online.

Young people "are inundated with sexual images and sexual conversation that allow them to very freely participate in those types of conversations and activities," relates "John Doe," former teacher and convicted sex offender. In an Enough Is Enough interview, he described how easy it is to take advantage of young minds. "I would just start by asking for a regular picture, and then if it got to that level I would eventually ask for a picture of a more sexual nature."

Often such predators are involved in lucrative child-pornography rings, a problem that is skyrocketing according to Federal Bureau of Investigation (FBI) statistics. The FBI works closely with the National Center for Missing and Exploited Children (NCMEC), which re-

ceives automatic tips from Internet search engines such as Google and Bing about suspected child pornography. NCMEC analyzes the images in its database and passes findings to the FBI. Between 2010 and 2018, the annual number of tips exploded from 213,000 to more than 18.4 million. Judy Smith with the U.S. attorney's office in Denver calls it an avalanche. She told *PBS News Hour*, "We just feel like we're dishing the ocean out with a spoon."

Smith, who serves as chief of cybercrime in Denver, related that one of the websites her team was monitoring at the time featured a little girl. "You can tell she's self-producing. I mean, she's holding the cell phone out. She's nude. She's maybe 10, 11 years old." Smith explained that online predators entice children such as this girl and then exploit them through blackmail or threats. She said the problem is growing as increasingly younger children are allowed to carry smartphones. More often than not, access equates to exposure.

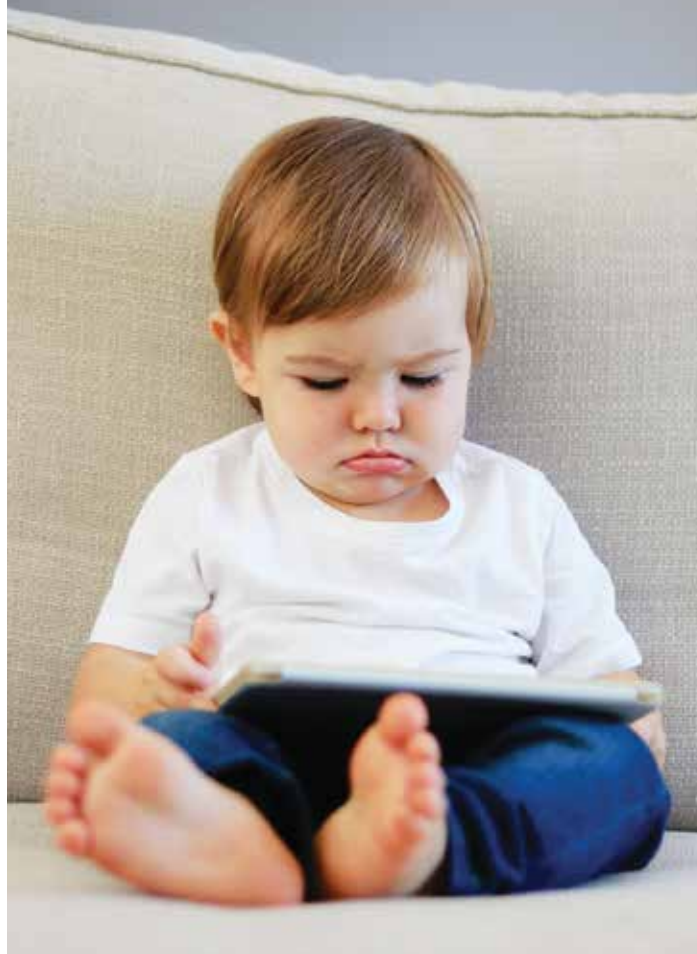


Survivor and advocate: Alicia Kozakiewicz was lured through the Internet and survived abduction, and then founded her nonprofit, The Alicia Project, which battles online child exploitation.

“If you have the Internet, you have pornography in your home,” therapist Jill Manning, Ph.D., relates at InternetSafety101.org. Manning refers to the troubling problem of unwanted exposure to sexual material. Though the numbers of young people actively seeking out immoral images online are gut-wrenching (security technology company Bitdefender reported last year that kids under age 10 account for 10 percent of visitors to porn video sites), University of New Hampshire research found that one in four young Internet users age 10 to 17 report unwilling exposure to sexual material online — and that only accounts for those who admit it. Nonprofit Fight the New Drug, Inc. says the average age of first exposure to pornography is nine to 11 years old. “If 60% of 10 and 11-year-olds have smartphones, is it really all that surprising that, sometimes, they encounter porn online whether they’re looking for it or not?”

