

# Beyond The Screen: Unpacking The Impact of Excessive Gaming on Student Learning and Well-Being

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Playing Online Games  
Game Addiction  
Learning Delay  
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## Abstract

This study aims to examine the negative impacts of excessive online gaming on students' sleep quality, concentration, and academic achievement. Using the Systematic Literature Review (SLR) method, an analysis was conducted of 15 selected relevant articles. The results of the study indicate a negative correlation between high game playing duration and decreased learning motivation, disrupted sleep patterns, and low academic achievement. The habit of playing until late at night causes fatigue, difficulty focusing, and low learning commitment. Psychologically, students who are addicted to games also tend to experience emotional symptoms such as anxiety, irritability, and social withdrawal. From a developmental theory perspective, game addiction can hinder concrete cognitive development, interfere with identity achievement, and weaken self-regulation skills. These findings emphasize the importance of digital literacy and the active role of parents and teachers in limiting playtime and supporting students' digital activities. This study recommends the development of preventive strategies and educational curricula that emphasize a balance between digital entertainment and academic responsibility to support students' holistic development..

## 1. Introduction

Excessive online gaming has become a major concern among students. Studies have shown that playing games for 9-10 hours per day can reduce students' interest in reading (Ramadhan et al., 2024), and around 80% of students are at risk of facing negative impacts on their academic performance after one year of consistent online gaming engagement (Alshraideh et al., 2024). In addition, excessive gaming activity can also disrupt students' sleep quality, especially if done for a long period of time (Dewi et al., 2024). Therefore, it is important to be aware of the negative impacts of excessive gaming and take steps to manage gaming time wisely.

The quality of learning of elementary school students can be significantly affected by online gaming addiction. For example, a study conducted by Ningsih et al. (2024) showed that online gaming addiction negatively impacts students' academic achievement. Students who experience this addiction also show a decrease in learning motivation, which affects their enthusiasm and academic performance (Adhzani et al., 2023). In addition, online game addiction significantly reduces students' learning motivation, leading to low academic achievement, lack of concentration, and minimal participation in school activities (Haratua et al., 2024). Therefore, it is important to understand and overcome online game addiction to improve students' learning quality.

Playing online games late at night will negatively impact students' sleep quality, which can disrupt sleep patterns and prevent them from getting enough rest. In addition, lack of sleep caused by this habit is expected to have a negative impact on students' concentration and academic performance, where students who lack sleep tend to have difficulty focusing and understanding the subject matter. The habit of playing online games excessively is negatively related to students' sense of responsibility for time management, where students who spend more time playing games may neglect academic obligations and other activities, resulting in low commitment to tasks that must be completed.

Lack of sleep caused by the habit of playing online games can have a serious impact on students' concentration and academic performance. Students who experience sleep deprivation tend to have lower focus abilities and difficulty understanding the subject matter. Research shows that adequate

sleep is essential for optimal cognitive function, and lack of sleep can result in decreased memory, critical thinking skills, and mental resilience. Thus, students who do not get enough sleep due to playing games may experience decreased academic grades and overall achievement.

There is a negative relationship between the habit of playing online games excessively and students' sense of responsibility for time management. Students who spend more time playing games may neglect their academic obligations and other activities, such as studying or completing assignments. This habit can create a pattern of behavior where students are unable to manage their time effectively, resulting in low commitment to the tasks that must be completed. Thus, students who are addicted to playing games may have difficulty in scheduling their time wisely, which affects their academic progress and personal development.

In addition to these empirical findings, this study is distinguished by its emphasis on the educational perspective, particularly in the context of elementary and secondary school students. Previous research has often approached gaming addiction from psychological or clinical perspectives; however, this article focuses on how gaming behaviors directly interfere with learning processes. From the standpoint of Self-Determination Theory, excessive gaming can undermine students' intrinsic motivation by reducing their sense of competence and relatedness in academic settings. Cognitive Load Theory further suggests that the high mental demand from prolonged gaming may overload working memory, leaving less capacity for learning tasks. Likewise, Behavioral Psychology explains how the reinforcement patterns in online games can foster addictive habits that compete with academic responsibilities. By explicitly integrating these theories, the study provides a stronger framework to understand how gaming affects not only behavior but also the quality of students' learning and development.

This study aims to investigate the negative impacts of excessive online gaming on students' sleep quality, concentration, and academic performance. Identify the relationship between gaming habits and decreased learning motivation, and understand how lack of sleep due to gaming can affect students' learning ability. By collecting and analyzing relevant data, it is hoped that this study can provide valuable insights for educators and parents to create effective strategies in managing students' gaming time, so as to improve their learning quality and mental health.

Based on the discussion above, excessive online gaming has a significant negative impact on students' sleep quality, concentration, and academic performance. Online gaming addiction not only disrupts sleep patterns and reduces the amount of rest time needed, but can also lead to decreased learning motivation and commitment to academic obligations. Therefore, it is important for students, educators, and parents to recognize and address this problem in a wise manner, so that students can achieve a balance between entertainment and academic responsibilities, and improve the quality of their education and personal development.

