

A Chinese Perspective on Online Gaming Usage and its Impact on Students' Attitudes Toward Learning

Mengyuan Wang, Princess Policarpio*

Angeles University Foundation, Angeles City, Philippines

Abstract: In the context of the digital era, online games have become part of the daily life of Chinese middle school students, affecting not only their academic performance and social activities but also significantly influencing their attitudes toward learning. Starting from the current situation of secondary schools in China, this review analyzes online gaming usage, the industry development trend, the cognitive and psychological impact on adolescents, the social impact, and the role of parental involvement and supervision, and explores the impact of online gaming usage on secondary school students' attitudes toward learning. This academic review help educators, parents, and policymakers design interventions that facilitate proper modulation between gaming and academics to promote healthier developmental pathways among middle school students.

Keywords: Online Gaming Usage; Attitudes Toward Learning; Middle School Students.

1. Introduction

Middle school is one of the critical developmental stages of education in a child's life when core abilities in problem-solving, interpersonal relationships, and subject areas are appreciated. In the 21st century, online games began to become popular in China, and the development of China's online game industry and consumption of game users witnessed explosive growth. By June 2024, the number of electronic game players in China has reached 674 million. Among them, the number of online game users is as high as 668 million. People use video games for leisure and social interaction, and Gasha et al. (2021) shows that puzzle-type video games can improve executive performance. However, mainstream literature in relevant fields indicates that excessive addiction to online games will interfere with the normal development process of adolescents, including short attention span, poor academic performance and impaired cognitive function.

In regards to the learning sector, Research shows 68% of Urban Middle schoolers in China, mostly Beijing and Shanghai play "Honor of Kings" and "PUBG Mobile," while 52% in rural regions do (Quest Mobile, 2023). Better technology and city disposable income explain this disparity. However, both environments have disturbing scholarly effects. Urban students who game for more than three hours a day had a 12% decline in exam performance; rural students have an 18% drop, perhaps due to fewer educational resources and aid (Liu & Zhang, 2023). Esports clubs are more common in cities than in rural areas, where students game alone, (Yu & Sun, 2023), Irrespective of location, research has shown that overindulgence in online gaming may interfere with the normal developmental process of adolescents, resulting in declining academic performance and social isolation.

Current literature points to serious concerns about the negative association between video games and academic performance and impaired cognitive functioning. Online gaming alters Chinese middle schoolers' views on schooling. For people who want to join socially, excessive online gaming increases academic procrastination and lowers motivation (Zhou et al., 2017). Online gamers may favor games' rapid rewards and social contacts, which reduces academic

engagement and classroom involvement by 15% (Yang, Cheung, & Huang, 2021). This move stresses the need for game-like instructional programs to re-engage students. Furthermore, playing games has adverse effects, including reduced ability to interact with others, increased aggression, and a shift in social relationships, with more emphasis on online relationships.

Digital technology has advanced quickly in entertainment channels, and playing games is now common among teenagers. According to Caarani et al. (2022), social interactions can be obtained from moderate gaming and even cognitive gains. Still, the risks associated with excessive gaming threaten the developmental functions necessary in the middle years of school. This research aims to investigate the negative impacts of Internet gaming on student performance in middle school and social life. Recognizing these impacts makes it imperative for educators, parents, and policymakers to formulate appropriate intervention measures that address the drawbacks and foster the positive effects of these practices.

Kondo et al. (2023) observe that gaming is an area of significant concern for middle school students since it impacts their academic productivity and social relations as well as their learning environment and disposition. As defined by Kondo et al., learning attitudes refer to motivation, interest, participation, behaviors, and beliefs about learning. The effects of digital games on the social development of adolescent children must be addressed, together with the increase in digital games. This research evaluates how students' learning attitudes are impacted by gaming on gadgets by obtaining quantitative information on how it hinders crucial development in middle school. It also seeks to assist educators, parents, and policymakers to inform interventions that will enable the moderation between gaming and academic activities by offering better positive developmental patterns in middle school children.

