Life & Arts -- Family & Tech: Girls vs. Boys: Brain Differences Might Explain Tech Behaviors --- Among the recent research, a look at the brain's rewards regions

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FULL TEXT

Many parents of both boys and girls have witnessed striking differences in the way their kids use technology, with their sons generally gravitating to videogames and their daughters often spending more of their screen time scrolling through social media.

Emerging research indicates that brain differences between males and females help account for the split.

"It is entirely plausible from a neurological perspective that there's an underlying biological component to this difference people are seeing," said Larry Cahill, a professor of neurobiology and behavior at the University of California, Irvine, who has spent decades researching gender differences in the brain.

In this column I've chronicled the aggression some boys exhibit when they have to shut off videogames as well as the problems some young men face when they go to college and have to juggle game time and school work without mom and dad's help.

That led some readers to question why girls don't appear to be having these problems. Of course, girls have issues of their own, such as smuggling "burner" phones to keep up with forbidden social media accounts. It's just that when it comes to videogames, most girls seem to have a better handle on when to stop.

According to a 2017 survey conducted by Pew Research Center, 41% of teenage boys said they spend too much time playing videogames while only 11% of girls said they do.

Marc Potenza, a psychiatry professor at Yale University, teamed up with researchers at universities in China to find out why. Using functional MRIs, which measure brain activity by detecting changes in blood flow, the team studied neural responses in young male and female gamers, particularly in the parts of the brain associated with reward processing and craving -- a motivating factor in addiction. When the men and women were shown photos of people playing videogames, those parts of the men's brains showed higher levels of activation than those parts of the women's brains.

Brain regions that have been implicated in drug-addiction studies also were shown to be more highly activated in the men after gaming. The researchers said the results suggest men could be more biologically prone than women to developing internet gaming disorder.

But girls and women aren't free from problems when it comes to digital media. Data from Pew shows that, in general, women use social platforms such as Facebook, Instagram and Pinterest far more than men. Many girls and women are drawn to those photo-sharing sites because they like to form bonds and find similarities, says Rosanna Guadagno, a social psychologist at Stanford University.

Even if women only use those sites more than men because that is where their friends are, many experts and parents say they have found that girls appear to have a greater fear of missing out, which compels them to keep up with what their friends are posting. Some studies show that girls feel the ill effects of too much social media use, such as depression and anxiety, more than boys do.

Liz Repking, a cyber safety expert and mother of three in suburban Chicago, has seen the differences in her own

sons and daughter. This summer, her 15-year-old daughter said her phone was driving her crazy. She told her that she felt pressured to follow her friends' Instagram stories and like and comment on their posts, and that it was eating up a lot of her time, Ms. Repking said.

Her sons, 18 and 21, use social media -- Snapchat, in particular -- mostly to communicate with friends but don't feel compelled to keep up with what people are posting. "There's more peer pressure and validation I see with it for her than for the boys," she said.

In August, Ms. Repking's daughter decided to impose some limits, such as being on her phone no more than three hours a day and checking Instagram less frequently. "When I asked her a week later how that was going, she said, 'I'm only looking at Instagram three times a day but I can't catch up,' " Ms. Repking said.

One might argue that multiplayer videogames are the way boys connect with friends online. But it's different. "Videogames can be social but there's also a physical distance because you don't see photos, and communication is largely through text, which is more consistent with the direct way men tend to communicate with each other," Dr. Guadagno said.

Researchers at the University of Zurich looked at how differences in brain functioning can help explain why women tend to be more prosocial -- that is, helpful, generous and cooperative -- than men. In the 2017 study, they hypothesized that the areas of women's brains related to reward processing are more active when they share rewards and that those areas in men are more active when receiving selfish rewards. Brain scans conducted on men and women, in which they chose between receiving a monetary reward only for themselves or one that involved sharing money with others, supported their theory.

The Lego Group learned a lot about the prosocial nature of girls more than a decade ago when it conducted research on who buys the brick building kits. At the time, about 90% of the Lego sets purchased in the U.S. were intended for boys. That led the company to conduct more research with girls which revealed, among other things, that girls wanted more role-playing opportunities. Lego created a pastel-colored line called Friends, which sold well but was criticized by some consumer groupsfor reinforcing gender stereotypes.

Academics who study gender differences also have faced backlash for pointing out that boys and girls aren't the same.

"It's not a debate that there are sex influences throughout the mammalian brain," said Dr. Cahill. "How they all play out is what we should responsibly explore."

Scientists say understanding those differences is critical to parents' ability to help kids navigate the fast-changing world of tech.

Our brains haven't caught up to modern times, says Dr. Guadagno, which is why kids' digital behavior can feel so confusing and overwhelming to parents trying to manage it. "Human brains are wired for survival on the savanna," she said. "They're not wired for social media and videogames."

Credit: By Julie Jargon

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