## **2. Method**

This study uses the Systematic Literature Review (SLR) method with a qualitative approach to examine the negative effects of playing games for too long on students' learning delays and quality. According to Kitchenham (2004) in Larasti, et al. (2021) Systematic literature review is a means to identify, assess, and explain all research related to a particular research question, topic area, or phenomenon of interest. The literature is collected systematically through searches in databases such as Scopus, Web of Science, and Google Scholar with keywords such as "Online Games", "Online Game Addiction", and "Learning Delay". Article selection is carried out based on inclusion criteria, namely qualitative or mixed-methods studies that discuss the impact of playing games on students' academic aspects. Data from selected articles are extracted using a standard format and analyzed using a thematic synthesis approach to find main patterns and themes. The literature review process is carried out in stages, starting from screening titles, abstracts, years of publication, and requirements based on selection criteria and criteria that are not included, to evaluating the quality of research literature comprehensively.

In addition, to enhance methodological rigor, the following steps were applied

- A purposive sampling technique was used to select relevant peer-reviewed articles published between 2020–2024, focusing on school-age and adolescent populations.
- Thematic synthesis was conducted through coding of key findings and grouping them into three main themes: cognitive disruption, emotional instability, and behavioral withdrawal.
- Credibility and validity were strengthened by cross-checking the coding results with two independent reviewers, supported by a PRISMA flow diagram to document the selection process.
- Ethical considerations were ensured by including only studies that reported ethical approval and informed consent, as well as maintaining proper citation of all reviewed literature

## 2.1. Findings

This chapter presents the results of a literature review that has been analyzed using the Systematic Literature Review (SLR) method regarding the negative impacts of excessive online gaming on students' learning delays and quality. Based on the results of the selection and analysis of 15 relevant articles, it was found that the habit of playing games for a long duration is correlated with various academic problems, such as decreased learning motivation, impaired concentration, and poor sleep quality. The discussion in this chapter will outline the main findings of these studies and relate them to the context of student learning, especially at the elementary and secondary school levels.

The method of searching and collecting literature is presented in the table below. First, articles that do not meet the criteria will be eliminated, and then the articles that will be analyzed by the researcher will be displayed in the table.

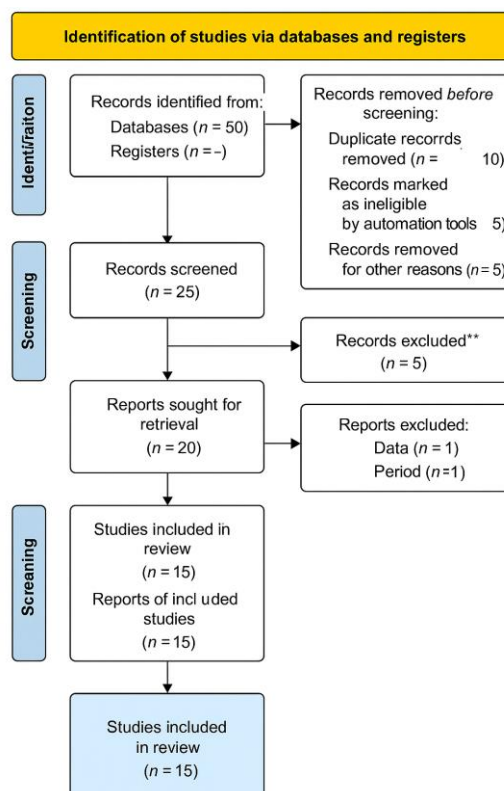


Figure 1. Prism Flow Diagram

Based on the PRISMA flowchart, from a total of 50 articles identified through the initial search process, only 15 articles met the inclusion criteria and relevance to the research focus. The articles were selected based on the suitability of the topic, qualitative or mixed-methods methods, and

discussions on the negative impacts of playing online games on the quality of learning and academic delays of students. Furthermore, the selected articles were analyzed thematically and presented in the form of a comparative table to identify patterns, key findings, and contributions of each study to this research topic.

**Table 1. Article Review Results**

Code	Title	Result
A1	Problematic Gaming and Students' Academic Performance: A Systematic Review (Alzahrani, & Griffiths, 2024)	Problematic gaming negatively impacts students' academic performance. Of the 27 studies reviewed, most found that excessive gaming was associated with lower grades, delayed learning, and poor focus. However, recent studies indicate that poor academic performance may also drive students to engage in compulsive gaming as a form of escape from stress. This is consistent with the compensation model, where gaming is used to escape academic problems. Thus, the relationship between gaming addiction and academic performance is bidirectional. Further studies with longitudinal designs are needed to more clearly determine the direction of cause and effect.
A2	Gaming Addiction and Academic Performance: A Battle For Student Success (Shukry <i>et al.</i> , 2024)	Most of the respondents in this study were male (70.6%) and were in the age range of 21–25 years (83.8%). Of the 68 respondents, 55.9% stated that gaming addiction had a negative impact on their academic performance. As many as 29.4% often felt addicted to gaming, while 26.4% admitted that it was difficult to stop playing after starting, and 29.4% experienced sleep disturbances due to gaming. These negative impacts have the potential to disrupt students' focus on learning and academic performance. Although some respondents stated that gaming did not affect their performance, the data showed a relationship between gaming addiction and decreased academic achievement. These results demonstrate the importance of time management and awareness of the addictive impacts of gaming for students.
A3	Exploring the association between online gaming addiction and academic performance among the school-going adolescents in Bangladesh: A cross-sectional study (Anjum <i>et al.</i> , 2024)	There is a significant association between online gaming addiction and poor academic performance among school going adolescents in Bangladesh. Students without addiction performed better academically than those with mild to moderate addiction. The majority of addicts were male and were in the age group of 13–17 years. Factors such as family structure, sleep time, and parental education level also influenced academic performance. Regression analysis showed that poor sleep patterns, living in a nuclear family, and low education level increased the risk of poor academic performance. These findings support the need for early intervention to reduce the negative impact of online gaming addiction on education.
A4	The Effect of online Games Play on Academic Performance: SLIATE as Case Study (Meddage <i>et al.</i> , 2024)	80% of SLIATE students are actively involved in online gaming activities, with smartphones as their primary device. Most spend around 4 hours per day using digital devices, and the majority choose game genres such as shooters, puzzles, and sandboxes.

