How Video Games Affect a Child's Brain and Behavior

Christa Melnyk Hines

Like many parents with tech-savvy kids, educator Donna Volpitta, Ed.D., tries to provide practical guidance around electronics with her family, which includes two daughters and two sons, ranging in ages from 10 to 16.

When it comes to video games, Volpitta's fifth grader is typical of many boys his age. If kids aren't coming over to his house to play video games, he's going to their homes, or he's joining them online.

"It's part of their world. It's part of their social life," says Volpitta, founder of the Center for Resilient Leadership and the author of *The Resilience Formula*. "But it's important to teach them mindful use and what video games do to your brain."

Short Term vs. Long Term Impact

For many of today's kids, unstructured free time for dreaming up creations, constructing forts, or collaborating with buddies to make up games, has been replaced with structured activities and electronics.

While video gaming can provide a fun way for peers to connect and enhance skills like hand-eye coordination and problem-solving, it can't help kids build resilience in the same way that solving a more complex problem can.

Suppose your child is trying to assemble a paper airplane that flies across the room instead of nose-diving the minute it hits the air. He looks up ideas online, tries different techniques, folds, refolds, experiments, and tries again. With a pile of frustrated attempts balled up around him, he finally experiences the sweet thrill of success as he tosses a plane into the air and watches it glide gracefully across the room.

"It's representative of the fact that self-esteem is not a gift you can give your kids," Volpitta says.

When we pursue and achieve a hard-won goal, the brain is flooded with dopamine, the reward neurochemical, and serotonin, the self-confidence neurochemical. Furthermore, persistance and creative problem-solving builds resilience, a skill that will be invaluable as problems crop up throughout life.

"It's not that video games don't offer some level of persistence, but there's a very straight and narrow path toward that next goal," Volpitta says.

Video games offer users short bursts of reward chemicals that often leave them wanting more. "It's almost like having a chocolate chip as opposed to a Hershey bar," Volpitta explains.

The desire for more quick, pleasurable hits of dopamine and serotonin and unlimited access to gaming ultimately primes the brain for addiction.

In effect, too much screen time starves the cortex of the brain, which is in charge of long-term decision-making, and it overfeeds the limbic system, which is the emotional, fight-or-flight part of the brain. Over time, this wires the brain for a short attention span, impulsive behavior, and an inability to pick up on social cues.

Why Boys?

According to Common Sense Media, boys are more likely than girls to play video games and spend about an hour a day gaming.

Hilarie Cash, Ph.D., is a founding member and chief clinical officer of reSTART Life, a Seattle-area internet and digital technology addiction residential treatment program for adolescents and young adults. The patients that Cash and her colleagues treat are primarily male, between the ages of 13 and 30. She believes that for many boys and young men, especially those who are bullied or feel ignored in the real world, video games appeal to their competitive spirit and offer a sense of belonging to a community.

"The games are even designed to make them look and feel like demigods. That's irresistible," Cash says. "It's so much easier to achieve status and recognition online and in those communities than it is out in the real world."

But, in reality, screen-mediated relationships simply can't fulfill our deeply ingrained biological need for social connection.

"When you're in the presence of someone you feel safe with and care about, the brain releases a whole bouquet of neurochemicals that's referred to as limbic resonance," Cash says. "Those neurochemicals keep each of us in the relationship feeling well emotionally and physiologically. Screen-mediated relationships don't produce limbic resonance."

In general, women and girls tend to be turned off by the misogynistic culture of many online gaming communities, preferring more social or casual puzzle-type games and social media, which has its own addictive qualities.

You Are What You Consume

Just as the type of food you eat affects your body, the content you feed your brain influences your behavior.

"Continued and excessive exposure to violence puts a child into a reality where violence is an acceptable way of solving problems," says pediatrician Raun Melmed, M.D., author of the children's book *Timmy's Monster Diary: Screen Time Stress.*"Kids who are exposed to violence are more anxious, more fearful, and, very likely, more prone to violence."

Cash agrees, noting research indicating that the level of empathy among college students has dropped by nearly 40 percent in recent years.

"A lot of that is attributed to video games and the antisocial environment of the internet. People are becoming inured to antisocial behavior and not developing the good emotional and social intelligence needed to promote empathy," Cash says.

Research the games your child wants to play before you buy them, and if you do purchase them, play or watch them together. Seek pro-social games and those that

encourage creative problem-solving. Check out CommonSenseMedia.org for ratings and reviews.

Avoiding Addiction

Gaming becomes problematic if it's all your child seems to think or talk about, and if they exhibit agitation or anger when you try to set limits.

"The similarities between kids who play too many video games for long periods of time and those who are addicted to anything else, from drugs to alcohol or cigarettes, is equivalent," says Melmed.

Melmed suggests coming up with a media plan as a family, outlining rules that both parents and kids agree to follow. For example, consider how much video game time is appropriate each day and at what time electronics will be powered down each evening to ensure a good night's sleep.

Also, consider having a digital-free day once a week. For the days you do allow screens, designate meals as screen-free time for all the family members. "Make sure mealtime is an interesting time—a time for sharing and interacting," Melmed advises.

By creating appropriate limits and understanding how video games impact the brain, you will feel more in control as a parent, despite the rapidly changing digital landscape. And while they probably won't express appreciation for vigilance, your kids will feel safer too.

"The brain needs to feel safe, and it feels safe with those limits, with knowing that somebody is in control," Volpitta says.

Christa Melnyk Hines is the author of *Happy, Healthy and Hyperconnected: Raise a Thoughtful Communicator in a Digital World*.