



ISRG PUBLISHERS

Abbreviated Key Title: ISRG J Edu Humanit Lit

ISSN: 2584-2544 (Online)

Journal homepage: <https://isrgpublishers.com/isrgjehl/>

Volume – III Issue – III (May-June) 2026

Frequency: Bimonthly



NEGATIVE IMPACTS OF SMARTPHONES ON LOWER SECONDARY SCHOOL STUDENTS IN HANOI IN THE CONTEXT OF DIGITAL TRANSFORMATION

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| Received: 05.05.2026 | Accepted: 10.05.2026 | Published: 24.05.2026

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Abstract

In the context of the ongoing rapid digital transformation, smart devices have become increasingly integrated into human life, and children are no exception. This situation has led to many concerning consequences, such as declining academic performance, reduced emotional regulation, deteriorating mental well-being, and physical health issues. This paper focuses on examining the current situation and the negative impacts of smartphone use among lower secondary school students in Hanoi. Using a mixed-methods approach that combines qualitative and quantitative research through questionnaires and interviews, the study clarifies levels of dependence, purposes of use, negative effects, and especially students' self-control abilities. The findings indicate that although students possess a certain level of awareness regarding the harmful effects, most still struggle to regulate their usage time, resulting in decreased concentration and reduced real-life social interaction.

Keywords: Negative impacts, smartphones, lower secondary school students, Hanoi students

1. Introduction

In the context of the rapid advancement of digital technologies, smartphones have become increasingly prevalent and are now considered almost indispensable tools for lower secondary school students, particularly in major urban areas such as Hanoi. The widespread adoption of smartphones has brought about numerous benefits, including facilitating access to educational resources, enhancing communication, and providing various forms of entertainment (Dang, 2013)

However, empirical evidence indicates that students tend to use smartphones with high frequency, predominantly for entertainment purposes, while demonstrating limited ability to regulate and manage their usage time effectively. This pattern of use has led to several concerning consequences, such as decreased attention span, negative impacts on academic performance, deterioration in physical and mental health, and disruptions to daily routines and habits (Nguyen, 2021).

Moreover, a noticeable proportion of students exhibit signs of smartphone dependency or overreliance. At the same time, parental supervision and school-based management of smartphone use remain insufficient and inconsistent, further exacerbating the issue (Nguyen, 2019).

Given this situation, it is essential to investigate the smartphone usage behaviors of lower secondary school students in Hanoi in order to better understand their usage patterns, levels of self-regulation, and the key factors influencing such behaviors. Based on these findings, appropriate and practical solutions can be proposed to enhance the effectiveness of smartphone use while minimizing its negative impacts in the context of ongoing digital transformation.

2. Research Methods

This study employs a combination of research methods, including questionnaire-based surveys, in-depth interviews, and statistical analysis, in order to ensure both the reliability and comprehensiveness of the findings.

The survey was conducted among lower secondary school students from several schools in Hanoi, aiming to ensure the representativeness of the research sample within an urban context. A total of 100 questionnaires were distributed to students. After the data screening process, 95 valid responses were retained, resulting in a response rate of 95%. The collected data served as a primary basis for analyzing the current situation of smartphone usage among students.

The questionnaire was designed using a multiple-choice format appropriate for the cognitive level of lower secondary school students. It focused on key aspects such as duration of smartphone use, purposes of use, frequency of use, and the level of self-control in smartphone usage. These variables were selected to provide a comprehensive understanding of students' usage behaviors.

In addition to the survey, in-depth interviews were conducted on a one-on-one basis with selected students, following the consent of their parents or guardians. The interviews aimed to gain deeper insights into the impacts of smartphone use on various dimensions, including physical health, concentration ability, and academic performance. This qualitative approach complemented the quantitative data and provided a more nuanced understanding of the research problem.

After data collection, all responses were systematically compiled and processed using statistical software. Descriptive statistical methods were applied to calculate frequencies and percentages, as well as to compare different groups of participants. Based on these analyses, relevant observations and conclusions were drawn in alignment with the research objectives.

3. Research Results

3.1. Theoretical Framework

3.1.1. The Context of Digital Transformation in Vietnam

In the context of globalization and the rapid development of information technology, digital transformation has become an inevitable trend across various sectors, particularly in education. In Vietnam, digital transformation has been identified as a key strategic priority to promote socio-economic development while enhancing the quality of human resources in the digital era. In the field of education, this process is reflected through the adoption of

online learning platforms, artificial intelligence (AI), big data technologies, and intelligent learning management systems.