Code	Title	Result
		There are differences in preferences based on gender, with males tending to choose action games, while females prefer puzzle games. Nighttime data usage is common, which has an impact on sleep patterns, including late attendance at lectures. Around 20% of students admitted to behavioral influences such as anger or changes in attitude due to in-game characters. These results indicate the need for a balanced approach to digital use to optimize benefits while minimizing negative impacts on academics and mental health.
A5	Online gaming and its association with emotional and behavioral problems among adolescents – A study from Northeast India (Singh <i>et al.</i> , 2021)	Most respondents were male, with an average age of 14.6 years, from middle-class families and living in urban areas. Around 45.2% of respondents were classified as excessive online game users and 40.3% were categorized as pathological users. The most popular game played was PUBG, with the majority using their phones for 2–3 hours per day. Most respondents showed emotional symptoms such as irritation, craving, sleep disturbances, and social conflict. Game addiction scores had a significant positive correlation with emotional, behavioral, hyperactivity, and peer relationship problems, and a negative correlation with self-regulation skills. Emotional and behavioral problems were significant predictors of online game addiction among adolescents.
A6	The impact of time devoted to video games on student achievement (Tot <i>et al.</i> , 2022)	Playing video games during exams can result in lower grade point averages (GPA) compared to those who do not play. This difference is statistically significant, but the effect size is small. Study time is positively and significantly correlated with grade point averages, meaning that the more time spent studying, the higher the GPA. Students with the best grades actually spend the least time playing games and the most time studying. In addition, there are significant differences based on gender: men play more games and have lower GPAs than women. However, there are no significant associations between gaming and age, year of study, or employment status.
A7	The Influence of Online Gaming Addiction on Students' Learning Performance (Zameri <i>et al.</i> , 2024)	Online game addiction in college students is caused by three main factors, namely following trends and peer pressure, venting emotions and stress, and being attracted to sophisticated game technology. The impact of this addiction is very significant in decreasing academic achievement, with some respondents experiencing a decrease in GPA from the previous semester. In addition, addiction causes feelings of isolation, decreased motivation to socialize, and delays in completing assignments. To overcome addiction, respondents suggested several steps such as making a daily schedule, completing assignments early, studying in the library, hiding game applications, and participating in extracurricular activities. These steps aim to shift focus from games to more productive

Code	Title	Result
		activities. This study shows that self-awareness and good time management are very important in preventing the negative impacts of online game addiction.
A8	The Impact of Online Gaming on Academic Performance: A Study of JTMK, Politeknik Ungku Omar Students (Mahmor <i>et al.</i> , 2024)	The majority of JTMK Polytechnic Ungku Omar students actively play online games, with 61% playing 1–2 hours per day. Most respondents felt that gaming did not have a negative impact on academics, but 30% admitted to being negatively impacted, such as difficulty focusing, being less responsive, and social isolation in class. Students with high GPAs generally play for short durations, while those who play for long durations tend to have lower GPAs. Long durations of play are also associated with health problems such as headaches, lack of sleep, and blurred vision. Although games provide entertainment, time management is an important factor in preventing a decline in achievement. These findings emphasize the need for education and mentoring so that students can balance entertainment and academic responsibilities.
A9	Students' Heavy Use of Internet Gaming and Addiction: An Online Interview Study (Namdeo <i>et al.</i> , 2023)	College students who are addicted to online games tend to spend significant time playing, around 4–10 hours per day depending on weekdays or holidays. They feel a sense of social bond and belonging through in-game interactions and chat rooms. Although online games provide enjoyment and serve as an escape from stress or emotional problems, many participants experience negative impacts such as sleep disturbances, eye health, and decreased academic performance. The majority of participants did not make serious efforts to reduce their use and were reluctant to seek professional help because they considered their addiction to be a minor problem. However, some of them felt anxious, depressed, or lonely when they could not access games. This study highlights the need for education and appropriate treatment approaches related to online game addiction among college students.
A10	The Prediction Role of Delay of Gratification on Game Addiction in Children (Söylemez, A. 2021)	There is a significant positive relationship between the level of game addiction and the ability to delay gratification in children. Subfactors such as the inability to delay internet and television use, technology, sports activities, and money show moderate to high correlations with game addiction. Linear regression results reveal that class, computer ownership, and subfactors of delay of gratification (money, technology, internet and TV) are significant predictors of game addiction. Meanwhile, gender, food, and sports do not show significant effects. Overall, the lower the child's ability to delay gratification, the higher their risk of experiencing game addiction.
A11	Correlation among game addiction, achievement emotion, and learning motivation: A study of Indonesian youth	Game addiction has a significant effect on students' emotions and learning motivation in the context of e-learning. Game addiction is negatively related to positive emotions and

