

The Impact of Gadget Use on Mental Health and Student Motivation to Learn at School

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ABSTRACT. The development of digital technology has brought significant changes to the world of education; however, uncontrolled gadget use poses serious problems for students' mental health and learning motivation. This study is crucial for understanding the complex relationship between digital technology and adolescent well-being to develop effective and sustainable intervention strategies. The primary objective of this article is to deeply and comprehensively analyze the impact of gadget use on the mental health and learning motivation of students through a systematic literature review. The method employed is qualitative with a literature review approach, synthesizing data from various scientific databases published between 2014 and 2024. The results indicate that excessive gadget use triggers emotional disorders, depression, anxiety, and sleep disturbances that damage cognitive functions. Mental health was found to act as a mediating variable that directly contributes to the decline of intrinsic motivation and academic engagement. This article contributes a holistic approach integrating psychological and pedagogical aspects, while offering practical, measurable recommendations for educators and parents to mitigate the negative impacts of technology in the school environment.

Keywords: *Gadgets, Mental Health, Learning Motivation.*

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INTRODUCTION

The development of digital technology has brought significant changes to various aspects of human life, including education. Gadgets, as products of advances in information and communication technology, have become an integral part of modern society's daily life, especially among students. According to the latest APJII survey (2023), internet users in Indonesia have reached 215 million people, with the majority being young people who are active in education. The use of gadgets among school students has increased dramatically, especially after the COVID-19 pandemic (Twenge, 2019). Although gadgets offer various benefits such as broad access to information, ease of communication, and opportunities for online learning, uncontrolled use poses serious problems for students' mental health and academic achievement. (Cain & Gradisar, 2010) This phenomenon is a major concern for educators, parents, and mental health professionals.

Recent research shows that excessive use of gadgets can have comprehensive negative effects on students. From a mental health perspective, high intensity of digital media use correlates with an increased risk of depression, anxiety, sleep disorders, and decreased concentration and psychological well-being in adolescents (Orben & Przybylski, 2019). Additionally, problematic smartphone use is also associated with reduced self-regulation and academic motivation, which ultimately impacts students' academic performance (Kim, 2020). Uncontrolled use of social media and online games not only affects psychological well-being but

is also associated with reduced quality of social interaction and increased social isolation among adolescents (Shensa et al., 2020).

Research on the impact of gadget use on adolescent mental health has been widely examined in recent literature. A study by Twenge & Campbell (2018), published in *Preventive Medicine Reports*, found that increased screen time is associated with lower psychological well-being among children and adolescents, including higher levels of depressive symptoms and anxiety. These findings are further supported by a meta-analysis conducted by Orben (2020) in *Nature Human Behaviour*, which confirmed a statistically significant though small to moderate association between digital media use and adolescents' psychological well-being. Moreover, a longitudinal study by (Zhao et al., 2022), published in *JAMA Network Open*, reported that excessive digital media use is linked to an increased risk of internalizing disorders such as depression and anxiety in early adolescents. Similarly, research by Lee (2022) demonstrated that prolonged digital device usage correlates with emotional dysregulation and behavioral problems. However, these studies primarily focus on clinical and psychological dimensions without thoroughly examining the implications within school contexts and academic motivation.

Simanjuntak and Wulandari (2022) examined emotional and behavioral disorders among adolescents resulting from gadget addiction through a systematic literature review of 22 scholarly articles. Their findings indicate that gadget use can generate positive outcomes when utilized wisely, such as expanding access to information and facilitating self-expression. However, the study does not provide operational or context-specific recommendations applicable to formal educational settings, particularly schools. Similarly, Kamaruddin et al. (2023), in their article entitled "The Impact of Gadget Use on Students' Mental Health and Learning Motivation in Schools," employed a literature review approach to explore the interrelationship between mental health and learning motivation in a holistic manner. While their study contributes conceptually by integrating these two dimensions within a unified analytical framework, the discussion remains largely theoretical and does not propose specific, implementable strategies for educational practice.

