

What Is Problematic Use of Digital Technology

Youth & Digital Technology: Growing Up Online Toolkit

Digital Technology Impact

Digital technology offers significant benefits for children and youth, such as increasing literacy, enhancing the learning process, augmenting access to information quickly, and fostering social connections. Through learning apps, e-books, reading programs, and online educational videos, children and youth engage in interactive learning experiences. Digital technology also provides opportunities for creative expression, skill development, and even career preparation in areas such as coding, digital design, and online entrepreneurship. Digital platforms can facilitate peer collaboration and allow for the exploration of diverse cultures and global perspectives, fostering a more interconnected worldview [1].

The current generation of adolescents is uniquely influenced by the presence of digital technologies, particularly following the COVID-19 pandemic. With schools transitioning to remote learning, technology became the primary tool for accessing education, social connection, entertainment, and health resources [2]. AI-powered tools, such as personalized learning platforms and virtual tutors, enhance learning by adapting content to individual abilities, bridging knowledge gaps, and supporting mastery of complex topics. Generative AI, capable of creating original text, images, videos, and music, further expands opportunities for learning and self-expression. International research highlights the importance of participatory approaches that integrate both quantitative and qualitative methods to better understand the health and behavior of today's youth [3].

Concerns Surrounding Digital Technology Use

Despite the benefits of digital technology, parents, families, and caregivers frequently identify the misuse, overuse, and unsupervised access to online involvement and digital time as a concern. Misuse is associated with issues such as stress, loneliness, decreased attention spans, emotional challenges, and sleep disturbances. Additional concerns include hyperactivity, aggression, antisocial or fearful behavior, and the risk of technology addiction [4]. Children and youth are also vulnerable to cyberbullying, exposure to inappropriate content, and online predation, further compounding mental health challenges.

The growing integration of AI into daily life has sparked discussions about its impact on youth technology use. While AI enhances education and creativity, it also raises challenges. Generative AI can introduce biases, where flawed training data or algorithms lead to unfair or discriminatory outcomes. Moreover, widespread AI tool use may contribute to increased screen time, reduced physical activity, disrupted sleep, social isolation, and privacy concerns, including unauthorized data collection [3].

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informationandcystandards@recoveryalberta.ca

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Digital Technology & the Brain

Excessive digital technology use activates the brain's reward system, releasing excess dopamine and potentially leading to addictive behaviors. Research indicates that overuse can alter neural pathways, affecting self-regulation, impulse control, and decision-making. Structural and functional brain changes, such as reduced gray matter density in regions related to executive functioning and emotional regulation, have been observed in individuals with excessive technology use [4].

Additionally, excessive engagement with technology has been correlated with physical health challenges, such as sedentary behavior, obesity, and musculoskeletal problems stemming from poor posture. These issues underscore the importance of balanced and mindful use of digital tools.

Understanding the Connection Between Digital & Substance Use

This toolkit includes a visual (Figure 1) that helps explain how substance use (like alcohol, tobacco, or drugs) and non-substance behaviors (such as social media, gaming, online gambling, and pornography) are connected. Both types of use can affect mental health in similar ways and may lead to addiction or emotional challenges. Understanding these connections can help families, caregivers, and service providers better support children and youth. With awareness and guidance, we can encourage healthy habits and reduce risks as young people grow up in a digital world.