Code	Title	Result
	in the context of e-learning system (Amriza <i>et al.</i> , 2023)	positively related to negative emotions. Positive emotions significantly increase intrinsic and extrinsic learning motivation, while negative emotions only significantly affect intrinsic motivation. In addition, game addiction has a positive impact on intrinsic motivation, but a negative impact on extrinsic motivation. These results emphasize the importance of managing game playing habits so as not to interfere with students' learning process and motivation.
A12	The Impact of Excessive Screen Time on Children Development with Social Work Perspective (Farooq ., & Bashir., 2021)	Most respondents (76%) stated that their children use digital media excessively. As many as 69% admitted that this increases hyperactivity, while 79% stated that children's social interactions decrease due to excessive screen time. Even so, 75% of respondents see the positive side in increasing children's vocabulary and knowledge from educational shows. However, 74% stated that screen time causes behavioral and mental problems, and 90% think it makes children lazy. Only 40% of parents admitted to supervising their children's social media activities. These results indicate the need for parental supervision and education regarding healthy digital media use.
A13	Association of Excessive Screen Time in Children with Language Delay During Covid-19 Pandemic: A Systematic Review (Ghaisani., & Salam., 2022)	Most studies have shown that children's screen time has increased during the COVID-19 pandemic, mainly due to restrictions on outdoor activities. The types of studies analyzed were mostly cross-sectional and longitudinal, with a quantitative approach. However, only one study significantly showed an association between increased screen time and delayed vocabulary development in children. The study found that children with increased screen time during the lockdown experienced slower vocabulary growth, especially in the expressive aspect. This finding suggests the need for attention to the duration and quality of screen time during children's development.
A14	A comparative study of online gaming between high-performing and low-performing students—A case from China (Bu., & Ding 2024)	There are significant differences between high and low-achieving students in online gaming behavior. Low-achieving students tend to play excessively, spend more time and money, and use gaming to compensate for lack of real-world achievement. In contrast, high-achieving students play moderately and view gaming as a means of relaxation and life enrichment. The assessments from parents and teachers are also different: low-achieving students are stigmatized negatively, while high-achieving students are praised. These differences are reinforced by structural factors such as socioeconomic and urban-rural backgrounds that influence parenting patterns and recreational opportunities for students.

Code	Title	Result
A15	Chinese Rural Children's Video Game Disorder: Processes, Harms and Causes (Bao <i>et al.</i> , 2024)	Video game playing disorder in rural Chinese children follows four stages: entering, immersion, exiting, and re-entering the game. This disorder negatively impacts cognitive ability, physical and mental health, academic achievement, and parent-child interaction. The main causes include easy access to gaming devices, lack of cultural infrastructure in rural areas, misguided guidance from parents and peers, and the satisfying emotional experience of gaming. Children often use games to pass the time, overcome boredom, or escape from the pressures of life. Even after the exit phase from gaming, they tend to return to gaming because it is difficult to detach emotionally.

Of the total 50 articles identified in the initial stage, only 15 articles met the inclusion criteria and were relevant to the topic being studied, namely the negative impact of playing games for too long on students' learning delays and quality. The review results showed that most articles indicated a negative correlation between excessive game playing duration and decreased learning motivation, disturbed sleep patterns, and decreased academic achievement. Several studies have also noted that addictive games not only affect cognitive aspects, but also have an impact on students' emotional, social, and self-discipline conditions. Therefore, it is important to pay attention to the aspect of game playing time in relation to students' learning quality, especially at the elementary and secondary education levels.

### 3. Results and Discussion

Based on the results of this study, it shows that excessive gaming has a significant negative impact on learning delays and decreased quality of student learning. Based on 15 articles that have been reviewed, it was found that playing games for long periods tends to interfere with various aspects of students' academic development, including learning motivation, concentration, and time management. Most of the literature highlights that students who are addicted to games show symptoms such as lack of sleep, difficulty focusing, and decreased academic achievement.

One of the main findings is that playing games for a long time is negatively correlated with academic achievement. Articles by Alzahrani & Griffiths (2024) and Shukry *et al.* (2024) explicitly state that there is a two-way relationship between gaming addiction and low academic grades not only games that cause decreased achievement, but also academic pressure that makes students use games as an escape. This finding is in line with the concept of the compensation model in digital behavior. In addition, students' sleep quality is an aspect that is greatly disturbed by playing games until late at night. This is supported by research by Meddage *et al.* (2024) and Namdeo *et al.* (2023) which shows that students tend to experience sleep disturbances, wake up late, and experience mental fatigue the next day, which ultimately results in delays and decreased academic performance.