In contrast to prior research that tends to examine psychological well-being and academic engagement in isolation, the present study advances a more integrative and systemic perspective. It conceptualizes mental health and learning motivation as dynamically interconnected constructs that reciprocally shape one another within the broader ecology of students' developmental contexts. Recent scholarship emphasizes that psychological well-being, emotional regulation, and perceived academic competence form a mutually reinforcing system that significantly predicts persistence, engagement, and achievement (Barahona et al., 2023). By adopting this holistic framework, the study positions mental health not merely as a background variable, but as a central determinant of motivational quality and sustainability in contemporary digital learning environments.

Furthermore, this research extends beyond descriptive or correlational approaches by examining the underlying causal pathways through which excessive gadget use may undermine students' psychological functioning. Emerging evidence suggests that prolonged and dysregulated screen exposure is associated with heightened anxiety symptoms, sleep disturbances, reduced self-regulation capacity, and diminished intrinsic motivation, particularly among adolescents (Priftis & Panagiotakos, 2023). Drawing on contemporary motivational and self-determination frameworks, the study analyzes how compromised psychological needs such as autonomy, competence, and relatedness mediate the relationship between digital overuse and declining academic drive.

By integrating recent empirical findings with a mechanism-based analytical model, this article aims to contribute both theoretical refinement and practical relevance. Theoretically, it offers a nuanced explanation of how digital behavior patterns intersect with mental health processes to shape motivational outcomes. Practically, it provides evidence-informed insights to guide educational policy formulation, digital literacy programs, and school-based mental health

interventions designed to foster balanced technology use and resilient learning motivation in the digital era.

The main purpose of this article is to analyze in depth and comprehensively the impact of gadget use on students' mental health and learning motivation in schools through a systematic literature review approach. Specifically, this article aims to Identify and analyze the negative impact of gadget use on students' mental health, including emotional disorders (depression, anxiety), sleep disorders, decreased concentration, and other psychosomatic problems that manifest in the school context (Kuss & Griffiths, 2017). Explain the mechanisms by which excessive gadget use affects student learning motivation, including an analysis of changes in learning behavior, decreased academic engagement, and reduced focus in the learning process. Explore the causal relationship between impaired mental health and decreased learning motivation, so that it can be understood how these two variables influence each other in the educational ecosystem. Thus, this article not only contributes academically to understanding the phenomenon of gadget use among students, but also has high practical relevance in various educational contexts and everyday life.

METHOD

This study employed a qualitative approach using a literature review design to systematically examine the impact of gadget use on students' mental health and learning motivation based on previous research findings. A literature review enables researchers to identify, evaluate, and synthesize relevant studies to develop a comprehensive understanding of a particular phenomenon (Kitchenham & Brereton, 2013).

Data were collected through searches of academic databases including Google Scholar, Science Direct, PubMed, and Indonesian national journal portals (Garuda and Sinta). The keywords used were "students' gadget use," "mental health," "learning motivation," and "technology impact on learning." The selected literature was limited to publications from 2014-2024 to ensure relevance and currency, while seminal theoretical works were included where necessary.

Data were analyzed using a thematic analysis approach following systematic and rigorous procedures to ensure credibility and analytical depth. First, the researchers conducted data familiarization and reduction by selecting and organizing relevant and meaningful information aligned with the research objectives (Nowell et al., 2017). Second, initial codes were generated and developed into themes through an iterative process of reviewing, refining, and organizing patterns across the dataset to achieve conceptual coherence (Braun & Clarke, 2022) Third, a process of thematic synthesis and interpretation was undertaken to explore relationships among themes, identify consistencies and contradictions, and highlight theoretical implications and research gaps (Korstjens & Moser, 2018).

The findings are presented in a descriptive narrative format, supported by tables or diagrams where necessary to clarify thematic relationships and conceptual patterns. Trustworthiness was ensured through the principles of credibility, dependability, confirmability, and transferability (Korstjens & Moser, 2018). These principles were implemented by using peer-reviewed sources, systematically documenting the review process, presenting findings objectively, and providing sufficient contextual description to ensure academic rigor.