The rationale for conducting this research is to present a systematic description of the impact that excessive game-playing has on learner outcomes in middle school and social life. A comprehensive literature review and empirical research achieve this. Therefore, the study's intended contribution is to shed more light on the issue and aid in formulating interventions that may help reduce these adverse

effects. The research aims to quantitatively assess the relationship between online gaming usage and students' attitude towards learning in this favorable educational environment using a series of questions.

These will include quantitative tests like demographic profiles, the level of student's attitudes, and students' excessive gaming to determine how gaming affects the academic, cognitive, and social aspects of their lives. The findings should thus help educators, parents, and policymakers engage middle school children in healthy proportions of gameplay and academically productive tasks to enhance more positive developmental outcomes.

2. Review of Related Literature

2.1. Online Gaming Usage

The engagement in online gaming among middle school students has been on the rise, and researchers have noted a correlation between them and worsening academic performance. Based on the data of the Youth Development Survey in the Internet Era, Tian Feng and Wang Lu(2021) found that there are differences in the use of online games by minors with different characteristics: (1) From the perspective of the difference between urban and rural areas, nearly 70% of minors have played online games, and the proportion of boys, left-behind children and middle school students is higher. There is a gap between urban and rural minors in the length of online games, and urban minors play online games significantly less than rural minors. (2) In terms of online gaming devices, mobile phones dominate the gaming devices used by minors, accounting for 62.24%, much higher than computers (16.81%) and tablets (16.76%), which rank second. (3) From the perspective of time, the average online game time of minors is not long, and the proportion of more than 2 hours is not high, and the use of online games for more than 2 hours by rural left-behind children is more prominent, and more than 10% of left-behind children play games for more than 2 hours a day from Monday to Friday. (4) The distribution of game types is wide. In the ranking of mobile games played by minors, "King of Glory" ranks first (35.10%); In second place was the "peace elite" (31.36%); In third place is Minecraft (28.37%), all three of which are MOBA (multiplayer online tactical arena) games. It involves puzzle casual games, simulation strategy, asymmetric competition, chess and card games, racing games, etc.

There is a noteworthy problem of online game disorder among young people, and it is generally accompanied by moderate degree of learning burnout. Research has indicated that students more involved in gaming are likely to perform worse in their studies and achieve lower exam scores than students who spend less time gaming. Adelantado-Renau et al. (2019) conducted a cross-sectional survey that found that adolescents who spent more time on screens (including playing games) spent less time doing homework, and studying were less focused on mental activities during school, and had poorer academic performance.

These findings are consistent with the findings of Lee et al. (2022), who showed that excessive immersion in gaming activities disrupted students' daily schedules, leading to reduced class participation. In addition, Milyavskaya et al.(2020) argued that spending cognitive resources on game activities for a long period of time may lead to psychological fatigue and affect students' academic development and cognitive health. To sum up, previous research results show

the correlation between game activities and academic performance, and emphasize the necessity of moderately adjusting students' game behavior.

2.1.1. The Landscape of Online Gaming in China

In the context of addiction to gaming and its effects on students, China, as one of the largest markets in the world for online gaming, has a different perspective. In recent years, there have been increasing concerns about gaming addiction, prompting the Chinese government to take action. Recently, the government has implemented regulations limiting minors to a maximum of three hours per week for playing online games, with strict provisions for compliance (Zhou, 2022). These measures are aimed at mitigating the negative impacts of excessive gaming on students' academic performance and time management. Currently, Chinese games like "Honor of Kings" and "Game for Peace" enjoy their vast popularity and millions of players. For instance, in a recent global report produced by the China Internet Network Information Center (2022), there are now over 500 million gamers in China, and a good number of them are students (Cheng et al., 2023). In addition to their stimulating content, these games often incorporate social aspects and competitive elements, which can lead to extensive hours spent playing and potential addiction.

Despite this, the Chinese gaming industry has remained strong and robust while enhancing its growth by addressing its concerns. Many game developers are introducing features geared towards healthy gaming, including timely notifications and age-restricted options. Also, teachers and parents are urged to work together to help students exercise moderation in their gameplay and take on their respective academic responsibilities.

CNG (2023) pointed out in the "2023 China Game Industry Minor Protection Progress Report" on December 14 that as of June 2023, the number of Internet users in my country has reached 1.079 billion, of which 161 million are 10-19 years old and below, accounting for 14.9%. In addition, from January 2022 to October 2023, public opinion on "minors' game time" decreased by 70%, while attention to consumer behaviors such as "minors' game refunds" showed an upward trend.