For lower secondary school students, digital transformation brings about significant impacts in terms of both opportunities and challenges. On the one hand, access to diverse digital learning resources enables students to expand their opportunities for acquiring knowledge, overcoming the limitations of traditional learning in terms of time and space. Online learning platforms such as Google Classroom and Microsoft Teams allow students to interact flexibly with teachers and peers, while also supporting personalized learning by adapting content to individual abilities and learning needs.

Furthermore, digital transformation contributes to the formation and development of essential digital competencies among students, including skills in information searching, data processing, technology use, and self-directed learning in digital environments. These competencies are considered fundamental for citizens in modern society. At the same time, the integration of technology in education has gradually shifted the role of learners from passive recipients of knowledge to active participants in knowledge construction and exploration.

However, alongside these benefits, digital transformation also poses several challenges. The overuse of digital devices and social media can negatively affect students' concentration, as well as their mental and physical health. Moreover, although access to information has become increasingly convenient, students' abilities to critically evaluate and filter information remain limited, leading to a higher risk of exposure to misinformation (Dinh, 2018).

From a theoretical perspective, the impact of digital transformation on lower secondary school students can be understood as the result of interactions among technological, educational, and social factors. Therefore, to maximize the effectiveness of digital transformation in education, it is necessary to ensure coordinated efforts in improving technological infrastructure, enhancing digital competencies for both teachers and students, and developing appropriate educational policies aligned with the new context. Such efforts not only contribute to improving educational quality but also support the development of human resources capable of meeting the demands of the digital society in the future.

3.1.2. Smartphones and Problematic Smartphone Use among Lower Secondary School Students

In the context of rapid digital technological development, smartphones have become a common tool in the daily lives of lower secondary school students. These devices not only serve communication purposes but also support learning, entertainment, and social connectivity.

Students' smartphone usage behavior can be reflected through the duration, frequency, and purposes of use. Accordingly, students may use smartphones for various purposes, including studying, communication, entertainment, or participation in social media. However, due to age-related psychological characteristics, students are often more attracted to entertainment content, which leads to prolonged usage time (Nguyen2, 2019).

Despite their certain benefits, uncontrolled smartphone use can result in overuse or dependency. Indicators of such conditions include excessive and continuous usage, difficulty in managing screen time, reduced concentration in academic activities, and negative impacts on both physical and mental health.

Thus, smartphone usage behavior among lower secondary school students is a multidimensional phenomenon influenced by various factors, including individual needs, family environment, school context, and broader social influences.

3.1.3. *Theoretical Perspectives on Smartphone Usage Behavior*

Students' smartphone usage behavior can be explained through several prominent theoretical frameworks.

First, the Uses and Gratifications Theory suggests that individuals actively use media to satisfy their personal needs, such as entertainment, communication, and learning. For students, smartphones serve as tools that fulfill these needs, particularly in terms of entertainment and social interaction.

In addition, the Theory of Planned Behavior posits that individual behavior is influenced by attitudes, social norms, and perceived behavioral control. In this context, students may use smartphones more frequently due to their positive attitudes toward the devices, peer influence, and limitations in self-regulation.

Furthermore, Social Influence Theory emphasizes the role of the surrounding environment in shaping individual behavior. Students are often influenced by peers, social media, and online trends, which contribute to the formation of their smartphone usage habits.

Finally, Technology Addiction Theory indicates that excessive smartphone use can lead to dependency, resulting in negative consequences for students' academic performance, health, and daily life.

Overall, these theories provide a comprehensive foundation for analyzing smartphone usage behavior among lower secondary school students in the current context.

3.1.4. *Negative Impacts of Smartphone Use on Lower Secondary School Students in Vietnam*

The use of smartphones has become increasingly widespread among lower secondary school students in Vietnam; however, it also brings about several notable negative impacts. First, smartphones can reduce students' concentration and academic performance (Tran, 2021). Frequent exposure to social media, online games, and entertainment content easily distracts students, reduces the time allocated for studying, and makes it difficult for them to maintain attention during class. In addition, the habit of using smartphones before bedtime negatively affects sleep quality, which in turn has adverse effects on both health and learning capacity (Pham, 2022).

Moreover, excessive smartphone use may lead to psychological and behavioral issues. Students are more likely to develop dependency or even addiction to their devices, resulting in feelings of anxiety and stress when they are unable to use them (Pham, 2022). Exposure to inappropriate online content can also negatively influence students' perceptions, attitudes, and behaviors. Furthermore, face-to-face communication between students and their family members or peers tends to decline, being replaced by screen-based interaction, which limits the development of essential social skills (Tran, 2021).