Game addiction also has an impact on students' psychological and social aspects. Singh *et al.* (2021) and Zamari *et al.* (2024) noted an increase in emotional symptoms such as irritability, anxiety, and solitary behavior. These symptoms have a direct impact on student interaction in class and participation in learning activities, which are important indicators of learning quality. Several articles such as Anjum *et al.* (2024) and Bu & Ding (2024) emphasize that family and social environmental factors also influence the intensity of playing games. Children from families with low supervision or living in environments with high digital access tend to be more susceptible to learning disorders due to games. Furthermore, the aspect of time management is also an important concern in the discussion. Articles by Mahmor *et al.* (2024) and Amriza *et al.* (2023) show that students who play games for more than two hours per day tend to have difficulty completing assignments on time and more often postpone school obligations.

In addition to the negative impacts, some studies highlight potential constructive roles of gaming when integrated appropriately into education. For example, educational games and gamification strategies can enhance student engagement, stimulate problem-solving skills, and provide a sense of achievement in controlled learning environments. This suggests that while excessive and uncontrolled gaming poses risks, a pedagogical approach to gaming could serve as a valuable tool to support learning outcomes if managed with proper guidance and time limits.

One of the key insights from this analysis is the importance of digital literacy education as a preventive measure. Several articles have shown that many students are actually unaware that their gaming time is excessive, or that this habit is impacting their learning process. Therefore, it is very relevant to include digital literacy in the curriculum for example, by teaching how to recognize healthy technology usage limits, manage screen time, and distinguish between needs and wants in online activities. In addition, a community based approach also plays an important role. Involving parents and teachers in developing agreements about gaming time can be a form of external control that positively reinforces students' digital habits.

Based on literature studies, gaming addiction has been shown to negatively impact students' learning motivation, concentration, and sleep quality. In relation to Piaget's cognitive development theory, elementary school-aged children in the concrete operational stage should be actively engaged in real-world activities that stimulate logic and concrete understanding. However, excessive, passive gaming can hinder the development of new schemata. Furthermore, from Erikson's perspective, students who fail to feel competent in the real world due to declining academic performance can experience an identity crisis at the industry versus inferiority stage, ultimately seeking escape in the gaming world, which provides a false sense of success.

From Vygotsky's sociocultural perspective, social engagement is crucial for developing children's potential through the Zone of Proximal Development (ZPD). Individualistic gaming without adult scaffolding reduces children's opportunities to grow through meaningful social interactions. Furthermore, a low ability to delay gratification, as discussed in Mischel's theory, is closely linked to a tendency toward gaming addiction. Children who are unable to control their urge to play are more likely to neglect academic obligations. Bandura also explained that behavioral development is strongly influenced by social models around them. If children are accustomed to seeing gaming receive more attention than studying, their self-regulation weakens.

Based on these findings, excessive gaming habits have been shown to negatively impact students' learning quality. These impacts include decreased motivation to learn, impaired concentration, and decreased academic achievement. Furthermore, excessive gaming also impacts students' emotional and social aspects, such as the emergence of withdrawn behavior and irritability. Environmental factors such as lack of parental supervision and high digital access also exacerbate this condition. Therefore, synergy between teachers, parents, and the community is needed to educate and control gaming habits so that they do not interfere with students' learning and development.

### **3.1. Conclusion**

Excessive online gaming has been consistently shown to negatively impact students academic performance, sleep quality, and concentration. The findings suggest that prolonged game use reduces motivation, impairs focus, and disrupts time management among students. Beyond cognitive aspects, emotional and social challenges such as anxiety, withdrawal, and irritability also emerge as consequences of gaming addiction. These issues, if not addressed, can hinder students holistic development both academically and personally. Therefore, collaboration between educators, parent and communities is crucial to foster healthy digital habits and promote balance lifestyle.

This study underscores the importance of not only limiting excessive gaming but also exploring the constructive use of digital games in education. When guided appropriately, gamified learning strategies can enhance engagement, motivation, and problem-solving skills. Thus, preventive measures should go hand-in-hand with innovative pedagogical approaches that integrate technology responsibly. This balanced perspective ensures that students benefit from digital tools while avoiding the risks of addiction, supporting their overall growth and academic success