Think it can’t happen to your kids? Think again. Only three percent of boys and 17 percent of girls under 18 have never been exposed to sexually explicit material online, according to Pew Research. Even more disturbing: In 2017, the *British Journal of School Nursing* reported that children under 10 make up 22 percent of online porn consumption among individuals age 18 and under. Each day, users generate 68 million search queries related to pornography, says Internet security company Webroot. That’s a full quarter of daily search engine requests, and teens and young adults (age 12 to 29 years) make up the majority of Internet users.

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Distracting and debilitating: Pediatric neuroscientists warn that screens damage developing brains. It’s becoming common that children as young as two regularly use them.

Tetiana Soares/iStock/Getty Images Plus

Your Brain on Screens

How is all this filth affecting our children? Along with the psycho-social detriments that porn ushers in, such as warped relationships and family life, as well as heightened risk of committing personal or criminal sexual offenses, pornography actually inflicts physical harm on the brain. The *Journal of the American Medical Association (JAMA) Psychiatry* offers this rather technical explanation: “Pornography consumption is associated with decreased brain volume in the right striatum, decreased left striatum activation, and lower functional connectivity to the prefrontal cortex.” In layman’s terms: “As hours of reported pornography use increase, the amount of gray matter in the brain decreases.” Writing in the *Surgical Neurology International* journal, neuroscientists Donald Hilton and Clark Watts compare it to brain damage observed in

patients who suffer physical head trauma.

While atrophy progresses, addiction sets in. A brain hooked on porn is frighteningly similar to one hooked on drugs. Cambridge University reports, “Our brains react to pornography the same way an alcoholic might react to seeing a drink advertisement.” Porn activates the brain’s reward system, pumping out the neurotransmitter dopamine, which plays a major role in motivating our actions. Dopamine wires the brain’s reward circuitry based on what we feed it, and because young people’s brains are still developing, they are much more susceptible to porn’s rewiring. Furthermore, overstimulation with dopamine overrides the brain’s mechanisms that dictate self-control, and dopamine receptors shrink from overstimulation — meaning it takes more dopamine for the user to achieve the desired effect. The result is two-fold: The brain’s frontal lobes physically contract, and the

addict searches out increasingly hardcore material to chase the dopamine high. This is exactly what happens to people who abuse drugs such as meth and cocaine.

In fact, researchers observe the same doped-brain effects in Internet addicts — even those who do not use porn — behaviors such as aggressiveness, poor judgment, and lack of self-control. “People with Internet addiction have been found to have less grey matter in several important areas of the brain, including the frontal lobes (which oversee things like planning, prioritizing, and controlling impulses), the striatum (which is involved with the reward center and helps us control our behavior), and the insula (an area involved with feeling empathy and compassion for others).” These conclusions published in *Frontiers in Human Neuroscience* describe what we’re doing to our kids when we plant them in front of screens — be they smartphones, tablets, computers, or TVs. Such devices deliver instant gratification that doesn’t exist in the real world, making children prefer virtual reality.

The U.S. Department of Health and Human Services (HHS) says that even very young children are spending seven hours a day in front of electronic media. The mental health social network Psych Central reports that “56 percent of children between the ages of 10 to 13” own smartphones, while a quarter of children between ages two and five have them.

Scientists are concerned about their brain development. Dr. Aric Sigman, an associate fellow of the British Psychological Society and a fellow of Britain’s Royal Society of Medicine, told *Psychology Today* that when very young children are subjected to too much screen time at too early an age, it can cause lasting damage to their developing brains.

“The very thing *impending* the development of the abilities that parents are so eager to foster through tablets,” he says, “the ability to focus, to concentrate, to lend attention, to sense other people’s attitudes and communicate with them, to build a large vocabulary — all those abilities are harmed.” He explains that the brain grows differently between birth and age three than it does throughout the remainder of life. Sigman says this is called “the critical period,” when the brain’s frontal lobe learns to comprehend and interpret

relationships, relying on authentic human interaction. Researchers identify stunted development in children who spend too much time in front of screens rather than interacting with the real world.