RESULT AND DISCUSSION

Result

1. The Comprehensive Impact of Excessive Gadget Use on Students' Mental Health

Excessive use of gadgets, especially those that lead to gadget addiction, has been proven to have a significant negative impact on the psychological and emotional dimensions of students in

the school environment. A review of the literature consistently identifies that uncontrolled use can trigger various mental health disorders, including increased levels of depression, anxiety, and stress (Thomée, 2018). Studies show that gadget addiction can have a significant impact on the emotional instability of adolescents, causing them to become more irritable and have difficulty controlling the urge to continue using digital devices (Kuss & Lopez Fernandez, 2016). These disorders often manifest themselves in school settings, such as difficulty concentrating in class or rapid mood swings that interfere with interactions with peers and teachers (Twenge, 2019).

In addition to emotional disturbances, excessive gadget use is also closely associated with sleep disorders and decreased concentration. Exposure to blue light from gadget screens, especially before bedtime, disrupts the production of the hormone melatonin, which in turn causes a decline in the quality and quantity of students' sleep (Harbard et al., 2016). Lack of quality sleep has a direct impact on cognitive function, causing difficulties in processing information, remembering lesson material, and maintaining focus during the learning process at school (Woods & Scott, 2016). Furthermore, intensive use of social media can create pressure to maintain a perfect online image, contributing to social phobia and feelings of isolation or loneliness, even though they are virtually connected to many people.

The phenomenon of cyberbullying and trolling that often occurs through digital platforms is also a major risk factor that worsens students' mental health. As victims, students can experience severe psychological stress, anxiety, and depression, which then affects their sense of security and comfort in the school environment (Kowalski et al., 2014). Neurobiologically, constant notifications and fast-paced digital activities form a pattern of digital multitasking that impairs long-term focus and cognitive efficiency, causing students to experience attention residue or difficulty in fully switching from gadget activities to academic tasks. Therefore, the impact of gadgets on mental health is a comprehensive issue that goes beyond mere bad moods, encompassing serious physiological, emotional, and cognitive changes.

Table 1. How To Deal With The Impact Of Gadgets On Students' Mental Health

No	Negative Impact	Handling Strategy
1	Anxiety & Depression	Set a strict daily schedule and encourage offline social activities.
2	Decreased Concentration	Ban gadgets at least 60 minutes before bedtime and ensure the bedroom is technology-free.
3	Social Isolation	Eliminate technological distractions while studying and teach focus techniques.
4	Sleep Disorders	Encourage face-to-face interaction and schedule activities that require direct communication.

2. Motivation for Learning Decline and Student Academic Engagement

The relationship between excessive gadget use and decreased student motivation to learn is an important finding in the literature. When students' time and energy are absorbed by non-educational activities on gadgets such as playing online games and browsing social media, the time that should be used for studying, doing homework, or socializing at school is drastically reduced (Hawi & Samaha, 2017). This tendency results in procrastination of academic work, where school assignments are considered less appealing than the instant gratification offered by digital content (Montag & Walla, 2016).

This decline in motivation is not only evident in low academic grades, but also in reduced academic engagement among students in the classroom. Students become less focused, are often distracted by gadget notifications, and show a decline in interest in learning (Sari et al., 2021). In some cases, it has been found that inappropriate use of smartphones, even in the context of learning, can cause distractions and affect students' overall attitudes and behavior (Chairiyah & Anggraeni, 2022). Although some studies show that the influence of gadgets on learning

motivation has a small effect, the majority of literature highlights that high intensity negatively erodes students' internal drive to achieve.

This decline in learning motivation is also exacerbated by a shift in value priorities. Students tend to place more importance on interactions and achievements in the digital world (such as levels in games or the number of likes on social media) than on achievements in the real world, including academic success (Br Purba, 2024). This creates a gap between the effort made and the expected results in the educational process. Therefore, the challenge faced by schools is not the existence of gadgets themselves, but rather how their uncontrolled use shapes behavior patterns and habits that do not support effective learning discipline and self-regulation.