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## References

- Adhzani, F., & Tirtoni, F. (2023). Dampak permainan daring terhadap motivasi belajar siswa sekolah dasar. *Jurnal Pengembangan Metode Pendidikan Indonesia*. <https://doi.org/10.21070/ijemd.v21i3.768>
- Alshraideh, M., Abu-Zayed, A., Leiner, M., & AlDajani, I. (2024). Beyond the scoreboard: Investigasi machine learning tentang pengaruh game online terhadap nilai mahasiswa Universitas Yordania. *Applied Computational Intelligence and Soft Computing*, 2024, 1337725. <https://doi.org/10.1155/2024/1337725>
- Alzahrani, A. K. D., & Griffiths, M. D. (2024). Problematic gaming and students' academic performance: A systematic review. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-024-01338-5>
- Amriza, R. N. S., Husnaini, S. J., & Firmansyah, A. Y. (2024). Correlation among game addiction, achievement emotion, and learning motivation: A study of Indonesian youth in the context of e-learning system. *Research and Practice in Technology Enhanced Learning*, 19, Article 27. <https://doi.org/10.58459/rptel.2024.19027>
- Anderson, E. L., Steen, E., & Stavropoulos, V. (2018). Internet use and problematic Internet use: A systematic review of longitudinal research trends in adolescence and emergent adulthood. *International Journal of Adolescence and Youth*, 23(4), 430–454. <https://doi.org/10.1080/02673843.2017.1421951>
- Anjum, R., Nodi, N. H., Das, P. R., Roknuzzaman, A. S. M., Sarker, R., & Islam, M. R. (2024). Exploring the association between online gaming addiction and academic performance among the school-going adolescents in Bangladesh: A cross-sectional study. *Health Science Reports*, 7(9), e70043. <https://doi.org/10.1002/hsr.2.70043>
- Bao, K. (2024). Chinese rural children's video game disorder: Processes, harms and causes. [Manuscript].
- Blackwell, D., Leaman, C., Tramosch, R., Osborne, C., & Liss, M. (2021). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences*, 116, 69–72. <https://doi.org/10.1016/j.paid.2017.04.039>
- Bouna-Pyrrou, P., Mühle, C., Kornhuber, J., & Lenz, B. (2020). Internet gaming disorder, risk factors, and its connection with substance use and other behavioral addictions: A systematic review. *Sucht*, 66(6), 331–345. <https://doi.org/10.1024/0939-5911/a000667>
- Bu, L., & Ding, B. (2024). A comparative study of online gaming between high-performing and low-performing students: A case from China. *Heliyon*, 10(2), e24291. <https://doi.org/10.1016/j.heliyon.2024.e24291>
- Chen, C. Y., & Hsiao, C. C. (2021). The impact of smartphone addiction on academic performance of students: A meta-analysis. *Computers in Human Behavior Reports*, 4, 100095. <https://doi.org/10.1016/j.chbr.2021.100095>
- Chen, I. H., Pakpour, A. H., Leung, H., et al. (2020). Comparing problematic Internet use, gaming, and smartphone use in adolescents across three Asian countries: A study in Taiwan, China, and Malaysia. *International Journal of Environmental Research and Public Health*, 17(23), 8820. <https://doi.org/10.3390/ijerph17238820>
- Coyne, S. M., Stockdale, L., & Nelson, D. A. (2021). Adolescent screen time and internalizing symptoms over time: The role of media content. *Journal of Adolescence*, 90, 74–82. <https://doi.org/10.1016/j.adolescence.2021.06.004>
- Dewi, D., Pramana, Y., & Fauzan, S. (2024). Pengaruh game online terhadap kualitas tidur mahasiswa: Literature review. *MAHESA: Malahayati Health Student Journal*, 4(1). <https://doi.org/10.33024/mahesa.v4i1.11999>
- Farooq, K., & Bashir, S. (2021). The impact of excessive screen time on children development with social work perspective. *Pakistan Journal of Social Issues*, 1(1), 21–38. <https://anjumantaraqqi-eniswan.com/ojs/index.php/PJSI/article/view/13>
- Ferguson, C. J., & Beresin, E. (2018). Social science's curious war with pop culture and how it was lost: The media violence debate and the risks it holds for social science. *Preventive Medicine*, 99, 69–76. <https://doi.org/10.1016/j.ypmed.2017.12.011>
- Gentile, D. A., Coyne, S., & Walsh, D. A. (2019). Media violence, physical aggression, and relational aggression in school-age children: A short-term longitudinal study. *Aggressive Behavior*, 37(2), 193–206. <https://doi.org/10.1002/ab.20380>
- Ghaisani, U. M., & Salam, A. R. (2022). Association of excessive screen time in children with language delay during Covid-19 pandemic: A systematic review. *Jurnal Psikiatri Surabaya*, 11(2), 91–102. <https://doi.org/10.20473/jps.v11i2.34589>

