What role do digital literacy programs and policy interventions play in mitigating the mental health impact of social media on adolescents?

Akela Villegas

Professor Pete Baker

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The Digital Dilemma: Examining Social Media's Impact on Mental Health

The rapid increase in the number of social media platforms has revolutionized communication, entertainment, and information sharing. However, this digital evolution has also given rise to significant mental health concerns, particularly among adolescents and young adults. The correlation between social media usage and mental health issues such as anxiety, depression, and low self-esteem is well-documented. By combining insights from psychology, neuroscience, education, public policy, and law, we can better understand the complexity of the issue, mitigate the negative effects of social media on mental health, and explore the multifaceted benefits of digital literacy programs and policy interventions.

Social media platforms like Facebook, Instagram, and TikTok are integral to the daily lives of millions. Despite their benefits, these platforms can contribute to mental health problems. Studies and psychological research show that excessive social media use is linked to increased levels of anxiety, depression, and feelings of loneliness. Adolescents and young adults are particularly vulnerable, as their self-esteem and self-worth are often influenced by online interactions and the perceived perfection of others' lives.

From a neuroscience perspective, these effects can be partially explained by the adolescent brain's sensitivity to social validation and peer feedback. The brain's reward system, particularly the release of dopamine, is highly active during adolescence, making likes, shares, and comments particularly reinforcing (Tereshchenko, 2023). This neurobiological mechanism increases the likelihood of compulsive behaviors, such as compulsively checking notifications or scrolling through content for hours. "Perhaps one of the most prominent features of social reward mechanisms in social media is the iconic 'thumbs up' (giving or getting a 'Like'; co-developed

by Justin Rosenstein, former worker at Facebook). Likes demonstrate either positive social feedback on one's own posts or to give another person such a feedback. The power of such feedback has also been proven neuroscientifically, when Instagram users are confronted with their own posted pictures from their account which were manipulated by being presented either with many or few 'Likes' (in this case hearts). Pictures being presented with many Likes elicit stronger activity in the ventral striatum, an area involved of the processing of a rewards. It has even been demonstrated that lower gray matter volumes of the nucleus accumbens are associated with longer and higher frequent usage of the Facebook app on smartphones, underlining its addictive power. Additionally, several other studies observed that lower gray matter volumes were associated with higher addictive tendencies" (Montag et al., 2019). Moreover, neuroimaging studies have found that the same brain regions activated by addictive substances are also triggered by excessive social media use (Minamitani, 2024). These findings suggest that problematic social media behavior should be treated with the same seriousness as other behavioral addictions. Overconsumption of online content, especially negative, can lead to increased social anxiety, withdrawal from real-life interactions, and an overall decline in social well-being. By incorporating this scientific knowledge into digital literacy education, schools can better explain why adolescents are particularly vulnerable and equip students with cognitive strategies to resist harmful patterns of use.

By weaving together psychological patterns and neurological evidence, it becomes clear why adolescents are particularly susceptible and why interventions must address both emotional and biological factors. Transitioning from the neurological basis to educational strategies is crucial for a holistic response. Understanding the brain's vulnerabilities underscores the necessity of proactive education.

The educational system plays a pivotal role in shaping students' knowledge, behavior, and emotional well-being. By embedding digital literacy and mental health education into existing curricula, schools can act as proactive institutions rather than reactive ones. Programs focused on media literacy have been shown to improve students' critical thinking and reduce susceptibility to misinformation and unrealistic online portrayals. The American Academy of Pediatrics states that educating children and adolescents about the risks and benefits of digital media use should be an essential part of the school curriculum (Chassiakos et al., 2016).

Digital literacy programs should also teach students how algorithms work—how content is curated and tailored to maximize engagement. Understanding these concepts empowers students to make more mindful choices about their online activities. Furthermore, mental health education can teach emotional regulation, coping strategies, and stress management, fostering a culture of openness around mental well-being (Office of the Surgeon General, 2025).

It is a fundamental responsibility of educational institutions to equip students with the knowledge and skills to navigate contemporary challenges. As social media is an integral part of modern life, understanding its impact on mental health is essential. The long-term benefits of this solution outweigh the costs. Improved mental health leads to better academic performance, reduced absenteeism, and overall well-being. By addressing these issues early, we can prevent the development of more severe mental health problems later in life. Importantly, educational interventions must be interdisciplinary in their design—melding cognitive science, emotional intelligence training, and media studies to provide a well-rounded foundation for students. Building on the foundation of educational reform, system-level support through public health and policy initiatives becomes the next vital component.

From a public health standpoint, the rise in adolescent mental health issues is a crisis. The World Health Organization (2024) has noted that screen time and social media use are key contributors to increased rates of depression, anxiety, and sleep disruption in youth populations. Public health initiatives aim to shift focus from treatment to prevention, and digital literacy programs align with this philosophy. For instance, the Royal Society for Public Health advocates for including mental health education in schools as a preventative strategy. Their research highlights the impact of social comparison on mental well-being and underscores the importance of helping students differentiate between curated online personas and real life. (Cramer & Inkster, 2017). A public health-informed curriculum would promote resilience, emotional intelligence, and informed digital habits.