Table 2. How To Handle The Impact Of Declining Student Learning And Motivation

No	Negative Impact	Handling Strategy
1	Study time absorbed by digital content	Establish strict no-gadget policies during study and assignment hours.
2	Lack of focus, low interest in learning	Use interactive teaching methods to make lessons more engaging than gadgets.
3	More concerned with digital achievements	Teach responsible digital literacy and guide students in setting realistic academic goals.

3. Causal Mechanism: The Relationship Between Mental Health and Learning Motivation

This article specifically analyzes the causal mechanism by which mental health disorders resulting from excessive gadget use directly contribute to a decline in student motivation to learn. Mental health acts as a mediating variable that explains why the negative impact of gadgets shifts from psychological to academic aspects. When students experience symptoms of depression, anxiety, or sleep disorders (caused by gadget addiction), their capacity to engage cognitively and emotionally in the learning process becomes severely impaired.

Anxious or depressed students will have difficulty focusing their attention and maintaining the energy required for cognitively challenging tasks, such as studying. Anxiety can drain mental resources, making students easily tired and worsening the decline in concentration already caused by attention residue from digital multitasking. In this condition, the effort required to study feels much greater, so they tend to avoid academic tasks, which is a manifestation of a decline in intrinsic motivation.

In addition, social problems such as isolation and lack of empathy caused by an excessive focus on the digital world also affect learning motivation. Learning motivation in school is often supported by positive social interactions with peers and teachers, as well as a sense of belonging to the school environment. When mental health is disrupted and social interactions are reduced, students feel alienated from the educational ecosystem, which ultimately reduces their desire to participate and excel in academic activities. Thus, gadget-induced mental health disorders serve as a major psychological barrier to the emergence of effective learning motivation.

Table 3: Strategies for addressing mental health and learning motivation

No	Main Focus	Handling Strategy	Main Objective
1.	Digital usage settings	Limit structured screen time	Reducing the main source of the problem (gadget addiction)
2.	Psychological recovery	Provide counseling & emotional regulation	Restoring impaired cognitive capacity and mental energy
3.	Improved connectivity	Encourage positive social interaction	Overcoming social isolation and building a sense of belonging in the academic environment

Discussion

Contextual Analysis and Background of the Impact of Gadget Use

The contextual analysis and background of the impact of excessive gadget use on students cannot be separated from changes in lifestyle and learning patterns after the COVID-19 pandemic. Gadget use among students has increased significantly, in line with the shift to digital and online learning systems. Data showing that around 215 million internet users in Indonesia are dominated by young people who are still in education confirms that gadgets have become an integral part of students' daily lives. This condition shows that the main problem is not merely the existence of technology itself, but the intensity and pattern of its use among age groups that are still in a vulnerable phase of psychological and academic development (Nuraida Nuraida, 2023)

On the one hand, gadgets provide various benefits such as easy access to information, effective means of communication, and opportunities for technology-based learning. However, on the other hand, uncontrolled use actually poses various risks, especially to students' mental health and academic achievement. Gadget addiction is a crucial point of these negative impacts, as it directly affects students' psychological and emotional conditions, such as increased anxiety, emotional instability, and decreased motivation to learn, supported by international findings that problematic smartphone use is associated with mood disorders and symptoms of depression in adolescents (Pereira et al., 2020)

This indicates a failure in student self-regulation, as well as the suboptimal role of the school and family environment in guiding the healthy and productive use of gadgets, proving that gadget addiction has a significant effect on students' emotional and mental problems, as reported in research in Indonesia which shows that excessive use of gadgets has a negative impact on mental and emotional character and can interfere with learning achievement and academic concentration (Bharata & Widyaningrum, 2021) Thus, the background of the problems identified in this study not only reinforces previous findings but also adds the specific context of the school environment as a space that is also affected by excessive gadget use.