Finally, uncontrolled smartphone use can lead to various physical health problems, such as reduced vision, neck pain, and back pain due to improper posture and a lack of physical activity (Tran, 2020).

In summary, although smartphones offer numerous benefits, without proper management, their use can result in significant negative consequences for lower secondary school students in Vietnam.

3.2. *Current Situation of Smartphone Use among Students*

3.2.1. *Characteristics of the Survey Sample*

The study was conducted using a quantitative survey involving 91 lower secondary school students. The distribution of participants in the survey sample is presented in the table below:

Grade	Percent
9th grade	25
8th grade	26
7th grade	24
6th grade	25

It should also be noted that conducting surveys with lower secondary school students posed certain challenges for this study.

First, there were ethical considerations. As the participants were minors, their involvement required adult supervision and consent. The researchers fully acknowledged this requirement; therefore, the survey link was initially sent to parents. Only after obtaining parental consent was the link forwarded by parents to their children to complete the survey.

Second, lower secondary school students are a relatively difficult group to access. At this developmental stage, students are still in the process of forming their identities and often display a strong sense of individuality. As a result, gaining their cooperation and willingness to participate in the survey required considerable effort. Nevertheless, after receiving parental consent, the study successfully collected 95 valid responses. Although the sample size is not large, it remains meaningful for the purposes of this research. The number of participants was distributed as evenly as possible to ensure the objectivity of the research findings.

3.2.2. *The Impact of Smartphones on Lower Secondary School Students*

In the context of rapid digital transformation in Vietnam, smartphones have become a familiar tool for students. Beyond serving basic communication needs, these devices are used for a wide range of purposes in students' academic and daily lives.

In recent years, the management of smartphone use among lower secondary school students has attracted significant attention from policymakers, schools, families, and society as a whole. Recognizing the importance of digital technology, in 2020, the Ministry of Education and Training issued Circular No. 32/2020/TT-BGDĐT (dated September 15, 2020), which allows students to use smartphones for purposes such as accessing learning materials, supporting their studies, and enhancing personal competencies.

However, after a period of implementation, it was observed that smartphone use during class time often distracted students from learning. Tasks assigned by teachers, such as searching for information, were frequently diverted into non-academic activities, including gaming and browsing social media. Consequently, the regulation was reinforced to clearly stipulate that students are not permitted to use smartphones during class unless it directly serves learning purposes and is explicitly authorized. This measure has

contributed to limiting students' loss of concentration during lessons.

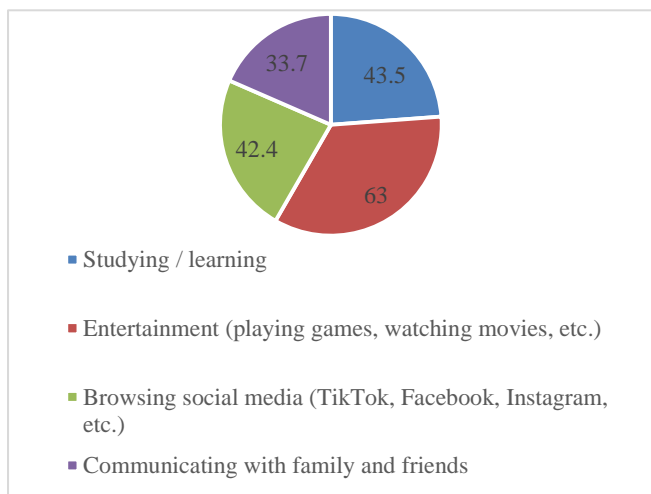
Nevertheless, smartphones continue to be widely used by students, often with limited dependence on or supervision from adults.

Purposes of Smartphone Use among Lower Secondary School Students

In the context of rapid digital transformation in Vietnam, smartphones have become a widely used device with a profound influence on both the academic and daily lives of lower secondary school students. Beyond serving as a communication tool, smartphones are utilized for various purposes, including supporting learning, accessing information, entertainment, and social networking. However, students' purposes of use are not uniform; they are shaped by multiple factors such as age, individual needs, family environment, and guidance from schools. Therefore, examining the purposes of smartphone use among lower secondary school students is essential for assessing the current situation, identifying common usage patterns, and providing a basis for proposing solutions to promote more effective and appropriate use of these devices.