As the concern for the public health of adolescents grows, policy interventions are essential to support and enforce the implementation of digital literacy and mental health programs in schools. While some critics argue that social media companies should bear the primary responsibility, an effective strategy requires cooperation across sectors. Regulatory approaches, such as the Children's Online Privacy Protection Act (COPPA) and new data transparency initiatives, offer a legal framework, but they must be supplemented with education to be effective. Legislation like COPPA and the proposed Kids Online Safety Act (NAMI, 2025) exemplify the legal system's evolving role. COPPA initially aimed to protect young users' data privacy but is increasingly viewed as outdated in the face of emerging technologies. Meanwhile, the Kids Online Safety Act seeks to hold tech companies accountable for creating safer online environments, mandating algorithm transparency, and enhancing privacy controls for minors.

A policy-based solution can also address disparities in access. Without standardized requirements, only well-funded schools might implement such programs, leaving at-risk students behind. National legislation mandating digital literacy and mental health education would ensure equitable access for all students, regardless of socioeconomic status. This is especially important considering that adolescents from marginalized communities are often more vulnerable to the negative effects of social media, such as cyberbullying or exposure to harmful content (American Psychological Association, 2023). The National Alliance on Mental Illness (NAMI) has taken steps towards policy changes, such as:

- NAMI **resource** on social media and your family
- NAMI **resource** on how to reduce screen time
- NAMI and mental health advocate **letter** urging the U.S. Surgeon General to raise awareness about the impact of social media use on youth mental health
- NAMI **testimony** to the Democratic Women's Caucus on the mental health crisis among teen girls
- NAMI and mental health advocate **letter** to Senate leadership in support of the Kids Online Safety Act (2025)

Having discussed the legal and systemic frameworks, it is essential to recognize the economic forces that necessitate such interventions.

Social media platforms are designed to maximize user engagement for profit. Freemium models and algorithmic recommendation systems often prioritize addictive behaviors to increase ad revenue (Montag et al., 2019). This creates a conflict of interest between user well-being and corporate profit, particularly when adolescents are the target demographic. Digital literacy

programs must therefore educate students about these economic incentives. Understanding the commercial drivers behind platform design fosters media skepticism and reduces the likelihood of harmful behaviors. At the same time, policy measures can pressure companies to increase transparency, provide opt-out options for algorithmic tracking, and design age-appropriate user interfaces. Several alternative proposals could be implemented as well, like:

1. Parental Controls and Monitoring: Encouraging parents to monitor and regulate their children's social media use. However, this approach places the burden on parents, who may lack the necessary knowledge and resources.
2. Social Media Regulations: Implementing stricter regulations on social media platforms to limit harmful content and reduce screen time. While important, these measures alone are insufficient without educational support.

Public policy, education, and consumer pressure must converge to demand transparency and accountability from tech companies. In this sense, digital literacy education not only prepares students but also cultivates informed citizens capable of advocating for their own digital rights.

Despite the distinct lenses through which each discipline views this issue, a common thread runs through them all: education is a critical catalyst for change. Psychology and neuroscience show us why adolescents are vulnerable. Education provides the means to empower them. Public health highlights the urgency of preventive strategies. Policy ensures that access is equitable and consistent. Lastly, economics reveals the systemic incentives that perpetuate the problem. Together, these disciplines support a comprehensive, proactive, and sustainable approach. Implementing digital literacy and mental health education not only addresses immediate

concerns but also lays the foundation for long-term resilience and digital citizenship among adolescents.

To fully implement this interdisciplinary strategy, collaboration is key. Policymakers must work with educators, mental health professionals, neuroscientists, and technologists to design and roll out evidence-based curricula. Pilot programs should be tested and refined based on student feedback and measurable outcomes, such as reduced screen time, improved emotional well-being, and higher academic performance. Moreover, universities and teacher-training programs should prepare future educators to deliver this content effectively. Teachers must be equipped not only with the curriculum but also with the confidence and resources to address mental health topics sensitively and accurately. Social media companies should also be part of the conversation. While their primary responsibility may lie in ethical platform design, they can also support educational initiatives by funding research, providing resources, and ensuring that their tools are compatible with wellness objectives.

Critics may argue that adding another mandatory subject to the curriculum could overwhelm students and educators. However, the integration can be designed to complement existing subjects, such as health education or life skills programs, minimizing additional burden. Others may believe that the responsibility lies with parents or social media companies. While parental guidance and corporate accountability are important, schools are uniquely positioned to provide consistent, standardized education to all students.

Protecting adolescent mental health in the digital age requires a balance between educational empowerment and systemic regulation. Digital literacy programs provide adolescents with the critical skills to navigate online spaces thoughtfully, fostering resilience against harmful content

and addictive behaviors. Meanwhile, legal frameworks like COPPA and the Kids Online Safety Act attempt to regulate the environment itself, limiting exposure to risks at a structural level. However, these interventions must work in tandem. Education alone cannot counteract profit-driven platform designs without accompanying regulatory safeguards, while regulation without education risks creating restrictions that adolescents do not fully understand or respect. Together, they complement each other, with education empowering individual agency and regulation shaping a safer digital landscape. This interdisciplinary strategy offers a comprehensive path forward through a synthesis of psychology, neuroscience, education, public health, and law. As the World Health Organization (2024) affirms, supporting young people to develop digital resilience is not optional—it is essential. By combining preventive education with proactive regulation, we can foster a healthier, more resilient generation equipped to thrive both online and offline.

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