The convenience of the Internet is getting higher and higher, and people's lives are becoming more dependent on it. While we enjoy the convenience brought by the Internet, we are also suffering from the harm brought by the Internet. As a sister, I watched my brother neglect his studies due to neglect of proper guidance and indulge in online games. In order to explore the reasons and find solutions, it is also for the future of basic education.

2.1.2. Cognitive and Psychological Effects of Excessive Online Gaming Usage.

Studies have shown that online gaming usage improves cognitive performance in the classroom. For example, Renaldo et al. (2022) found that moderate play of computer games can improve specific cognitive areas of cognition such as spatial orientation and strategic thinking, but excessive play of many games is often detrimental. Another study by Mohammadi et al. (2020) showed that intense video games are associated with changes in areas of the brain involved in attention that affect students' ability to focus, organize, and perform tasks.

As reported by Pallavicini et al. (2022), the negative psychological effects of excessive online gaming usage on adolescents include increased levels of stress, anxiety, and

depression. These psychological states can exacerbate academic problems, and lead to lower motivation and ability to participate in school-related tasks. For example, Farchakh et al. (2020) show that children with online gaming usage exhibit more emotional and behavioral problems, which affect their learning in school. The decline of cognitive function and the deterioration of mental condition is an important problem for learners, who are unable to effectively manage their own time, coordinate the use of online games usage and study time.

Excessive online gaming usage will not only affect students' overall learning ability, but also promote students' attitude towards learning. Knodo et al. (2023) define attitude towards learning as students' motivation, interest, and engagement in learning, behaviors, and beliefs. Excessive online gaming usage results in decreased interest and motivation toward achievement and learning, as students often prefer video games over school tasks, finding them more stimulating and satisfying. This shift of focus translates to reduced involvement in class activities, low rates of assignment completion, and a poor attitude towards studying, viewing it as less desirable than playing games, which hinders academic achievement and the pursuit of long-term educational objectives.

2.1.3. Social Implications of Excessive Online Gaming Usage.

Middle school students' social lives are also highly impaired due to over-gaming. In an analysis of adolescents' gaming, Pham (2021) noted that video game users reported less face-to-face communication and fewer constructive social engagements. This social withdrawal may cause children to feel lonely, which is detrimental to their social development, especially during middle school.

Indeed, peer relationships are most likely to bear the brunt of the detrimental effects of excessive online gaming usage. Another study by Kamal and Wok (2020) showed that children engrossed in gaming lack proper interpersonal relationships and fail to cultivate them. This can be attributed to the displacement hypothesis, which states that the time students spend on gaming undermines the time they could spend on interpersonal communication and other relational tutoring (Miller, 2022). Moreover, heavy gamers are likely to experience constant friction with their parents or siblings, which deteriorates family relations and decreases student support.

2.1.4. The Role of Parental Involvement and Supervision

Parental involvement and monitoring are the two components that stand out as most effective in lessening the effects of excessive gaming. According to a study by Akkaya et al. (2021), children who are guided on the amount of time they spend on games and whose parents set rules and limits on gaming are less likely to show negative academic or social effects. Supervision and monitoring by parents can help avoid or control the extent to which gaming hinders homework, sleep, or other essential activities. Moreover, parents who participate in their children's video game usage can direct them to more educational and developmentally favorable games (Lieberoth & Fiskaali, 2021)

However, in most conditions, the degree of parental involvement depends on the parents' knowledge regarding gaming and its consequences. Gözümlü and Kandır (2021) suggested that parents with good knowledge about games can effectively guide and regulate their children's games and related problems. This implies that it might be helpful to

intervene by raising parents' awareness regarding the consequences of gaming and how they might regulate time spent on gaming.

2.2. Students' Attitude Towards Learning.

The students' attitude towards learning is one aspect that determines their performance and academic development. Motivation, interest or engagement with the learning process, the behaviors, and perceptions towards the use or importance of learning. A positive learning attitude is best characterized by commitment and passion for academic learning, diligence in handling academic activities and willingness to learn (Nagasawa et al., 2023). On the other hand, the negative attitude has side effects on students by demotivating them, disengaging them from study, therefore exhibiting poor performance at school.

