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Internet Addiction and Students' Academic Motivation at Higher Education Institutions

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Abstract

Excessive internet use can lead to feelings of distress, impair self-regulation, and impact the academic Motivation of students in higher education. This study aims to check the level and prevalence of internet addiction and the significant association of internet addiction with academic Motivation among university students. The study, based on the Self-regulation Theory and the Cognitive Behavioral Theory, suggested that students' Motivation may be a significant predictor of their performance. Data were collected from 500 respondents, comprising 66.4% male and 33.6% female students, through a survey method. The empirical findings reveal internet addiction exists at mild, moderate, and severe levels among university students, but the majority were reported at moderate levels. Moreover, a positive association was found between internet addiction and academic Motivation, suggesting that some internet usage may support academic tasks. These findings underscore the importance of distinguishing between productive and problematic internet use in educational contexts.

Keywords: Internet Addiction, Academic Motivation, Students, Higher Education Institutions

Introduction

The Internet has become an integral part of our lives, bringing efficiency and ease in various ways (Khan, Khan, Zaheer, & Khan, 2012). It enables entertainment, shopping, and social sharing applications, making it easier and faster to access knowledge. It is not problematic unless it is used wisely and brings value to life; however, excessive involvement starts to disrupt life's functionality (Aslan, 2020).

Many studies have been conducted to explore the severity of the issue. A study reported approximately 210,000 children ages 6–19) are in the practice of extreme use of the Internet (Hur, 2012). South Korea has announced it as one of the serious public health issues after the cardiopulmonary-related deaths in internet café and game-related murders (Koh, 2007). The excessive use of the Internet has become a global issue, with 44.8% of Internet users coming from Asia alone (Ayub, Hamid, & Nawawi, 2014). China has begun limiting computer game use; current laws now discourage more than three hours of daily game use (Király et al., 2018). In the United States, exact estimates of the disorder's prevalence are lacking (Adalıer & Balkan, 2012). Internet addiction is also a serious public health problem worldwide, especially in Asia (Teymouri Farkush, Kachooei, & Vahidi, 2022) and Salarvand et al. (2022) reported that "out of one-third of Iranian students have Internet addiction".

As the Internet becomes the most widely used resource for students in higher education for multiple academic purposes and social networking, it is essential to identify the prevalence and its impact on students in higher education in developing countries like Pakistan. Several studies are being conducted to see the effect of internet usage from different perspectives, but very few are available on how it is influencing the lives of students, their academics, and how they are coping with this unavoidable addiction.

Objectives of the Study

Therefore, given this research gap, particularly in the Pakistani context, the study is designed with the following objectives.

1. To identify the prevalence of internet addiction among students in higher education.
2. To investigate the relationship between internet addiction and students' academic Motivation in higher education.

Significance of the Study

1. The study addresses the frequent and growing use of the Internet among students in higher education, highlighting the urgency of understanding its implications on academic Motivation.
2. With the Internet becoming an increasingly integral part of student's academic and social lives, research can contribute to developing effective interventions and preventive measures to manage potential addiction and maintain academic focus.
3. The study emphasizes the importance of conducting research in diverse cultural and community settings to generate more authentic, generalizable, and context-sensitive data and solutions regarding internet addiction.
4. By exploring the link between internet usage and academic Motivation, the study aims to reveal how specific patterns of online behavior (e.g., excessive social media use, entertainment consumption) may detract from students' academic goals and time management.
5. As internet technologies evolve rapidly, the study recognizes the need for frequent, updated research to capture current trends and behaviors, making it highly relevant for educational policymakers and institutional planning.