Logical Consequences and Comprehensive Implications

The logical consequences of the findings of this literature study indicate serious and comprehensive implications, which not only affect psychological aspects but also extend to the academic and social spheres of students. Excessive use of gadgets directly triggers various mental health disorders, such as increased levels of depression, anxiety, stress, and emotional instability (Gonçalves et al., 2020). These disorders then manifest themselves in the school context through disrupted social interactions with peers and teachers, decreased concentration in class, and weakened cognitive function due to sleep disorders triggered by exposure to blue light before bedtime. These conditions logically hinder the learning process, as the ability to process information and maintain focus becomes suboptimal.

Furthermore, these negative impacts also damage the learning ecosystem in schools. The time and attention of students absorbed in non-educational activities such as online games and social media cause a decline in learning motivation, an increase in procrastination of academic tasks, and a decrease in active involvement in classroom learning. The consequences are not only a decline in academic achievement, but also a shift in students' value systems, where achievements in the digital world, such as reaching levels in games or social recognition through social media, become more prioritized than academic success in the real world. (Maragañas & Dioso, 2025) Causally, this article shows that mental health disorders act as a mediating variable that amplifies the negative impact of gadget use on learning motivation. Students experiencing anxiety or depression tend to have difficulty concentrating, lose energy to complete cognitive tasks, and show a tendency to avoid academic demands, reflecting a decline in intrinsic

motivation. Additionally, social isolation due to excessive attachment to the digital world reduces students' sense of connection and meaning in the school environment, even though these aspects are important factors in building sustainable learning motivation.

Comparison with Other Theories and Models

The findings of this study can be understood more deeply through various theoretical frameworks and scientific perspectives. From the perspective of Albert Bandura's Self-Efficacy Theory, the decline in student learning motivation is a logical consequence of decreased academic self-confidence due to excessive use of gadgets. When students allocate more time to non-educational digital activities and neglect their academic tasks, they tend to experience learning failure or suboptimal results. Repeated failures will lower students' self-efficacy in their academic abilities, which in turn weakens their intrinsic motivation and encourages behavior that avoids cognitive challenges in the school environment (Liu et al., 2023).

In addition, decreased concentration and increased digital multitasking can be explained through the concept of Attention Residue. This concept explains that students' attention cannot completely shift from gadget activities to academic tasks because remnants of focus from previous activities still linger in their minds. Neurobiologically, this attention residue causes long-term focus disorders and reduces cognitive efficiency, making it difficult for students to engage deeply in the learning process (Kostić & Randelović, 2022). In the context of technology-based learning, these findings also provide critical reflection on the TPCK (Technological Pedagogical Content Knowledge) model. Although TPCK emphasizes the importance of integrating technology into learning, the results of this study show that without wise pedagogical arrangements, technology can actually become a distraction that undermines students' understanding of the material and acquisition of knowledge (Sihanita et al., 2024). Thus, the focus is no longer solely on how to integrate technology, but also on when and to what extent its use needs to be limited.

From a clinical perspective, findings related to emotional disorders, anxiety, depression, sleep disorders, stress, and decreased concentration are consistent with the addictive features model. Uncontrolled gadget use exhibits characteristics similar to addictive disorders, so it should be viewed as a serious mental health problem, not just a bad habit. A number of other studies also reinforce these findings by showing a significant relationship between the duration of gadget use and increased emotional and behavioral disorders in students. Thus, this study confirms that the impact of excessive gadget use is multidimensional, covering interrelated psychological, cognitive, pedagogical, and clinical aspects.

CONCLUSION

Excessive use of gadgets, especially those that lead to addiction, has been proven to have a significant and comprehensive negative impact on students at school. These impacts are divided into mental health dimensions, which include an increased risk of depression, anxiety, stress, emotional instability, sleep disorders, and decreased concentration, and academic dimensions, which are characterized by decreased motivation to learn and academic engagement. This study specifically analyzes the causal mechanism whereby impaired mental health (as a mediator variable), such as anxiety and depression, directly contributes to decreased motivation by draining mental energy and causing avoidance of academic tasks. The main contribution of this article is its holistic and integrative approach, which comprehensively combines the aspects of mental health and learning motivation as two interrelated dimensions and analyzes the causal mechanisms that connect them. In addition, this article pays special attention to the specific context of schools and offers practical and measurable recommendations for educators and parents.

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