This attitude is special when it comes to employing the technique among middle school students who are in the period of transition from childhood to adolescence, a period of development that is characterized by a number of cognitive, emotional and social changes. This is the stage where the students are developing their self-identities, including their academic self-identities in and through their educational environments.

However, with the rising trends in using internet facilities, the ease at which the learner is distracted from a positive learning attitude when using online gaming as a learning aid. Long hours spent on video games can result in decreased drive or concern towards education, as the rewards are seen to be much quicker and social rather than going to class or doing homework (Nagasawa et al., 2023). These changes in attitude can lead to reduced participation in school events, lesser interaction in class, and a careless approach to learning (Tashiro et al., 2020). To comfortably respond to the question, educators, parents, students, and policymakers must comprehend the antecedents of students' learning-related attitudes, including their gameplay and academic habits.

2.2.1. Intervention and Educational Strategies

Players and parents have raised concerns about the effects of excessive gaming, and educational institutions and policymakers have taken note of this issue. Initiatives aimed at promoting responsible gaming behaviors are well established. These programs often include sections that educate students about the risks of overplaying and strategies for managing gaming time alongside other essential tasks (Khodabandeh & Garavand, 2020). In addition to curriculum adjustments, schools can promote social and physical activities while restricting electronic devices that disrupt students' concentration during lessons. Comeran-Chueca et al. (2021) emphasize that gaming contributes to physical inactivity, highlighting the importance of encouraging movement and physical activity within school settings. Furthermore, schools may provide student services such as tutoring, counseling, and support groups for those who have developed gaming addiction. These interventions aim to support students in managing their gaming habits and maintaining a healthy balance between gaming and academic responsibilities.

Other measures considered as prevention tools against over-gaming include technological ones. Considering this, applications and control of time spent playing games have been identified as helpful in guiding students in controlling their playful behavior (Cheung & Ng, 2021). These tools can offer parents and educators options for supervising gaming

sessions and setting time restrictions on these sorts of activities to prevent over-engagement in gaming from impacting academic and social life.

2.3. Future Research Directions

Even though significant progress has been made regarding the effects of over-gaming, more information still needs to be gathered. Subsequently, more longitudinal research should be conducted to analyze the potential long-term impacts of gaming on academic and social performance. They would also inform whether negative findings noted in cross-sectional observations continue to accrue in subsequent years or if the students can overcome such effects as they grow older. Furthermore, there is a need for studies that evaluate the impact of different games. Not all types of games bring about similar fallout; for instance, educational games are likely to positively influence learning outcomes, as opposed to aggressive games that are likely to lead to social and psychological repercussions (Wen, 2021). Awareness of such differences is the key to creating specific strategies and guidelines for students, parents, and teachers.

3. Conclusion

In the digital era, online games have become an important part of Chinese adolescents' lives and have had a profound impact on their learning and growth. From an economic perspective, the development of the online game industry has brought high economic benefits. MMOs provide a platform for adolescents to release stress, develop social skills, and to some extent fulfill their need for achievement and recognition in the virtual world. It has also raised concerns about adolescents' attitudes towards learning and mental health.

Transitional use of online games poses a number of challenges, with study time being encroached upon by games, distraction, and potential impacts on academic performance. The emergence of these issues has prompted in-depth reflection and active intervention at the family, school, and societal levels regarding the impact of online games. The Chinese government has taken a series of measures, including the implementation of an anti-addiction system for online games and the strengthening of policies for the protection of minors, to mitigate the negative impacts of online games on youth. It is difficult to achieve results by relying only on macro-controls, and the participation and supervision of parents and educators are crucial in this process. They need to communicate effectively with young people, guide them to establish healthy gaming habits, and ensure that the use of online games does not interfere with studies and other important areas of life. In addition, educators and parents are encouraged to become involved in the online lives of adolescents to better understand the appeal of online games and to provide appropriate guidance and support.

