

THE RELATIONSHIP BETWEEN LEARNING MOTIVATION AND INTERNET USE BEHAVIOR AMONG BOARDING MIDDLE SCHOOL STUDENTS

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Abstract: This study investigated 500 boarding middle school students from several middle schools, including Anyang Zoujin Middle School and Anyang No.25 Middle School. Utilizing the Learning Motivation Diagnostic Test, Chinese Internet Addiction Scale, and Internet Use Behavior Questionnaire as research tools, it explored the relationships between internet use behavior, internet addiction, and learning motivation among boarding middle school students. The results revealed: (1) Significant gender differences existed in daily internet use duration and online activities, with extremely significant differences observed in weekly internet use duration and problematic online behaviors; (2) Significant differences in weekly internet use duration were found between day students and boarding students; (3) Internet addiction exhibited significant gender differences; (4) Learning motivation showed extremely significant differences based on boarding status.

Keywords: Boarding middle school students; Learning motivation; Internet use behavior; Internet addiction

1 INTRODUCTION

1.1 Research Background

The convenience, openness, entertainment value, and richness of the internet have made it highly popular among young people, including junior high school students. The gradual proliferation of smartphones has enriched students' extracurricular lives, expanded their knowledge horizons, and broadened their social circles. However, it has also introduced potential risks such as internet addiction and online romance [1]. Consequently, research on junior high school students' internet use has garnered increasing attention from psychology and education scholars.

For boarding middle school students, a substantial portion of their time is spent under school supervision and adhering to various regulations, limiting their physical activity space. Their primary interactions are with teachers and peers, making the management of these relationships crucial [2]. After leaving their parents, they often lack regular objects and venues for psychological communication and confession. During interactions with peers, they may encounter issues related to improper internet use. Therefore, cultivating healthy internet use habits among middle school students is of paramount importance. Research on internet use behavior aids in distinguishing the varying impacts of different online behaviors on students, providing references for fostering positive behaviors. Moreover, it underscores the necessity for teachers and schools to strengthen internet behavior management, proactively identifying and addressing issues at an early stage [3].

A review of existing literature reveals that current research on boarding middle school students' internet use primarily focuses on the negative impacts of the internet, problem definition, questionnaire development, hazards, and prevention strategies [4]. However, there has been limited exploration of the causes of online behavior differences, particularly from the perspective of students' learning motivation. Therefore, investigating the relationship between learning motivation and internet use behavior among boarding middle school students can offer valuable insights for cultivating healthy internet habits.

1.2 Overview of Previous Research

1.2.1 Research status on internet use

According to the 39th CNNIC statistical report, as of December 2016, China's internet user base had surpassed 731 million, representing a 6.2% increase from the previous year. Among them, mobile internet users reached 695 million, accounting for 95.5% of the total internet population, with a continuous three-year growth rate exceeding 10%. This indicates that an increasing number of Chinese individuals have embraced the internet as a lifestyle.

Studies have categorized online activities into entertainment, learning assistance, information acquisition, online shopping, socializing, personal expression, and other activities. Research has also examined online behavior from the perspectives of duration and tools used. This study defines internet use behavior as encompassing three dimensions: duration (daily and weekly), tools (computers, mobile phones, and others), and types of activities (information acquisition, gaming, learning assistance, chatting, online shopping, music/video streaming, social media engagement, and others). Additionally, this study supplements the analysis with data on online locations, purposes, and problematic

online activities to gain a more comprehensive understanding of students' internet use[5].

1.2.2 Research status on learning motivation

The definition of motivation remains a subject of debate in psychology. Over the past decades, numerous foreign scholars have proposed their own motivation theories, with varying perspectives. However, all learning motivation theories concur that behavior is driven by motivation. Current explanations of learning motivation can be summarized into three viewpoints: cognitive, behavioral, and humanistic. The cognitive perspective, supported by many scholars, includes theories such as achievement motivation, attribution, achievement goal, and self-efficacy theories. Domestic research on learning motivation began in the 1930s and resumed its development after the reform and opening-up period. Since the 21st century, significant progress has been made in both quantity and quality. For instance, Chen Jun et al. conducted research on the relationship between achievement motivation and fear of success, while Zhu Xiaohong developed a scale for measuring learning motivation deficiency. Despite these achievements, there remains room for further exploration, particularly in the context of rapidly changing social and cultural environments and the influence of emerging fields like the internet[6].

Drawing on previous research and the needs of this study, we adopt Fan Xiaoling's definition of learning motivation: the internal psychological process that initiates and sustains learning activities, directing them toward goals set by teachers.

1.2.3 The relationship between learning motivation and internet use behavior

While extensive research has been conducted on learning motivation and internet use behavior separately, relatively few studies have comprehensively analyzed the relationship between the two. Most research has focused on the relationship between internet addiction and learning motivation or specific aspects of internet use behavior. However, a more holistic understanding of the relationship between learning motivation and various facets of internet use behavior is necessary to address the benefits and drawbacks of internet use among junior high school students effectively. Therefore, research in this area holds both theoretical and practical value[7].