The survey results indicate that lower secondary school students in Hanoi use smartphones for a variety of purposes. In this study, four main categories were examined: learning, entertainment, social media, and communication, in order to clarify students' usage purposes. The findings are presented as follows:

Figure 1. Purposes of Smartphone Use among Lower Secondary School Students in Hanoi



Several research findings indicate that students frequently use smartphones to search for academic materials, support online learning, complete assignments, and participate in digital learning platforms (Q&ME, 2024). In addition, smartphones also meet students' entertainment needs, such as watching videos, playing games, listening to music, and connecting with friends through social media. Furthermore, some students use smartphones to develop personal skills, including learning foreign languages, improving soft skills, or accessing social information. However, students' purposes of use are not always positive, as they are influenced by factors such as age, awareness, and the level of supervision from families and schools (Le, 2021).

The results of this survey show that students use smartphones for a variety of purposes, with entertainment activities being the most prominent (accounting for 63% of respondents). In addition, other potentially negative activities, such as browsing social media, also

account for a relatively high proportion (42.4%). Interview findings further reveal that students primarily use smartphones for activities such as scrolling through TikTok, playing games, and searching for answers to homework, rather than for academic information retrieval. This suggests that the purposes of smartphone use among lower secondary school students still require appropriate management and supervision from adults.

Impact on Academic Performance

Smartphone use has a significant impact on the academic performance of lower secondary school students in Vietnam. First, smartphones can easily cause distractions during the learning process (Dinh, 2018). When students spend excessive time on entertainment activities such as social media, online games, or watching videos, both the time and attention devoted to studying are noticeably reduced. This results in incomplete knowledge acquisition, declining academic performance, and the formation of undisciplined study habits.

Moreover, dependence on smartphones may reduce students' ability to think independently (Tran, 2021). Instead of actively engaging in problem-solving, many students tend to search for quick answers on the internet, which limits the development of analytical thinking, critical thinking, and creativity. In addition, inappropriate smartphone use - especially during class time or revision periods - can interrupt the learning process, making it difficult for students to maintain continuity and effectiveness in knowledge acquisition.

Excessive smartphone use also negatively affects students' health, such as causing sleep deprivation and fatigue, which in turn reduces their ability to concentrate and retain information. Taken together, these factors suggest that without proper management and guidance, smartphones can become a contributing factor to the decline in academic performance among lower secondary school students.

In-depth interviews with several lower secondary school students regarding their academic performance - by asking them to compare their results across different semesters - revealed that during semesters in which they used smartphones more frequently, their academic performance tended to decline. This observation was widely acknowledged by the students themselves. Survey findings also indicate that 35.6% of students use smartphones for 2-4 hours per day, while 16.7% use them for more than 6 hours daily. These figures are alarming and highlight the issue of excessive smartphone use among students today.

Impact on Concentration

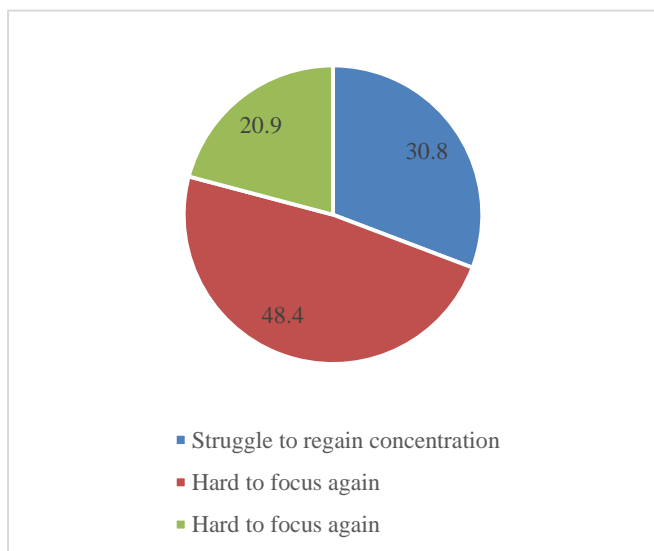
In the context of rapid digital transformation in Vietnam, smartphones have become a common device closely integrated into the academic lives of lower secondary school students. The use of smartphones offers various benefits, such as facilitating access to information, supporting online learning, and enabling social connectivity. However, alongside these advantages, there is growing concern about their impact on students' ability to concentrate.

The attractiveness of entertainment applications, social media platforms, and constant notifications can interrupt attention processes, reduce sustained focus, and negatively affect learning efficiency. This is particularly concerning for lower secondary school students, as this stage represents a critical period for cognitive and behavioral development. Excessive smartphone use

may lead to habitual distraction and a decline in students' self-regulation in learning activities.