Literature Review

Internet Addiction and Students' Motivation

The Internet serves humanity in many positive and negative ways, e.g., entertainment, shopping, and social sharing applications, which enable easier and faster access to knowledge (Emeka, Nyeche, & Research, 2016). Like many other sectors, education is also getting an advantage not only to managing with fast-paced innovations in knowledge but also facilitating the students to broaden their academic experience, access important information, and communicate with others within the educational community (Tella, Orim, Ibrahim, & Memudu, 2018), especially in higher education. (Edmunds, Thorpe, & Conole, 2012). While contrary studies are also available, reporting that countries that have invested considerable resources in technology have shown low growth in academics (Cette, Jimmy, Giorgio, & Spiezia, 2019). Although the Internet enables students to broaden their academic experience by accessing critical information and communicating with others (Tella, 20,0it it has a significant impact on learning, especially for students in higher education institutions (Edmunds et al., 2012). However, minimal information is available about how the use of the Internet negatively influences academic performance either directly on grades or by reducing some general study-related abilities that are still under research (Teymouri Farkush, Mohsen, & Vahidi, 2022). Chen & Peng (2008) shared that students who have less control over time management while using the Internet suffer badly in their studies. The primary source of Internet accessibility is mobile devices, especially smartphones, with more than 40% of the global population engaging in this activity, a percentage that is increasing rapidly

(Montag, Jones, & Smith, 2018). Online gaming, excessive social networking, email, blogging, online shopping, and inappropriate internet pornography use (Jerald J. Block 2008), gambling, and streaming are reported as the frequent causes of internet addiction and malfunctioning in daily life (Burkauskas, Király, Demetrovics, Podlipskyte, & Steibliene, 2020). This situation seems more serious when it is reported that high school students spend about 23 hours each week gaming (H.-W. Kim, Chan, & Gupta, 2007); another 1.2 million are believed to be at risk for addiction and require basic counseling (Jerald J. Block 2008).

The compulsive gambling disorder looks nearer to internet addiction expressions as gambling is an impulse control disorder, and a gambler cannot control gambling even knowing its serious consequences. Due to its applied significance, Young's criteria have been adopted by many researchers to explore internet dependence (Whang, Lee, & Chang, 2003). The exhibition of self-control while using the Internet and demonstrating normal behavior when not using the Internet is normal (Cardak, 2013). While the extreme use of the Internet can cause psychological issues, such as helplessness, it can also be challenging for individuals to resist the desire to use the Internet for an extended period. Individuals spend more time on the Internet and disregard other predetermined schedules (Young, 2009). This compulsive use of the Internet can lead to internet dependence, with adverse effects on social, psychological, and physical health (Maurya, Patel, & Sharma, 2018).

Internet Addiction is described by Poon (2018) as a "lack of control in the use of the internet, in such a way that it impacts the individual life of the user. (Goldberg, 1996) defined internet addiction as a "powerful desire for using the internet" by following DSM IV addiction criteria. Siste et al. (2021) identified three dimensions of salience, neglect of duty, and loss of control while revising the Internet Addiction Test (IAT) to determine the prevalence of Internet addiction in the Indonesian population.

Salience is described as an activity that dominates a person's thinking, feelings, and behavior, resulting in the deterioration of socialized behavior (Griffiths, 2015). While neglect of duty is described as avoiding domestic tasks, avoiding study, and complaints about spending time online (Karim & Nigar, 2014). Loss of control is defined as "unsuccessful attempts to control the behavior" (Brand, Laier, & Young, 2014).

Motivation is one of the most important contributing factors to students' success in higher education (Moore, Claire, & Pearson, 2008), described as the energy within learners that directs their behaviors toward achieving their academic goals (Dweck, 2017). Students' academic Motivation is malleable in nature and can change over time. Academic Motivation is defined as a "student's desire, persistence, and level of interest regarding academic subjects when the student's competence is judged against a standard of performance or excellence" (Olowo, Alabi, Okotoni, & Yusuf, 2020).

Although many research studies have been conducted on students' Motivation, there has been little research on how it is influenced by internet addiction these days. Several studies have reported that long-term internet use can cause a lack of Motivation to learn. (Santinah & Saluky, 2022). Yu, Tian, Vogel, and Chi-Wai Kwok (2010) found that online discussions among students through social learning communities networked through mobile learning communities improved their self-esteem, significantly enhanced students' social connections, and enhanced their learning performance. Also validated by Preston et al. (2010), nearly 70% of students reported learning in online learning communities, such as Twitter chats, Facebook, and WhatsApp groups. The contrary findings require deep digging into these areas for planning effective preventive measures for this emerging mental health issue among students in higher education. Although there are many factors associated with academic Motivation, internet addiction is becoming more prevalent.