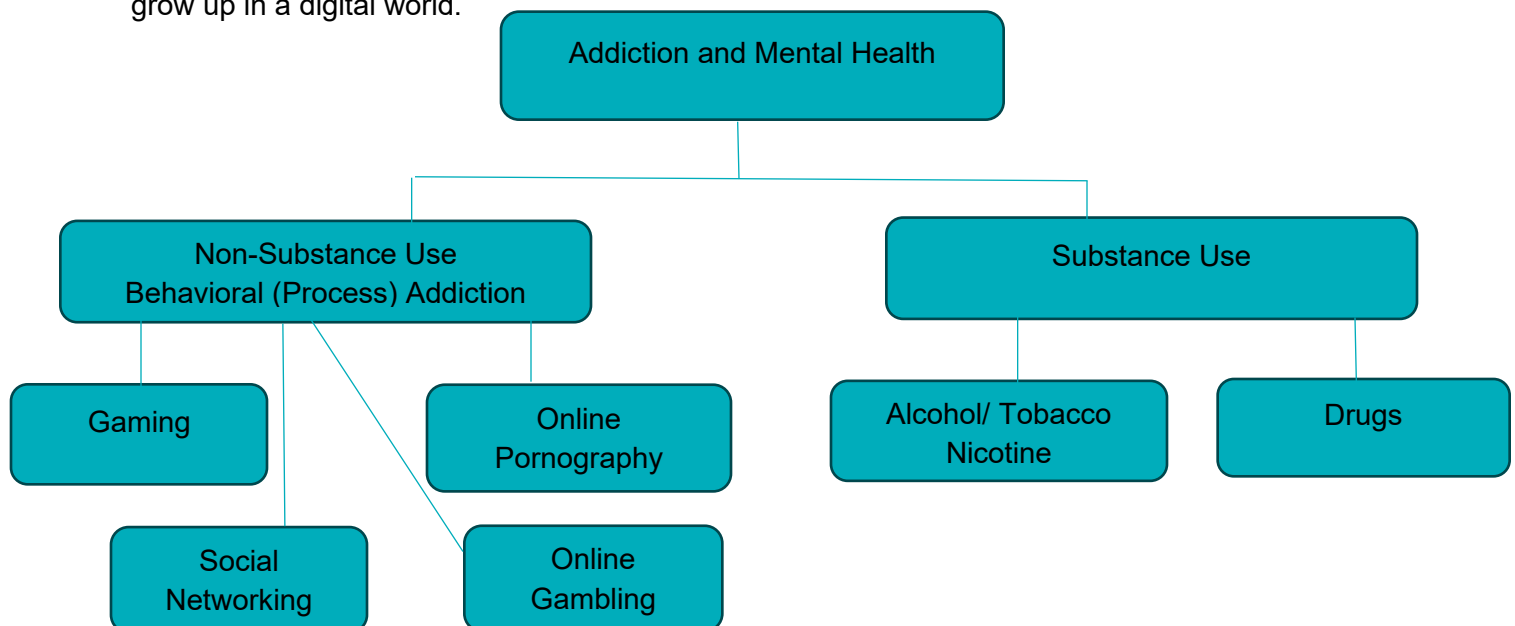


Figure 1: Connection Between Digital & Substance Use

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Figure 2 illustrates how healthy and problematic use of digital technology exists on a continuum. While accessibility to digital technology offers many benefits, it can also lead to excessive use, which may escalate into problematic behavior.

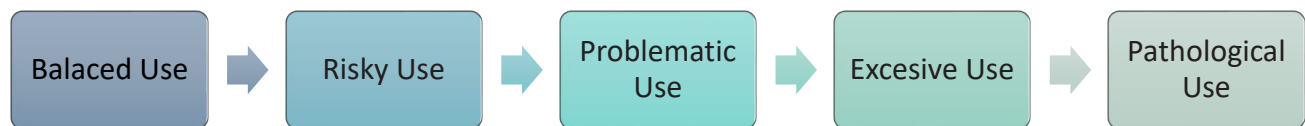


Figure 2: Continuum of Use adapted from The Center for Addiction and Mental Health [5].

Digital technology use exists on a continuum from healthy to problematic. Repeated exposure to digital technology stimuli contributes to changes in the brain and limits the development of coping skills and responses to natural rewards. Children and youth who use digital technology may encounter challenges leading to overuse of technology and exposure to other risks such as isolation, impulse control disorders, depression and anxiety, obesity, sleep problems, cyberbullying, and violence even though no addictive substance is involved [6, 7].

Service providers need to be aware that younger users are more at risk of addictive use of technology than most adults for different reasons: a) Social culture: a large part of their social culture involves communicating via digital media, including email, social media, and texting [8]; b) Rapid adaptation: young people adapt to new technologies faster than adults, and are more likely to lose track of time while on social media [9]; and c) Vulnerability: research suggests youth are more susceptible to involvement in unsafe and illegal activities such as harassment, privacy violation, defamation of character, intentional infliction of emotional distress, bullying, and exposure to inappropriate information.

While problematic digital technology use is a growing concern in youth, it has not yet been classified as a standalone disorder in the Diagnostic and Statistical Manual of Mental Disorders 5th edition text revision (DSM-5-TR) [10].

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