The findings of this study also indicate that 20.9% of students reported experiencing greater difficulty concentrating after using smartphones before study sessions. This highlights a potential risk related to smartphone use among children in Vietnam and raises concerns about the need for appropriate guidance and control (see Figure 2).

Figure 2. The Impact of Smartphones on Students' Concentration



Although the survey results suggest a relatively positive picture regarding students' ability to refocus on their studies (their primary task), the interview findings reveal a different pattern. The majority of students admitted that after using smartphones, they find it more difficult to concentrate on their learning. They reported that even after stopping use, images and sounds from the device continue to linger in their minds, preventing them from immediately focusing on their studies. As a result, they often need a period of quiet time before they can effectively resume academic tasks.

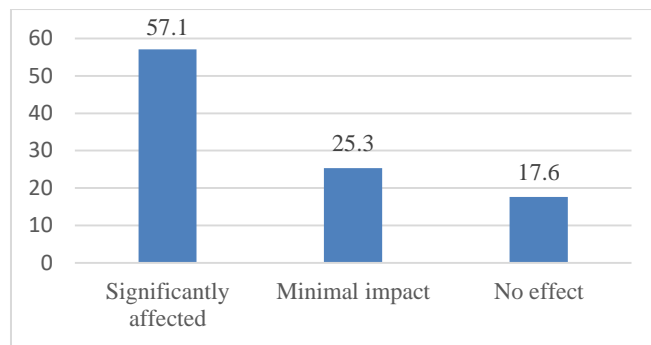
Impact of Smartphones on the Health of Lower Secondary School Students

In the context of rapid digital technological development in Vietnam, smartphones have become an indispensable part of the daily lives of lower secondary school students. These devices offer numerous benefits, such as supporting learning, facilitating information access, and enabling social connectivity. However, frequent and uncontrolled use has raised significant concerns regarding students' health at this age.

Research indicates that excessive smartphone use can negatively affect physical health, leading to issues such as sleep disturbances, eye strain, neck and shoulder pain, as well as reduced levels of physical activity. In addition, students' mental health may also be impacted, with symptoms including stress, anxiety, decreased concentration, and dependency on devices.

Particularly during the lower secondary school stage - a critical period for both physical and psychological development- these negative effects may result in long-term consequences if not properly recognized and addressed in a timely manner.

Figure 3. Levels of Health Impact



After clearly explaining the potential health issues associated with smartphone use - such as eye problems, neck and shoulder pain, and sleep disturbances or insomnia - the study proceeded with the survey. The results reveal a clear disparity in students' perceptions of the impact of smartphone use on their health.

Specifically, the highest proportion (57.1%) of students reported that smartphones have a significant impact on their health, indicating that the majority are aware of negative effects such as eye strain, neck and shoulder pain, and sleep disorders caused by frequent use. Meanwhile, 25.3% of students believed that smartphones have only a minor impact, and 17.6% stated that smartphones do not affect their health at all. This suggests that a small proportion of students either lack sufficient awareness or do not fully understand the associated risks.

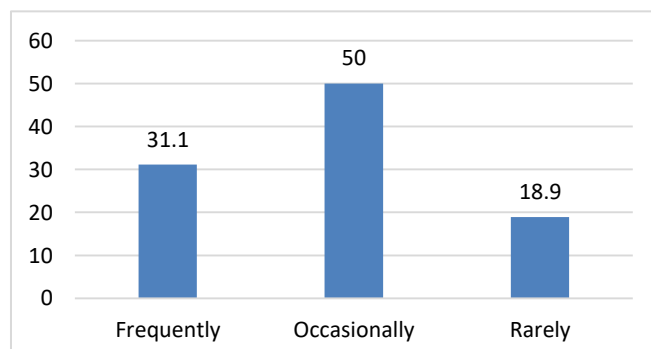
Overall, although most students are aware of the negative impacts of smartphone use, there remains a need for further communication and educational measures to promote more consistent awareness among all students. The findings indicate that while many students acknowledge these effects, they still struggle to regulate their behavior effectively. In addition, excessive smartphone use may also lead to broader social consequences that are difficult to predict.

Manifestations of Smartphone Dependency among Lower Secondary School Students

One of the most noticeable signs of smartphone dependency is the frequent habit of checking the device. Individuals who are dependent on their phones tend to repeatedly check for new notifications, messages, or updates.