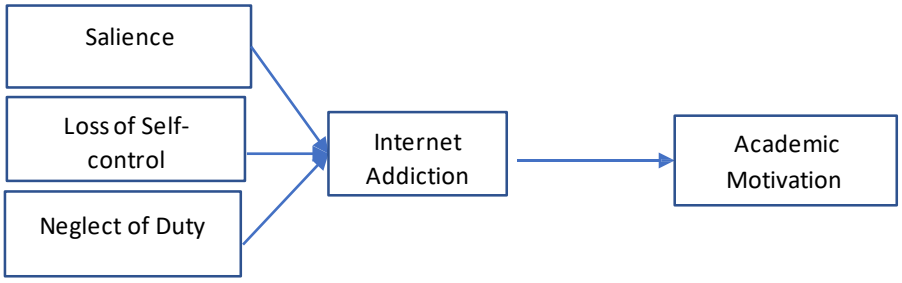
Few research studies have been conducted in the Eastern context, despite findings indicating that Asia is the most affected region in terms of internet addiction (Mak et al., 2014).

Moreover, Western findings cannot be generalized to Asian students without confirmation that these constructs, instruments, and relationships function similarly in Asian educational communities (Hardré et al., 2006). Therefore, recognizing the research gap in students' academic Motivation in higher education, especially in Pakistan, one of the educationally developing countries in Asia, this study is planned.

Studies have reported that frequent internet gaming can cause feelings of distress, decrease self-regulation, and inhibit cognitive, emotional, and behavioral aspects (Argyriou, Davison, & Lee, 2017). Another study has highlighted its impact on attention, stress, and resilience (Canale et al., 2019) and noted a decrease in decision-making abilities (Chou & Hsiao, 2000). Mak et al. (2014) shared a high rate of addiction in Asian countries in the young adult population, 51% in the Philippines and 48% in Japan, while in Europe, between 2-8% (Pontes, Macur, & Griffiths, 2016). In South American countries, Chile reports an incidence of over 11% (Berner, Santander, Contreras, & Gómez, 2014), and in Brazil, some studies indicate a rate of 30% (Andrade et al., 2022). In developing countries like Bangladesh, the prevalence is 27.1% (Hassan, Alam, Wahab, & Hawlader, 2020).

Contrary studies are available on the age difference regarding internet addiction. Some studies have reported that individuals at a lower age level are more likely to be involved in problematic internet use (Restrepo et al., 2020). Studies conducted by Hassan et al. (2020) found a difference between the two group samples, with 28.6% more active internet usage among those aged 19-24 years and 23.5% among those aged 25-35 years. Others reported young adults are more active on the Internet and more vulnerable to Internet addiction (Stavropoulos et al., 2019), and this number has increased significantly in 20 years (Griffiths et al., 2016). Students in higher education are at a transitional stage, moving from adolescence to adulthood, where they experience increased autonomy, face pressures related to their studies, and become more career-oriented. In the last few decades, anxiety, stress, and depression have been increasingly reported in many studies (Calamidas & Crowell, 2018).

Similarly, Jerald J. Block (2008) described three categories of internet involvement; 1) extreme gaming, 2) sexual preoccupations, and 3) email/text messaging. Each of these categories included 1) extreme use, often related to a loss of sense of time or a neglect of basic drives; 2) withdrawal, including feelings of anger, tension, and/or depression when the computer is unreachable; 3) tolerance, including the need for better computer equipment, more software, or more hours of use, and 4) negative consequences, including arguments, lying, poor achievement, social isolation, and tiredness. These factors not only cause physical and psychological harm (Akin & Iskender, 2011) but also lead to educational damage, such as wasting time and reducing academic performance (Aboujaoude, 2010).