Numerous studies confirm Sigman. *JAMA Pediatrics* reports negative long-term effects in infants having media exposure as early as six months. The babies exhibited a decrease in cognitive and language development at 14 months. The American Academy of Pediatrics (AAP) recommends parents “avoid digital media use, except video chatting, in children younger than 18 to 24 months.” Dr. Dimitri Christakis of Seattle Children’s Hospital, who helped write the AAP guidelines for screen time, told *60 Minutes* the reason they want parents to pull the plug, even if the intended purpose is to educate rather than entertain. “What we know about babies playing with iPads is that they don’t transfer what they learn from the iPad to the real world,” he said, giving the example of an app that allows children to stack virtual Legos. The same kids don’t know what to do with the real toys. “It’s not a transferable skill,” Christakis explained. “They don’t transfer the knowledge from two dimensions to three.”

Older children also suffer negative screen influences. An investigation of

four-year-olds examined the impact of fast-paced cartoon viewing on their “executive function” — which encompasses attention, memory, self-control and goal-directed behavior and is strongly associated with success in school. The medical journal *Pediatrics* found that “just 9 minutes of viewing a fast-paced television cartoon had immediate negative effects on the 4 year olds’ executive function.” Nine- and 10-year-olds who spend more than two hours per day on screens achieve lower scores on thinking and language tests, according to baseline results from the ongoing study *Adolescent Brain Cognitive Development*, funded by the National Institutes of Health.

Automatons

How these effects impact society is illustrated in the *Harvard Business Review* article “The Importance of Spatial Thinking Now,” in which geography professor Kirk Goldsberry complains, “The problem is simple: not enough people know how to make maps or handle spatial data sets.” With Siri around to tell you where to go, who needs maps anymore? Our kids do! It seems that map reading is important for building children’s spatial and reasoning skills, which helps them make sense of their world. Spatial reasoning is a critical



Stay awake: Blue light mimics sunlight that tells your brain to stay up, which is why TV is a bad idea at bedtime.

Researchers observe the same doped-brain effects in Internet addicts — even those who do not use porn — behaviors such as aggressiveness, poor judgment, and lack of self-control.

skill for students of mathematics, engineering, architecture, meteorology, and a host of other fields in which the United States is losing ground as we decline from a manufacturing to a service economy. Glued to virtual reality, students are losing the ability to visualize and create in the real world.

They're also getting lazy. Unlike reading a book, which prompts children to flex their cognitive muscles, watching TV or using a tablet spoon-feeds ideas and images to them. The device is doing the thinking; the child passively absorbs with little substantive involvement. This sedentary non-activity also plays out in unhealthy weight gain. HHS-funded research reveals that watching television "significantly" lowers kids' metabolic rates and is likely related to the rise in childhood obesity in this country. The Centers for Disease Control and Prevention (CDC) says obesity now afflicts 20 percent of young people ages six to 19.

Digital dependence is wreaking havoc on the bodies of screen-stoned teens in other ways. In 2016, scientists investigated the effect of smartphones on posture and respiratory function in young adults, as recorded in the *Journal of Physical Therapy Science*. Researchers found pronounced head forward posture in smartphone users, which they explained predisposes people to a variety of disorders such as chronic headache, chronic neck pain, vertebral disorders, and dyskinesia (disruptions in voluntary movement). They also discovered that this slumped-shoulder phenom-

enon goes hand-in-hand with impaired respiratory function.

Digital eyestrain is another evolving problem. Who hasn't experienced discomfort, dry eyes, or blurred vision from looking at screens too closely and for too long? Studies suggest that long-term exposure to blue light from screens can lead to retinal damage and macular degeneration. Additionally, according to the National Eye Institute, children's eyes absorb more blue light from digital devices than adults', making them more

susceptible to physical damage and more sensitive to sleep disruption. The American Optometric Association recommends limiting kids' access to electronic devices before bedtime since these "can delay sleep onset, degrade sleep quality and impair alertness the following day."

The Dark Side of Bright Screens

Lack of sleep is also one of the main culprits in the connection between mobile phone use and the current spate of teen mental health issues, according to the journal *Child Development*. Author and parenting expert Christine Carter, Ph.D., points out in *Greater Good Magazine* the alarming correlation between a surge in teen depression, anxiety, and suicide rates "that began shortly after smartphones and tablets became widespread among teenagers, around 2012." She relates that multiple long-term studies reveal more time spent online translates to higher risk of depression and suicide. (HHS and CDC statistics list suicide as the second-leading cause of death among 10- to 24-year-olds, and they record a sharp uptick in attempted suicide and depression rates among teens since 2012.)