- Gilavand, A., Gilavand, M., & Gilavand, S. (2016). Investigating the impact of lighting educational spaces on learning and academic achievement of elementary students. *International Journal of Pediatrics*, 4(5), 1819–1828. <https://doi.org/10.22038/ijp.2016.6768>
- Griffiths, M. D., Kuss, D. J., & Pontes, H. M. (2022). A brief overview of Internet gaming disorder and its treatment. *Current Psychiatry Reports*, 24(1), 1–9. <https://doi.org/10.1007/s11920-021-01261-0>
- Haratua, C., Aziz, A., Prawira, R., Tabriji, J., Ambarwati, H., Nurhadi, A. P., & Pendidikan, S. (2024). The impact of online game addiction on elementary school students' learning motivation: A qualitative study of grade 5 students at SDN Karangmakmur III. *Bhinneka: Jurnal Bintang Pendidikan dan Bahasa*, 2(3). <https://doi.org/10.59024/bhinneka.v2i3.841>
- Idayu, A., Shukry, M., & Abdullah, N. (2024). Gaming addiction and academic performance: A battle for student success. *Journal of Islamic Studies in Education*, 9(6), 657–670. <https://doi.org/10.55573/JISED.096657>
- Johannes, N., Vuorre, M., & Przybylski, A. K. (2021). Video game play is positively correlated with well-being. *Royal Society Open Science*, 8(2), 202049. <https://doi.org/10.1098/rsos.202049>
- Kim, N. R., Hwang, S. S., Choi, J. S., Kim, D. J., Demetrovics, Z., Király, O., & Youn, H. C. (2022). Characteristics and psychiatric symptoms of Internet gaming disorder among adults using self-report questionnaires. *Journal of Behavioral Addictions*, 8(1), 44–52. <https://doi.org/10.1556/2006.8.2019.08>
- King, D. L., Delfabbro, P. H., & Billieux, J. (2020). Problematic online gaming and the COVID-19 pandemic. *Journal of Behavioral Addictions*, 9(2), 184–186. <https://doi.org/10.1556/2006.2020.00016>
- Király, O., Tóth, D., Urbán, R., et al. (2019). The mediating effect of gaming motivation between psychiatric symptoms and problematic online gaming. *Addictive Behaviors*, 90, 57–64. <https://doi.org/10.1016/j.addbeh.2018.10.031>
- Kumar, P. C. P., Chako, S. M., Manohar, S., & Kishor, M. (2024). Cyberslacking and psychological distress in school-going adolescents and its impact on their mothers' mental health. *Archives of Mental Health*. <https://doi.org/10.4103/amh.amh>
- Kuss, D. J., & Griffiths, M. D. (2018). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. <https://doi.org/10.3390/ijerph15020311>
- Liu, M., Wu, L., & Yao, S. (2019). Dose–response associations between screen time and depression in children and adolescents: A meta-analysis. *Frontiers in Psychiatry*, 10, 365. <https://doi.org/10.3389/fpsy.2019.00365>
- Liu, X., & Sun, Y. (2018). The role of parental monitoring and Internet parenting style in adolescent problematic Internet use. *Computers in Human Behavior*, 81, 132–138. <https://doi.org/10.1016/j.chb.2017.12.022>
- Lo, S. K., Wang, C. C., & Fang, W. (2020). Physical and psychosocial outcomes of adolescents engaging in excessive gaming: A longitudinal study. *Cyberpsychology, Behavior, and Social Networking*, 23(6), 376–383. <https://doi.org/10.1089/cyber.2019.0308>
- Mahmor, N., Mokhtar, R. M., & Nordin, S. Z. S. (2024). The impact of online gaming on academic performance: A study of JTMK, Politeknik Ungku Omar students. *Journal of Education Method and Learning Strategy*, 4(1), 2–6.
- Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018). The associations between problematic Facebook use, psychological distress and well-being among adolescents and young adults: A systematic review and meta-analysis. *Journal of Affective Disorders*, 226, 274–281. <https://doi.org/10.1016/j.jad.2017.10.007>
- Meddage, N. R., Meddage, D. N. R., Akuretiya, D. A., Ismail, M. I. F., & Kannangara, N. A. (2024). The effect of online games play on academic performance: SLIATE as case study. *International Journal of Research Publication and Reviews*, 5(2), 125–132. [www.ijrpr.com](http://www.ijrpr.com)
- Mohd Zameri, N. I. H., Mahmud, M. I., & Ku Johari, K. S. (2024). The influence of online gaming addiction on students' learning performance. *International Journal of Academic Research in Business and Social Sciences*, 14(6), 206–218. <https://doi.org/10.6007/ijarbss/v14-i6/21779>
- Montag, C., & Walla, P. (2021). Carpe diem instead of losing your social mind: Beyond digital addiction and digital detox. *Addictive Behaviors Reports*, 14, 100386. <https://doi.org/10.1016/j.abrep.2021.100386>
- Müller, K. W., Beutel, M. E., Dreier, M., & Wölfling, K. (2019). A clinical evaluation of the DSM-5 criteria for Internet gaming disorder and a pilot study on their applicability to further Internet-related disorders. *Journal of Behavioral Addictions*, 8(1), 28–40. <https://doi.org/10.1556/2006.8.2019.03>
- Muminah, A., Haryanto, B., & Astutik, A. (2023). Pengaruh game online terhadap perilaku sosial siswa SMA. *Edumaspol: Jurnal Pendidikan*, 7(1). <https://doi.org/10.33487/edumaspol.v7i1.6047>
- Namdeo, M., & Gupta, S. K. (2023). Students' heavy use of Internet gaming and addiction: An online interview study. *International Journal for Multidisciplinary Research*, 5(5), 1–11. <https://doi.org/10.36948/ijfmr.2023.v05i05.8083>
- Nielsen, R. K., Fletcher, R., Newman, N., Brennen, J. S., & Howard, P. N. (2020). Navigating the 'infodemic': How people in six countries access and rate news and information about coronavirus. *Reuters Institute*. <https://reutersinstitute.politics.ox.ac.uk>
- Ningsih, S., Handayani, G., Dewi, V., & Halimah, H. (2023). Hubungan kecanduan bermain game online dengan prestasi belajar anak usia sekolah dasar di Kota Jambi tahun 2023. *Prosiding International Conference Health Polytechnic of Jambi*. <https://doi.org/10.35910/icohpj.v2i0.708>