Theoretical Background

The relationship between internet addiction and academic Motivation can be understood through Self-Determination Theory (Deci & Ryan, 1985), which suggests that Motivation is sustained when individuals feel autonomous, competent, and connected. Internet misuse may hinder these needs by promoting distraction, dropping self-regulation, and substituting real-world

relationships with computer-generated interactions. The cognitive-behavioral Model (Davis, 2001) suggests that students with psychological weaknesses may turn to the Internet as a coping mechanism, which, while primarily satisfying, may lead to irrational use and declining academic engagement. The Uses and Gratifications Theory (Blumler & Katz, 1974) also provides insight into students' purposeful use of the Internet for social and emotional needs, which may come at the expense of academic pursuits.

These theories suggest examining students' motivations may be critical to predicting their performance in higher education.

Hypotheses

Ho1. There is a significant prevalence of Internet Addiction among students in Higher Education.
Ho2: There is a significant relationship between Internet Addiction and students' Academic Motivation

Methodology

This study employed a quantitative descriptive survey research design. The data were collected from 500 respondents, comprising 66% men and 33.6% female university students, using simple random sampling techniques. The majority are between the ages of 18 and 22. Moreover, this study utilized an adapted instrument of Internet Addiction from Siste (2021), which consists of three dimensions: Silence (7 items), Neglect of Duty (5 items), and Loss of Control (6 items), all rated on a 5-point Likert scale. Academic Motivation with 7 items adopted from Sharif et al. (2021) on a 5-point Likert scale. The data was collected through Google survey forms.

Demographics of the Study

The sample size comprises 500 respondents, with 66.4% male students and 33.6% female students. The majority (70.8%) are between the ages of 18 and 22, indicating a predominance of younger people. In terms of education, 59.2% have a bachelor's degree, 24.8% hold a master's degree, and 14.4% hold an MS/MPhil degree; only 1.6% hold a Ph.D. In terms of occupation, 52.6% were students, 24.0% were professionals, and 22.6% were both students and professionals. In terms of professional experience, 72.0% have 0 to 4 years, 27.2% have 5 to 9 years, and 0.8% have 10 to 14 years of experience. The majority (79.2%) work in the private sector, with the government accounting for 20.8%.

Table 1: Demographics of the Study Respondents

Demographics		Percentage
Gender		
	Male	66.4%
	Female	33.6%
Age		
	18-22 years	70.8%
	23-27 years	28.2%
	28-32 years	1.0%
Qualification		
	Bachelors	59.2%
	Master	24.8%
	MS/MPhil	14.4%
	PhD	1.6%
Education Sector		
	Private	20.8%
	Public	79.2%
	Total	100%

Factor Loadings and Extracted Components

Using Principal Component Analysis gives insights into the factor loadings of Internet Addiction-related items across five components. High loadings (.884, .854, .851) suggest that component 1 is highly connected with the dread of a dull existence without the Internet, anger during interruptions, and planning future online sessions. Component 2 is distinguished by significant loadings associated with ignoring home duties and spending too much time on the Internet (.837, .878, .869). Component 3 emphasizes new online acquaintances and clandestine internet usage with substantial loadings (.907, .777). When not utilizing the Internet, Component 4 is dominated by emotions of despair or instability (.777). Component 5 demonstrates significant loadings for continuous online thinking during non-use and prioritizing internet use above socializing (.757, .741). These findings provide a more detailed knowledge of the individual factors that contribute to Internet Addiction.

