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### A Fragile Generation

English writer and philosopher Aldous Huxley wrote in his 1937 book *Ends and Means*, “Technological progress has merely provided us with more efficient means for going backwards.” After the mid-20th century “Information Age,” where computers and digital media rapidly became a source of information and connection, society became dependent on technological devices and tools. Many deem this unprecedented step in history as “progressive.” The question remains whether this unlimited connectivity and entertainment is pushing us forward—especially for the younger generations. Technology is addictive and steers children away from physical interaction and critical thinking. For adolescents still developing cognitive ability, technology has replaced the imagination and playfulness once present in childhood. In the current Digital Age, children growing up with excessive screen consumption are displaying addictive behaviors, higher rates of ADHD, and underdeveloped psychophysiological resilience as they become entirely reliant on a technology-induced dopamine rush.

Technological discoveries and innovations have led to a world in which everything—entertainment, business, communication, and knowledge—is at our fingertips. Last year, the average American had 22 connected devices in their household, according to a survey by Deloitte. Parents increasingly rely on technology to “babysit” their children. Screens and online entertainment have become a primary fixture in children’s upbringing.

Brain development begins in the womb. At 3 weeks into conception, a baby's brain is forming as the neuron and glia cells connect to make a nervous system. An infant is born with approximately 100 billion neurons in their brain. In the early years of the child's life, these neurons begin to connect through "neural pathways." A child responds to parental nurturing, verbal communication, and stimulus. Over time, they learn to engage with their surroundings and develop intelligence, mobility, memory, and rational thinking.

Today, children are suffering from a lack of interaction and imaginative play. The neural pathways are formed by a child's repetitive activities and experiences. The prominent role technology now plays in many children's lives has altered these neural pathways. Excessive screen use is shown to disrupt children's cognitive abilities. Increasingly, their brains are trained to crave constant entertainment. Research conducted by Harvard University professor Hiroataka Takeuchi concluded, "Higher frequency of internet use was associated with decreased verbal intelligence and smaller increases in brain volume after a few years. The areas of the brain affected are related to language processing, attention, memory, and executive, emotional, and reward functions." The more children depend on screens as their primary source of entertainment and edification, our society will see a generation lacking education, attention span, and proper interpersonal and critical thinking skills.

As children reach adolescence, heavy screen exposure makes them more susceptible to addictive behaviors. Increasingly, they become removed from engaging in other forms of activity, interaction, and play for prolonged periods. Dopamine, a brain-released chemical that makes one feel good, is the addictive chemical at the center of most addictions. As seen in alcohol, nicotine, gambling, and other validated addictions, the dopamine rush has the power to

alter and dominate a person's entire life. Certain forms of technology trigger this same dopamine rush as other addictions, but there have been few attempts to mitigate screen addiction in children. As our society continues to disregard the reality of screen addiction, the number of youth affected by it is rising.

In 2011, researchers with the National Center for Biotechnology Information (NCBI) found that pathological screen use replicates the same brain neural pathway as in drug addiction and other addictive behaviors. The frontostriatal pathway in the human brain receives signals from dopaminergic cells and processes the brain's cognitive and behavioral response. This pathway that is involved in heavy addictions, such as drug and alcohol addictions, is also triggered by excessive technological consumption. This is evidenced most prominently in video games, as they are easily accessible to children and rarely restricted by parents. Recently, the World Health Organization approved an "Internet Gaming Disorder" (IGD) as an officially diagnosed disorder, to describe individuals that cannot engage in any activities outside of gaming. This disorder exposes the dark reality of technological consumption and the ways our society has enabled and encouraged vulnerable children to become addicted to entertainment.

Psychophysiological resilience refers to the brain's ability to combat addictive behaviors and retaliate. Building psychophysiological resilience during one's childhood comes from social interaction, prolonged attention span, and the ability to focus. Excessive screen use has been found to "hamper the formation of sound psychophysiological resilience," (National Institute for Health). This has caused a surge in Attention Deficit Hyperactivity Disorder (ADHD) behaviors. Now, over 9.8% of children from ages 3-17 years are diagnosed with ADHD (Centers for Disease Control and Prevention). The National Institute for Health found that "one extra hour of

television at age 1 was associated with a 28% increase in the probability of having attentional issues at age 7.” It is undeniable that technology has an effect on ADHD diagnoses, and one could argue it is contributing to an entire generation having hyperactive minds.

Today, children are incapable of experiencing boredom. The idea of boredom holds negative connotations and parents contribute to this by immediately handing their children devices. However, researchers have found that boredom—or less-than-ideal situations—is beneficial for children, teaching them to problem-solve and pursue creative, independent, and ambitious practices (Child’s Mind Institute). The organization Screen Strong established in 2016 seeks to empower parents to rethink the toxicity in screens and counter-culturally choose to be “screen-smart.” This organization is countering the stigma surrounding screen addiction in modern society and parents who out of convenience rely on technology as a means to occupy their children’s time.

While technology has opened up worlds of information and connectivity in society, its negative effects on children must be considered. So, why should we as individuals care about these effects? Beyond its impact on children’s brain development, technology has become a way to cope with adversity and self-medicate pain. Children grow into adolescents and then adults who look to technology for freedom from painful circumstances and a way to disguise their insecurities. This is producing an increasingly fragile generation susceptible to deception.

What is instilled in the earliest years of childhood matters. Instead of relying on screens to entertain and educate their children, parents need to put more effort into providing their children with tangible experiences and spaces to explore, interact, and imagine. True progress in

society is shown in the cultivation of one's character and depth of belief, both of which are being inhibited by society's rampant use of technology.

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