- Nuyens, F. M., Kuss, D. J., Lopez-Fernandez, O., & Griffiths, M. D. (2019). The empirical analysis of non-problematic video gaming and cognitive skills: A systematic review. *International Journal of Mental Health and Addiction*, 17(2), 389–414. <https://doi.org/10.1007/s11469-018-9934-0>
- Paulus, F. W., Ohmann, S., von Gontard, A., & Popow, C. (2018). Internet gaming disorder in children and adolescents: A systematic review. *Developmental Medicine & Child Neurology*, 60(7), 645–659. <https://doi.org/10.1111/dmcn.13754>
- Pontes, H. M., & Griffiths, M. D. (2019). Measuring DSM-5 Internet gaming disorder: Development and validation of a short psychometric scale. *Computers in Human Behavior*, 45, 137–143. <https://doi.org/10.1016/j.chb.2014.12.006>
- Ramadhan, S. N., Prahmana, G., & Kaputama, S. (2024). Algoritma regresi linier pengaruh waktu bermain terhadap minat baca siswa. *Jurnal Kecerdasan Buatan dan Aplikasi Teknik (JAIEA)*, 4(1), 588. <https://doi.org/10.59934/jaiea.v4i1.588>
- Ratan, R. A., Taylor, S. H., Hogan, J., Kennedy, T., & Williams, D. (2019). Sex differences in online video game play: A communication-based explanation. *Communication Research*, 46(8), 1137–1158. <https://doi.org/10.1177/0093650217717402>
- Rehbein, F., Kleimann, M., & Mößle, T. (2019). Prevalence and risk factors of video game dependency in adolescence: Results of a German nationwide survey. *Cyberpsychology, Behavior, and Social Networking*, 13(3), 269–277. <https://doi.org/10.1089/cyber.2009.0229>
- Rho, M. J., Lee, H., & Choi, I. Y. (2020). Predicting gaming disorder: The relationship between the big five personality traits and gaming disorder. *Sustainability*, 12(15), 6009. <https://doi.org/10.3390/su12156009>
- Rumpf, H. J., Achab, S., Billieux, J., Bowden-Jones, H., Carragher, N., Demetrovics, Z., ... & Petry, N. M. (2018). Including gaming disorder in the ICD-11: The need to do so from a clinical and public health perspective. *Journal of Behavioral Addictions*, 7(3), 556–561. <https://doi.org/10.1556/2006.7.2018.59>
- Satrial, A., Jaafar, A., Sari, W., & Yumna, Y. (2023). Exploring the impact of online gaming on students' academic engagement. *Ahlussunnah: Journal of Islamic Education*, 2(2). <https://doi.org/10.58485/jie.v2i2.208>
- Savić Tot, T., Adžić, S., Tot, V., Aleksić, M., & Zakić, N. (2023). The impact of time devoted to video games on student achievement. *Education and Information Technologies*, 28(5), 5921–5944. <https://doi.org/10.1007/s10639-022-11418-5>
- Söylemez, A. (2021). The prediction role of delay of gratification on game addiction in children. *Malaysian Online Journal of Educational Technology*, 9(2), 67–75. <https://doi.org/10.52380/mojet.2021.9.2.255>
- Starcevic, V., & Aboujaoude, E. (2017). Internet gaming disorder, obsessive-compulsive disorder, and addiction. *Current Addiction Reports*, 4(3), 317–322. <https://doi.org/10.1007/s40429-017-0158-9>
- Teng, Z., Pontes, H. M., Nie, Q., Griffiths, M. D., & Guo, C. (2020). Depression and anxiety symptoms associated with Internet gaming disorder in adolescents: A longitudinal study. *Journal of Behavioral Addictions*, 9(1), 1–11. <https://doi.org/10.1556/2006.2020.00004>
- Twenge, J. M., & Campbell, W. K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive Medicine Reports*, 12, 271–283. <https://doi.org/10.1016/j.pmedr.2018.10.003>
- van den Eijnden, R. J., Lemmens, J. S., & Valkenburg, P. M. (2018). The Social Media Disorder Scale. *Computers in Human Behavior*, 61, 478–487. <https://doi.org/10.1016/j.chb.2016.03.038>
- Wartberg, L., Kriston, L., & Thomasius, R. (2019). Internet gaming disorder and problematic social media use in adolescents: A structural equation modelling analysis. *International Journal of Environmental Research and Public Health*, 16(3), 441. <https://doi.org/10.3390/ijerph16030441>
- Wirati, W., Reviyanti, L., & Gumilar, M. (2024). Impact of Free Fire online games on the social behavior of class 4 students of SDN 1 Cipanas Bandung Barat. *Journal of Education Method and Learning Strategy*, 2(3). <https://doi.org/10.59653/jemls.v2i03.1116>
- Yu, S., Mao, S., & Chen, Q. (2023). The impact of digital game addiction on academic performance: Evidence from university students in China. *Education and Information Technologies*, 28, 1045–1062. <https://doi.org/10.1007/s10639-022-11222-1>
- Zimmerman, F. J. (2020). Children's media use and sleep problems: A review of the literature. *Current Pediatric Reviews*, 16(2), 90–95. <https://doi.org/10.2174/1573396315666190304165331>