Survey results indicate that 31.1% of students frequently check their smartphones to see whether there is any new information or incoming notifications, while 50% report checking their phones occasionally. For lower secondary school students - whose use of smartphones is not necessarily essential - these figures can be considered relatively high.

Figure 4. Levels of Smartphone Dependency among Lower Secondary School Students



First, regarding the habit of checking smartphones, up to 81.1% of students reported checking their phones in the morning at varying levels, with 31.1% doing so immediately upon waking up. This indicates that smartphones have become part of students' "morning routine," reflecting a clear tendency toward habitual dependence.

Exposure to smartphones early in the morning may reduce initial concentration for the day and can easily lead to prolonged, unintentional usage throughout the day.

3.2.3. *Proposed Solutions to Mitigate the Negative Impacts of Smartphones on Lower Secondary School Students*

The causes of excessive smartphone use among students include peer influence, insufficient parental supervision, and a lack of alternative activities. In particular, increasingly attractive and easily accessible entertainment content on digital platforms is a key factor leading students to spend more time on their phones.

Solution 1: Establishing a Reasonable Schedule. Students should develop a well-structured daily schedule to balance studying, resting, and smartphone use. Specifically, clear limits on daily smartphone usage time should be set to avoid prolonged and continuous use. Priority should be given to studying, reading, physical activities, and face-to-face communication. Maintaining a healthy routine can help reduce smartphone dependency and minimize negative health impacts.

Solution 2: Purposeful Smartphone Use. Students need to clearly define the purpose of using smartphones, such as for learning, information searching, or essential communication. Limiting uncontrolled entertainment use - such as excessive gaming or prolonged social media browsing - can help prevent time wastage and reduce negative effects. At the same time, students should develop the habit of using smartphones only when necessary and stopping at appropriate times.

Solution 3: Strengthening Parental Supervision. Families play a crucial role in regulating students' smartphone use. Parents should monitor their children's screen time while providing guidance and reminders for appropriate use. In addition, families should create a healthy living environment by encouraging shared activities such as conversations, sports, or non-digital entertainment to reduce reliance on smartphones.

Solution 4: Enhancing School-Based Education on Smartphone Use. Schools should promote education on the impacts of improper smartphone use and provide guidance on safe and effective usage. This content can be integrated into class meetings, extracurricular activities, or life skills subjects. Furthermore, schools need to establish clear regulations regarding smartphone use during class time to ensure a focused and effective learning environment.

Solution 5: Strengthening Policies from Educational Authorities. Educational authorities should develop and refine regulations regarding smartphone use in schools, tailored to different educational levels. In addition, public communication campaigns should be implemented to raise awareness about safe smartphone use among students. Strengthening coordination among schools, families, and society is also essential to create a consistent and effective environment for managing students' smartphone use.

The findings of this study indicate that smartphones are widely used among lower secondary school students in Hanoi, primarily for entertainment purposes. This trend leads to several

consequences, including reduced concentration, negative health impacts, and the development of dependency habits.

Although students demonstrate a certain level of awareness regarding these negative effects, their ability to regulate behavior remains limited. Therefore, coordinated efforts among families, schools, and students themselves are necessary to guide smartphone use in a more appropriate and effective manner.

4. Conclusion

The study on the negative impacts of smartphones on lower secondary school students in Hanoi shows that smartphone use has become widespread and is increasing. Students primarily use smartphones for entertainment purposes, while their use for learning has not yet been fully effective.

The findings indicate that smartphone use can lead to various negative consequences, including reduced concentration, disruption of daily routines, negative effects on health, and the potential risk of dependency. Notably, a proportion of students have shown signs of smartphone dependence, as reflected in their difficulty in controlling usage time and feelings of discomfort when access is restricted.

In addition, although students demonstrate a certain level of awareness regarding the negative impacts of smartphones, their ability to regulate their behavior remains limited. This suggests the need for close coordination among families, schools, and students themselves in guiding and managing smartphone use.

Based on the research findings, it can be affirmed that smartphones are both useful tools and potential sources of risk if not used appropriately. Therefore, raising awareness and fostering healthy smartphone usage habits are essential for students today.

Acknowledgements

This study was conducted with the support and assistance of teachers, schools, and students from lower secondary schools in Hanoi. The author would like to express sincere gratitude to the academic supervisor for their guidance, valuable feedback, and continuous support throughout the research process. The author also extends thanks to the students who participated in the survey and provided practical insights that significantly contributed to the research findings.

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