At the heart of this issue is social media, which plays such a major role in the lives of most young people, it has become their new playground. But it's a playground filled with bullies who are not confined to school grounds. Victims describe cyberbullying as inescapable, and in extreme cases it has pushed them to suicide.

This isn't normal teen drama or kids having spats. Nonprofit ConnectSafely.org describes cyberbullying as "serious aggression, usually targeted and repeated," sometimes by anonymous attackers, affecting roughly a quarter of middle- and high-school students in the United States. It comes in various forms: publicly posted gossip, deliberate exclusion from



Defending victims: First Lady Melania Trump has brought cyberbullying to the forefront, with online safety at the center of her Be Best initiative.

AP Images

online groups, harassment, cyberstalking, or cyberthreats. “Trolls” trick the unwary into revealing private information, or they break into an online account to impersonate the victim. “Flamers” are particularly offensive aggressors who intentionally start social networking fights using profane and hostile language.

The severity of cyberbullying came to light in a 2017 Massachusetts texting-suicide case. Michelle Carter was convicted of involuntary manslaughter in the 2014 death of her long-distance boyfriend, Conrad Roy. At age 17, in a series of text messages and phone calls, Carter urged Roy to kill himself. It’s the subject of HBO’s new documentary *I Love You, Now Die*, due for release this summer.

Place2Be is a U.K. charity founded by Lucy Alexander after cyberbullying pushed her son to end his life. “People who never even met Felix were abusing him over social media,” she wrote shortly after his death in 2016, describing what he experienced as “cruel and overwhelming ... mental torture.” Place2Be works to prevent further tragedy by offering counseling and other resources to schoolchildren.

Hooked

These problems haven’t happened by accident; there is a concerted effort to get both you and your children addicted to the digital world. *Habit Summit* is a behavioral design conference held each year since 2013 in San Francisco. Organized by consultant Nir Eyal, author of *Hooked: How to Build Habit-Forming Products*, his classes teach programmers and tech entrepreneurs “how to form behaviors” by exploiting the compulsive and addictive aspects of technology. “The products and services we use habitually alter our everyday behavior, just as their designers intended,” Eyal says. “Our actions have been engineered.”

Tristan Harris warns this is the aim of Silicon Valley elites. Former Google employee and founder of the Center for Humane Technology, Harris, along with Eyal and other high-tech insiders, studied under BJ Fogg, a Stanford University behavioral psychologist renowned in tech circles for his mastery of persuasive technological design. Harris recounts for *The Atlantic* that he learned how to manipulate people through tactics similar to Pavlov’s dog experiments.



Twitter/habitsummit

Fostering addiction: Nir Eyal teaches students at his Habit Summit, “Understanding our users — that fundamental itch that we’re scratching — is critical for building habit-forming products.”

Social-media companies use algorithms to accomplish the same conditioning. Facebook infuriated users in 2012 when it bragged about its experiments on them, rigging their news feeds to evoke positive or negative emotions and thereby elicit predictable responses.

Here’s an example: Facebook feeds you negative posts and news stories for a week. Your natural response is to quell the sadness by clicking the advertisement that just happened to pop up for your favorite product. (Remember, advertisers pay Facebook every time you click their ads.) Alternatively, you might be showered with positive messages encouraging a certain behavior, such as voting for a particular candidate. Political pundits credit Facebook for an extra 340,000 people who showed up at the polls in the 2010 congressional elections because of an experiment the company sprang on its unsuspecting clientele.

If you don’t like being manipulated, too bad. When you launched your Facebook account, you agreed to terms of use that allow the company full freedom to gather and use data about you. They do it all the time. In 2017, *The Australian* obtained a leaked internal report by Facebook executives revealing that the company monitors posts to determine users’ moods and target them based on their emotional state.

While some may call that a marketing tactic, Harris says companies pay big money for technology that exploits people’s emotions to keep them hooked. “I don’t know a more urgent problem than

this,” Harris warns. “A handful of people working at a handful of technology companies, through their choices will steer what a billion people are thinking today.”

Worth noting is that while Eyal derives his lucrative income from the techno-addictions of others, he admits protecting his own family. He told *The Guardian* that he pulls the plug on Internet access at his house at a set time each day. “The idea is to remember that we are not powerless,” he explained. “We are in control.”