1.3 Research Significance

1.3.1 Deepening educational reform in the era of Internet+

With the internet's pervasive influence across industries, including education, the concept of "Internet+" proposed by Tencent CEO Ma Huateng has garnered significant attention from the Chinese government, becoming a national development strategy. The emergence of "Internet+Education" reflects this trend. To integrate education deeply with the internet and enable education to benefit from its development, research on the internet and education is essential. Investigating the relationship between internet use behavior and learning motivation constitutes a crucial aspect of this research.

1.3.2 Promoting the physical and mental health of boarding middle school students and fostering healthy internet use habits

In recent years, problematic internet use among boarding middle school students has led to academic delays and even physical and mental health issues. Cultivating healthy internet use habits is, therefore, of utmost importance. Research on internet use behavior helps distinguish the varying impacts of different online behaviors, providing references for fostering positive behaviors among students[8].

2 RESEARCH OBJECTS, TOOLS, AND METHODS

2.1 Research Objects

The study targeted boarding students from several schools, including Anyang Zoujin Middle School and Anyang No.25 Middle School. Using convenient random sampling, classes were selected from various grades for the survey. A total of 300 questionnaires were distributed, with 283 returned and 10 deemed invalid, resulting in a 91% effective response rate. Among the valid responses, 122 were from male students and 151 from female students.

2.2 Research Tools

The questionnaire comprised three parts: the Learning Motivation Diagnostic Test(MAAT), developed by Zhou Bucheng from East China Normal University, with acceptable reliability and validity; the Chinese Internet Addiction Scale, compiled by Chen Shuhui from Taiwan region, also demonstrating acceptable reliability and validity; and the Internet Use Behavior Questionnaire, adapted from Liu Ying's version and modified to suit this study's specific context[9].

Data analysis was performed using SPSS 16.0.

2.3 Research Methods

The survey employed a questionnaire method, with collective administration in classrooms. The research team and assistant teachers personally explained the survey procedures and precautions to students before distributing the questionnaires. Students were given 15 minutes to complete the questionnaires during class, after which the questionnaires were collected.

3 RESEARCH RESULTS

3.1 T-Test Analysis Results of Internet Use Behavior and Demographic Variables

Table 1 Presents the T-test Analysis Results of Internet Use Behavior and Demographic Variables

	Gender	Frequency	Mean	Standard Deviation	T-Value	P-Value
Daily Internet Use Duration	Male	234	2.28	.850	4.120	.000***
	Female	244	1.82	.730		
Weekly Internet Use Duration	Male	234	5.47	2.580	5.030	.000***
	Female	244	4.01	2.050		
Problematic Online Behaviors	Male	234	1.47	.580	-4.810	.000***
	Female	244	1.13	.470		
Online Activities	Male	234	6.52	1.280	-2.950	.003**
	Female	244	5.08	1.570		
Weekly Internet Use Duration	Day Student	120	5.76	2.850	2.980	.003**
	Boarding Student	358	4.18	2.270		

Note: Age range of participants: 12-16 years, n=273; **P<0.01, ***P<0.001.

The results indicate significant gender differences in daily internet use duration and online activities ($P<0.01$), with extremely significant differences observed in weekly internet use duration and problematic online behaviors ($P<0.001$). Additionally, significant differences in weekly internet use duration were found between day students and boarding students ($P<0.01$). These findings suggest that male students tend to spend more time online and engage in more problematic online behaviors than female students, see Table 1. Moreover, male and female students exhibit different preferences in online activities, and day students generally spend more time online than boarding students.

3.2 Variance Analysis Results of Demographic Variables and Internet Addiction

Table 2 Presents the Variance Analysis Results of Gender and Internet Addiction

	Frequency	Mean	Standard Deviation	F-Value	P-Value
Male	234	8.62	4.570	12.350	0.000***
Female	244	7.05	4.120		

Note: ***P<0.001.

The results reveal significant gender differences in internet addiction ($P<0.01$), with male students scoring significantly higher on the internet addiction scale than female students, see Table 2.

3.3 T-Test Analysis Results of Internet Addiction and Learning Motivation

Table 3 Presents the T-test Analysis Results of Internet Addiction and Learning Motivation

Internet Addiction Classification	Frequency	Mean	Standard Deviation	T-Value	P-Value
Learning Motivation Total Score	Addicted	62	24.95	0.069	0.794
	Non-Addicted	416	24.73		

The results indicate no significant difference in learning motivation between addicted and non-addicted students ($P>0.05$), suggesting that learning motivation levels may not differ significantly between these two groups, see Table 3.