Overall, the impact of online games on adolescents' attitudes towards learning is multifaceted and requires concerted efforts from all sectors of the community to ensure that the positive effects of online games are realized while their potential negative impacts are reduced. Through reasonable regulation, reinforcement of family education, and enhancement of young people's own online literacy, it can be expected that young people will be able to enjoy the positive experiences brought by online games while safeguarding their healthy growth.

Acknowledgments

Sincere thanks to my dissertation advisor, Princess Policarpio, and all the members of the Oral Advocacy Committee, as well as the AUF Graduate School and my classmates, and anyone else who offered help!

Your support has allowed me to move forward.

References

- [1] Adelantado-Renau, M., Moliner-Urdiales, D., Cavero-Redondo, I., Beltran-Valls, M. R., Martínez-Vizcaíno, V., & Álvarez-Bueno, C. (2019). Association between screen media use and academic performance among children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, 173(11), 1058-1067. <https://jamanetwork.com/journals/jamapediatrics/article-abstract/2751330>.
- [2] Akkaya, S., Tan, Z., Kapıdere, M., & Şahin, S. (2021). Investigation of the relationship between parents' awareness of digital parenting and the effects of digital games on their children. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 22(1), 889-917. <https://dergipark.org.tr/en/doi/10.17679/ inuefd.905569>.
- [3] Chaarani, B., Ortigara, J., Yuan, D., Loso, H., Potter, A., & Garavan, H. P. (2022). Association of video gaming with cognitive performance among children. *JAMA network open*, 5(10), e2235721-e2235721. <https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2797596>.
- [4] Cheung, S. Y., & Ng, K. Y. (2021, March). Application of the educational game to enhance student learning. In *Frontiers in Education* (Vol. 6, p. 623793). Frontiers Media SA. <https://www.frontiersin.org/articles/10.3389/educ.2021.623793/full>
- [5] Comeras-Chueca, C., Marin-Puyalto, J., Matute-Llorente, A., Vicente-Rodriguez, G., Casajus, J. A., & Gonzalez-Aguero, A. (2021). Effects of active video games on health-related physical fitness and motor competence in children and adolescents with overweight or obesity: systematic review and meta-analysis. *JMIR Serious Games*, 9(4), e29981. <https://www.mdpi.com/1660-4601/18/13/6965>
- [6] CNG (2023, December 14) "2023 China Game Industry Minor Protection Progress Report" <https://www.36kr.com/p/2560094838103424>.
- [7] Esping-Andersen, G., & Przeworski, A. (2001). Quantitative cross-national research methods. *International encyclopedia of the social and behavioral sciences*, 18, 12649-12655.
- [8] Farchakh, Y., Haddad, C., Sacre, H., Obeid, S., Salameh, P., & Hallit, S. (2020). Video gaming addiction and its association with memory, attention and learning skills in Lebanese children. *Child and Adolescent Psychiatry and Mental Health*, 14, 1-11. <https://link.springer.com/article/10.1186/s13034-020-00353-3>
- [9] Gözüm, A. İ. C., & Kandır, A. (2021). Digital games preschoolers play parental mediation and examination of educational content. *Education and Information Technologies*, 26(3), 3293-3326. <https://link.springer.com/article/10.1007/s10639-020-10382-2>.
- [10] Kamal, N. S. Z., & Wok, S. (2020). The impact of online gaming addiction on mental health among IIUM students. *International Journal of Heritage, Art and Multimedia*, 3(11), 01-20. <https://core.ac.uk/download/pdf/388347426.pdf>.
- [11] Khodabandeh, E., & Garavand, A. G. (2020). Culture-building and Promoting National Productions by managing the Computer Games. *Journal of Management and Accounting Studies*, 8(4), 24-29. <http://journals.researchhub.org/index.php/jmas/article/view/1107>