The variation collected by each component based on the extraction method used is depicted by the extraction sums of squared loadings. After rotation, the rotation sums of squared loadings are displayed, allowing for component correlations. The cumulative percentages of explained variation are crucial for determining the overall contribution of each component. The cumulative percentage reaching Component 5 is 73.181%, indicating that the first five components explain this proportion of the total variation in the Internet Addiction items combined. Similarly, the PCA displays a single component for 'Academic Motivation.' This component exhibits substantial factor loadings, indicating a strong connection with items that influence Motivation and involvement in academic pursuits. Feelings of not being motivated to study (.879), decreased attendance at lectures (.874), difficulties in completing study tasks (.869), a perception that going to university is pointless (.849), and a lack of desire to attend lectures (.826), and diminished interest in study compared to the past (.747) are all factors contributing to this component. This component provides a comprehensive picture of decreased desire and involvement in academic endeavors, indicating a possible underlying issue that impacts multiple elements of academic Motivation in individuals. With an initial eigenvalue of 4.251, the first component for Academic Motivation accounts for a substantial portion of the total variance in this scenario, explaining 70.858% of the cumulative variance. The factor loadings of all the items for Internet Addiction, Psychological Resilience, and Academic Motivation are shown in Table 2 below:

Table 2: Factor Loadings

Construct	Item	Factor Loading
Internet Addiction (IA)	Life feels dull without the Internet	0.844
	Get irritated when interrupted during internet use	0.854
	Often think about the next Internet session	0.851
	Prefer the Internet over time with close ones	0.615
	School performance declines due to the Internet	0.878
	Grades drop because of excessive internet use	0.869
	Skip chores to stay online	0.837
	Lose sleep staying online all night	0.568
	Make online friends	0.907
	Hide online activities from others	0.777
	Stay online longer than planned	0.689

Construct	Item	Factor Loading
	Fail to cut down internet time	0.688
	Conceal actual hours spent online	0.880
	Say "just a minute" while online	0.821
	Use the Internet to distract from evil thoughts	0.780
	Feel unstable offline; feel better when back online	0.777
	Constantly think or daydream about the Internet	0.757
	Prefer being online over social outings	0.741
Academic Motivation (AM)	Lack study motivation	0.879
	Skip lectures more than before	0.874
	Struggle to finish study tasks	0.869
	Believe attending university is pointless	0.849
	No interest in going to class	0.826
	Find studies less engaging now	0.747

Factor loadings ≥ 0.50 were retained. Data was collected through exploratory factor analysis (EFA).

Table 3. Levels of Internet Addiction and Corresponding Academic Motivation Scores (N = 500)

Internet Addiction Level	n (%)	Academic Motivation Mean (SD)
Mild	100 (20%)	2.62 (1.11)
Moderate	384 (77%)	3.90 (1.33)
Severe	16 (3.2%)	4.68 (0.99)

Levels of Internet Addiction are shown in Table 3, which appear to show mild, moderate, and severe addiction to the Internet in higher education students. As internet addiction increases from mild to severe, 20% of the total respondents showed mild internet addiction, 76.8% appeared to have moderate internet addiction, and 3.2% of the total respondents had severe internet addiction. Interestingly, academic Motivation seems higher in students with greater levels of internet addiction; however, this may reflect excessive internet use for educational purposes and requires further analysis to confirm causality.

Table 4.

Pearson coefficient of correlation between Academic Motivation and Internet Addiction

Variables	1	2	3	4	5	6	7	8	9	10
Academic Motivation	.032	-.006	.122**	-.028	-.010	.646**	-			
Internet Addiction										
Internet Salience	.271**		.158**	.238**	.199**	.150**	.476**	.327**	.407**	-
Neglect of Duty	.088		.023	.043	.017	.067	.442**	.315**	.316**	.624**
Loss of Control	.145**		-.039	.066	.135**	.169**	.402**	.276**	.228**	.546**

Table 1 shows the Pearson correlation coefficients between various variables related to academic Motivation and internet addiction. The correlation between Academic Motivation and Internet Salience is 0.476, indicating a moderate relationship. Internet Addiction Variables: Internet Salience is positively correlated with all Internet Addiction variables. Neglect of Duty has a strong positive correlation with Loss of Control (r = 0.624). The strength of the correlation is indicated by the coefficient value, with higher absolute values indicating a stronger relationship. The significance levels (e.g., ** for $p < 0.01$) are often used to assess the reliability of the correlation coefficients.