He’s not alone. Last year, writing for the *New York Times*, Nellie Bowles profiled several tech leaders — including Bill Gates and Steve Jobs — who wouldn’t let their young children near screens. “On the scale between candy and crack cocaine, it’s closer to crack cocaine,” explained Chris Anderson, former editor of *Wired* magazine and founder of GeekDad.com. He also has strict online rules for his children. He told Bowles, “We thought we could control it. And this is beyond our control. This is going straight to the pleasure centers of the developing brain. This is beyond our capacity as regular parents to understand.”

Indeed, few parents understand, and the result is techno-addiction. Research by the nonprofit Common Sense Media (CSM) reveals that a typical teen spends up to nine hours a day on a device, whether texting, gaming, video watching, or posting on social media, and 50 percent of teenagers self-report addiction to mobile devices.

Some media pundits downplay the problem. Julie Jargon — who until April was



BraunS/E+/Getty/imagesPlus

Distracted parenting: Fifty-four percent of children feel their parents check devices too often, and 32 percent feel neglected by that behavior.

a beat reporter for the *Wall Street Journal* covering restaurants and food companies, and is now its “Family & Tech” columnist — assures parents that “just because it’s hard for your kids to put down the game controllers doesn’t mean they’re addicts.” But clear-thinking, credentialed experts have no difficulty labeling the epidemic.

“We’re talking about kids who will not stop playing video games unless a parent or the imminence of a bodily function forces them to stop. How is that not an addiction?” asks John Rosemond, psychologist and nationally syndicated columnist. He recalls a 15-year-old patient whose obsession was so intense it disrupted his family and social life. After Rosemond persuaded the parents to confiscate all devices, the young man “went nuts” and nearly destroyed his room. “Two weeks of silence and self-imposed seclusion later, he admitted to his parents that he felt much, much better and was going to try and help other boys conquer their addictions.” Not all stories have such a happy ending. Rosemond reports that many gamers have taken to wearing adult undergarments so play is not interrupted. He says that is “where a child or teen’s obsession with video games can lead if parents don’t pull the plug.”

How can they, when they are addicted, too? A 2016 CSM survey of U.S. parents of eight- to 18-year-olds shows the adults are spending more than nine hours a day on

screen media, with 82 percent of that time devoted to personal, non-professional use. How is this affecting their kids? Leading by example, parents are sending negative messages. Fifty-four percent of children feel their parents check devices too often, 32 percent feel neglected by that behavior, and parents absorbed in their screens tend to have harsh reactions when interrupted.

Moreover, parents aren’t truly aware of what their kids are doing online. While more than half believe they know what’s going on, 54 percent of teens admit their parents would be a lot more worried if they actually did.

Want to test your knowledge? Try interpreting the following text: CTN MOS KPC BTW 459 4EAE. If you’re stumped, chances are you don’t know everything your kids are up to. (Translation: *Can’t talk now. Mom over shoulder. Keeping parents clueless. By the way, I love you for ever and ever.* For further acronyms every parent should know, InternetSafety101.org provides a handy list.)

What Parents Can Do

Pulling the plug entirely is impractical and unrealistic. That non-solution would deprive families of legitimate sources

of information and communication. For many, school and work depend on screens. While taking advantage of benefits, however, we must stay wise to risks. We must teach our children that screens are tools, not toys, not live-in nannies, and certainly not BFFs. In Rosemond’s words, we need parents “who are not trying to be their kids’ friends; parents who understand that children, including most teenagers, know only what they want, which is precisely why they require adults in their lives who know what they need.”

Since addictions are rooted in their brains, what they need is rewiring. The good news is the brain has a delete button. Fight the New Drug explains that we learn things by building and strengthening neural connections. Removing yourself from the object of addiction and engaging in wholesome activities destroys old connections and forms new, healthy ones. For the 15-year-old in Rosemond’s example, the process took two weeks. That’s encouraging. Also reassuring is the work of University of Pennsylvania neuroscientist Dr. Andrew Newberg, who has spent years studying the effect of prayer. Author of numerous books including *How God Changes Your Brain* and *Why God Won’t Go Away: Brain Science and the Biology of Belief*, Newberg finds measurable improvement in addiction-ravaged brains after prayer or meditation.

Should it come as a surprise that we find the answer to screen addiction in virtuous actions such as self-regulation, moderation, productiveness, and prayer? Diligence on the part of parents is the secret ingredient in the mix, and that means some heavy lifting at times. Discipline takes effort, from both the recipient and the source. Will your child always like you? Of course not. But prying him from virtual reality into the real world will better prepare him for adulthood and protect him from a life of digital dependence. ■



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