- [12] Kara, A. (2010). The development of the scale of attitudes towards learning. *Electronic Journal of Social Sciences*, 9(32), 49-62.
- [13] Lee, W. H., Shim, H. M., & Kim, H. G. (2022). Effect of game-based learning using live streaming on learners' interest, immersion, satisfaction, and instructors' perception. *International Journal of Serious Games*, 9(2), 3-26. <https://journal.seriousgamessociety.org/index.php/IJSG/article/view/457>
- [14] Lieberoth, A., & Fiskaali, A. (2021). Can worried parents predict the effects of video games on their children? A case-control study of cognitive abilities, addiction indicators, and wellbeing. *Frontiers in Psychology*, 11, 586699. <https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2020.586699/full>
- [15] Miller, L. (2022). Children of the Internet: An investigation into the associations between social media use, gaming, and young people's mental health (Doctoral dissertation, UCL (University College London)). <https://discovery.ucl.ac.uk/id/eprint/10156509/>.
- [16] Milyavskaya, M., Galla, B. M., Inzlicht, M., & Duckworth, A. L. (2021). More effort, less fatigue: The role of interest in increasing effort and reducing mental fatigue. *Frontiers in Psychology*, 12, 755858. <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.755858/full>.
- [17] Mohammadi, B., Szycik, G. R., Te Wildt, B., Heldmann, M., Samii, A., & Münte, T. F. (2020). Structural brain changes in young males addicted to video gaming. *Brain and Cognition*, 139, 105518. <https://www.sciencedirect.com/science/article/pii/S027826261930199X>.
- [18] Pallavicini, F., Pepe, A., & Mantovani, F. (2022). The effects of playing video games on stress, anxiety, depression, loneliness, and gaming disorder during the early stages of the COVID-19 pandemic: PRISMA systematic review. *Cyberpsychology, Behavior, and Social Networking*, 25(6), 334-354. <https://www.liebertpub.com/doi/abs/10.1089/CYBER.2021.0252>.
- [19] Pham, D. T. (2021). Investigating the Role Video Game Players' Supportive Communication Plays in Moderating the Effects of Toxicity in Online Gaming. Illinois State University. <https://search.proquest.com/openview/9f76ed5d5eb376309b15ee34a319e400/1?pq-origsite=gscholar&cbl=18750&diss=y>
- [20] Reynaldo, C., Christian, R., Hosea, H., & Gunawan, A. A. (2021). Using video games to improve decision-making and cognitive skill capabilities: a literature review. *Procedia Computer Science*, 179, 211-221. <https://www.sciencedirect.com/science/article/pii/S1877050920324698>
- [21] Brown, R. I. F. (1991). Gaming, gambling and other addictive play. *Adult play: A reversal theory approach*, 101, 118.
- [22] THE STATE COUNCIL THE PEOPLE'S REPUBLIC OF CHINA (August 30,2021) Resolutely prevent minors from becoming addicted to online games - Relevant officials from the State Administration of Press and Publication answered reporters' questions about the "Notice on Further Strict Management to Effectively Prevent Minors from Becoming Addicted to OnlineGames"https://www.gov.cn/zhengce/2021-08/30/content_5634208.htm.
- [23] Wen, Y. (2021). Positive Affordance of Video Game (Doctoral dissertation, Pratt Institute).<https://search.proquest.com/openview/63ee325e814f6701ba263b98449f9360/1?pq-origsite=gscholar&cbl=18750&diss=y> .
- [24] Gasha, V., Dapp, L. C., Trninic, D., et al. (2021). The effect of video games, exergames, and board games on executive functions in kindergarten and 2nd grade: An explorative longitudinal study. *Trends in Neuroscience and Education*, 25, 100162.<https://doi.org/10.1016/j.tine.2021.100162>.
- [25] Jo, S. J., Jeong, H., Son, H. J., Lee, H. K., Lee, S. Y., Kweon, Y. S., & Yim, H. W. (2020). Diagnostic Usefulness of an Ultra-Brief Screener to Identify Risk of Online Gaming Disorder for Children and Adolescents. *Psychiatry investigation*, 17(8), 762-768. <https://doi.org/10.30773/pi.2019.0279>.
- [26] Tian, F., & Wang, L. (2022). The Study of Online Game Usage and Its Impact on Minors. *Youth Development and Research*, 5, 65-74. <https://doi.org/10.13583/j.cnki.issn1004-3780.2022.05.006>.
- [27] Bussone, S., Trentini, C., Tambelli, R., & Carola, V. (2020). Early-Life Interpersonal and Affective Risk Factors for Pathological Gaming. *Frontiers in psychiatry*, 11, 423. <https://doi.org/10.3389/fpsy.2020.00423>.