Discussion

In line with the designed objectives, the study investigated the relationship between Internet Addiction and Academic Motivation among university students. The relationship between Internet addiction and academic Motivation has been the subject of much research in recent years. Studies have consistently shown that Internet addiction is slightly associated with academic Motivation. Referring to the findings (Demir & Kutlu, 2016), Internet addiction has been connected with academic Motivation in a negative direction. Similarly, it has been identified that internet addiction negatively impacts academic life (Zhai et al., 2020) and all academic studies in general (Yang & Tung, 2007). In this current study, quantitative data were collected from 33% female and 66% male students from Pakistani private and public universities in Lahore, Punjab region. The descriptive statistics of the designed constructs, Internet Addiction ($\mu = 3.5388$, $\sigma = 0.69960$) and Academic Motivation ($\mu = 3.6680$, $\sigma = 1.38617$), with an appropriate and significant level for analysis, supported the suitability of the sample-driven data. Our findings revealed a moderate positive correlation between one of the components of internet addiction, "Internet Salience," and academic Motivation ($r = .476$, $p < .01$). While this seems contradictory, it aligns with qualitative evidence suggesting that students often use the Internet for academic improvement, e.g., accessing online lectures, research databases, and collaborative study platforms. The findings are contrary to those of the study conducted by Perez et al. (2024). They reported a negative association between Internet addiction and students' Motivation. Regardless of the purpose, excessive Internet use adversely impacts their academic performance.

The weak yet significant association between Loss of Control and academic Motivation ($r = .145$, $p < .01$) indicates that excessive internet use doesn't necessarily decrease Motivation in the short term. A study conducted on medical students reported internet addiction coexists with high stress and Motivation due to pressure to perform (Öztekin, 2024). Internet addiction is associated with mental health issues, including anxiety, depression, and ADHD symptoms, which may weaken learning engagement and academic Motivation. In our study, the Neglect of Duty was not correlated with academic Motivation. Also, the strong interrelation between the components of internet addiction highlights the possible impact of some coping strategies that need to be studied. Few studies on neuroimaging found that internet addiction modifies brain activity and reduces executive brain control (Cerniglia et al., 2017), and this can equip with the ability to self-regulate their academic Motivation to cope with internet addiction or support them in bringing balance between academic and non-academic activities. Similarly, the findings of this research also found that as addiction increases from mild to severe, 20% of the total respondents showed mild internet addiction, 76.8% appeared with moderate internet addiction, and 3.2% of the total respondents had severe internet addiction. Conclusively, Internet addiction is a significant problem that can negatively impact academic Motivation, but how students cope with bringing balance between the excessive use of internet addiction and their academic Motivation needs to be explored more in different countries' contexts.

Recommendations

- The findings recommend a deeper examination of this area by exploring the prevalence of higher education in other provinces of Pakistan.

- Moreover, it is also essential to understand why the findings contradict existing studies by identifying different moderating and mediating variables that students use as coping strategies to adapt to internet addiction for academic Motivation.

Conclusion

This study was conducted to explore the prevalence of internet addiction and its relationship with academic Motivation among students in higher education institutions. The findings exposed that the majority of students showed moderate levels of internet addiction, with a small percentage showing severe symptoms. Interestingly, the data indicated a significant positive correlation between specific dimensions of internet addiction, particularly internet salience and academic Motivation, suggesting that not all forms of internet engagement are necessarily harmful. In fact, some students may be using the Internet to support their educational pursuits, which aligns with the Uses and Gratifications Theory.

However, the presence of loss of control and neglect of duty, though not strongly correlated with reduced academic Motivation in this sample, remains a concern and may reflect unhealthy behavioral patterns that could impact long-term academic performance. These findings underscore the complex and multifaceted nature of Internet use, indicating that while the Internet serves as a valuable educational tool, its misuse can still pose risks to students' academic engagement and overall wellbeing.

The study recommends that higher education institutions should plan preventive measures by offering counseling services and exposing students to digital literacy, enabling them to learn the academic and purposeful use of the Internet. The study contributes to the literature on internet addiction and students' Motivation in the context of an educationally developing country like Pakistan, highlighting the need for initiating preventive measures at higher education institutions.

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