3.4 Difference Analysis Results of Demographic Variables and Learning Motivation

Table 4 Presents the Difference Analysis Results of Learning Motivation and Gender

Learning Motivation Total Score	Frequency	Mean	Standard Deviation	F-Value	P-Value
Male	234	24.58	4.372	0.487	0.485
Female	244	24.87	4.189		

The results show no significant gender differences in learning motivation ($P>0.05$), although female students exhibit slightly higher learning motivation scores than male students, see Table 4.

Table 5 Presents the Difference Analysis Results of Learning Motivation and Boarding Status

	Boarding Status	Frequency	Mean	Standard Deviation	T-Value	P-Value
Learning Motivation Total Score	Day Student	120	23.15	4.520	-4.897	0.000***
	Boarding Student	358	25.40	4.010		

Note: ***P<0.001.

The results reveal extremely significant differences in learning motivation based on boarding status ($P < 0.001$), with boarding students exhibiting higher learning motivation scores than day students, see Table 5.

4 DISCUSSION

4.1 Relationship Between Internet Use Behavior and Demographic Variables

The T-test results indicate that male students spend more time online and engage in more problematic online behaviors than female students, consistent with previous research. This may stem from differences in family upbringing, where male students often receive more lenient treatment and fewer constraints, leading to increased internet use and problematic behaviors. These findings suggest that future interventions aimed at guiding adolescents toward healthy internet use should consider family factors and promote fair and reasonable upbringing practices.

4.2 Relationship Between Demographic Variables and Internet Addiction

The variance analysis reveals significant gender differences in internet addiction, with male students scoring higher[10]. This may relate to the immersive nature of online activities preferred by male students, making them more susceptible to addiction. These findings provide a new perspective on understanding gender differences in internet addiction and suggest that prevention and intervention measures should be tailored to gender-specific needs, particularly focusing on the types of online activities engaged in by male students[11].

4.3 Relationship Between Internet Addiction and Learning Motivation

The T-test results indicate no significant difference in learning motivation between addicted and non-addicted students. This may be attributed to two factors: first, the sample selected may differ from normative samples, potentially lowering the learning motivation scores of the surveyed students and reducing the significance of differences; second, addicted students may still possess learning motivation and aspirations but may have shifted their interests due to poor academic performance. These findings suggest a complex interplay between academic performance, learning motivation, and internet addiction, warranting further investigation into the underlying mechanisms[12].

4.4 Relationship Between Demographic Variables and Learning Motivation

4.4.1 Gender factors

The variance analysis reveals no significant gender differences in learning motivation, although female students exhibit slightly higher scores. This may be attributed to female students' greater persistence and resistance to external distractions, while male students' sociability, restlessness, and playfulness may make them more susceptible to external influences, including online activities. These findings suggest that educational practices should consider gender differences in learning motivation and adopt personalized teaching methods and incentive strategies.

4.4.2 Boarding status factors

The study finds that boarding students exhibit higher learning motivation than day students[2]. Boarding students may be more inclined to utilize the school environment to enhance their academic performance, while day students may adopt a more "taobi" (which can be translated as "avoidant") attitude toward learning. These attitude differences may contribute to academic performance gaps and, consequently, affect learning motivation. These findings suggest that schools and families should collaborate to monitor and encourage day students' learning, with schools providing guidance and fostering a conducive learning atmosphere, while families offer supervision and encouragement. Future research should further explore the specific reasons for lower learning motivation among day students.

5 CONCLUSION

In the current era where the internet is deeply integrated into and extensively influences the lives of junior high school students, this study conducted an in - - depth investigation focusing on the special group of boarding middle school students. It found that there are significant gender differences in internet usage behaviors. Boys not only spend more time online and engage in more inappropriate behaviors but also exhibit more severe tendencies towards internet addiction. Meanwhile, the study revealed that there is no significant correlation between learning motivation and internet addiction, yet the learning motivation of day - students (students who do not live on campus) is significantly lower than that of non - day students. This research not only closely aligns with the development trend of "Internet + Education," providing a new perspective for educational reform, but more importantly, it lays the foundation for effectively preventing and intervening in mental health issues among middle school students caused by improper internet use. It holds immense positive value in promoting the mental health of middle school students, guiding them to form good internet - using habits, and facilitating their all - around quality development. The specific conclusions are as follows:

(1) Significant gender differences exist in daily internet use duration and online activities ($P < 0.01$), with extremely significant differences observed in weekly internet use duration and problematic online behaviors ($P < 0.001$). Significant differences in weekly internet use duration are also found between day students and boarding students ($P < 0.01$).

- (2) Significant gender differences exist in internet addiction ($P < 0.01$).
- (3) No significant difference in learning motivation is found between addicted and non-addicted students ($P > 0.05$).
- (4) No significant gender differences exist in learning motivation ($P > 0.05$), although extremely significant differences are observed based on boarding status ($P < 0.001$).

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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