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Impact of Online gaming on Academic Performance of Pokhara University Business Students in Kathmandu Valley

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Abstract

This study examines the impact of online gaming on the academic performance of Pokhara university business students in Kathmandu Valley. Academic performance of business students is the dependent variable. The selected independent variables are online games, social media network, time spent on social media, mobile phones, friends and people connection and internet addictions. The primary source of data is used to assess the opinions of the respondents regarding the impact of online gaming on academic performance of Pokhara university business students in Kathmandu Valley. The study is based on primary data with 123 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of online gaming on academic performance of Pokhara university business students in Kathmandu Valley.

The study showed that online gaming has a positive impact on academic performance of business student indicating that playing informative online gaming leads to increase in the level of academic performance of business students. Likewise, the result also revealed that social media network has a positive impact on academic performance of business students. It means that use social media network helps in improving student's academic performance. Moreover, time spent on social media has a positive impact on academic performance of business students indicating that more the time students spent on social media for the purpose, better would be the academic performance of the students. Moreover, mobile phones has a positive impact on academic performance of business students. It indicates that use of mobile phones helps in improving academic performance of business students. Further, the result shows that friends and people connection has a positive impact on academic performance of business students which means that connecting with friends and people through social media helps students to improve their academic performance.

Keywords: Online games, social media network, time spent on social media, mobile phones, friends and people connection and internet addictions.

1. Introduction

Internet as a source of information plays an important role in developing one's mind and life experiences by creating productive works in

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schools, offices, and even at home. Nowadays, this can be a person's most efficient strategic tool for enabling himself to take charge and cope with the fast growing technology (Cabrillos *et al.,* 2023). The fact that people live in on informative lifestyle where everything is updated, internet became one of the necessities of human beings regardless of age or sex in today's society. However, the influence of this useful machine on youth is undeniably questionable. All these technologies are very good at distracting people. In line with this development, online gaming was created to give entertainment to people. According to Kuss & Griffiths (2012), teens who play online games are just having fun. They do not just actually play because of some sort of seriousness, but also because they just want to feel relief. During school hours, students tend to feel stressed due to loads of school works and through playing it will relive their stress.

Online gaming is a rapidly growing hobby amongst people of all age groups, where the Massively Multiplayer Online (MMO) game is one of the most popular genres with millions of players across the world (Kardefelt-Winther, 2014). Interactive online games for more than two players or multiplayer online games have become a popular object of investigation ever since social and cultural sciences began studying the Internet (Kolo and Bour, 2011).

Prensky (2006) stated that over the years games became more complex, often social environments, sometimes involving large distributed communities. In many ways, games have become complex learning systems. A central element in multiplayer games is that the interaction enables players to communicate and collaborate in the game sessions (Manninen, 2003). An online game is a video game that is either partially or primarily played through the internet or any other computer network available. Online games have become extremely popular among the young generation thus leading to the proliferation of online game addiction on a global platform (Kuss *et al*., 2012). Griffiths *et al.* (2005) claimed that use of video games is associated with a host of different problems. Jensen *et al.* (2011) showed that sensation seeking may be related to both video gaming and rule-breaking behavior. Kubey *et al*. (2001) found a significant percentage of students in the academically impaired subgroup reported that their internet use had kept them up late at night, and that they missed class due to internet use. Wack and Tantleff-Dunn (2009) found a negative correlation, although the relationship between GPA and academic performance in their study was not significant. Students with more developed self-regulatory cognitive skills tend to be more academically

motivated and learn more than others (Pintrich, 2003). Educational games require strategizing, hypothesis testing, or problem-solving, usually with higher order thinking rather than rote memorization or simple comprehension (Dondlinger, 2007).

Schunk and Zimmerman (1998) explained that self-regulated learning strategies may be increasingly important as more students participate in distance learning environments because instructors are not physically present. Azim *et al.* (2010) indicated that 95% of internet users are adults with college or graduate degrees. The most addictive internet activities nowadays are online gaming (Wan & Chiou, 2006). The college demographic seems to be the major group of gamers simply because they have a lack of parental supervision and they have more flexible schedules, allowing for more play time (Anand, 2007). Smyth (2007) noted that there seems to be an increased interest in research in the area of video gaming to answer this question. Anderson and Dill (2000) studied video games and aggression and suggested that not only does gaming have an impact on performance directly, but it also triggers a higher level of aggression, which is often linked to problems in school and decreased academic performance. Shao-I *et al*. (2004) studied addiction once again no definitive definition was given and noted a decrease in school performance when the student was addicted to gaming. Wood *et al*. (2007) included open-ended questions that encouraged participants to report different feelings about playing video games. Jaruratanasirikul *et al*. (2009) found that the excessive playing of video games five hours or more per session resulted in school grades that were below a 3.00 average, and that time spent playing was a predictor of academic performance.

Skoric *et al* (2009) went one step farther and studied addiction to video gaming versus simple engagement in video gaming. Williams (2006) identified that school performance of the students has increased after the participants dramatically decreased (limited time spent using technology to 30 minutes per day) their usage of all technology, including video games. Moreover, Wan & Chiou (2006) indicated the most addictive internet activities nowadays are online gaming. Hazar and Hazar (2018) indicated that attractions to video games among young people could lead them to many problems involving social, emotional, and physical health. These effects trigger mental and physical damage, violence, anger, and social isolation. Rakes & Dunn (2010) showed intrinsic motivation to learn and effort regulation decrease, procrastination increases. Specific strategies for encouraging effort regulation and intrinsic motivation in online graduate students are presented. Paraskeva

et al. (2009) indicated that adolescents spend a considerable amount of time playing digital games and tend to identify with their characters.

Clark & Ernst (2009) found playing games improve critical reasoning, analytical capabilities, movement, cognitive skills, perceptual ability, teamwork, and programming. Alqurashi (2016) *et al.* showed a positive relationship between the number of hours students play video games and their GPA, which means that students who take time playing video games can have better academic performance. Brunborg *et al.* (2014) found that spending time playing video games does not involve negative consequences, but adolescents who experience problems related to video games are likely to also experience problems in other facets of life. Wright (2011) showed that participants who indicated that they did play video games had significantly lower GPAs than participants who indicated that they did not play video games.

Games seem to put the learner in the role of decision-maker, pushing players through ever harder challenges, and learning is accomplished through trial and error (Gee, 2003). Natale (2002) claimed that brain oscillations, associated with navigational and spatial learning, occur more frequently in more complex games, and this increases users' learning and recollection capabilities and encourages greater academic, social and computer literacy skills. Students's academic life has moved to a different dimension since the introduction of these social media networks and several studies have affirmed that social media plays an important role on students in higher education (Wheeler *et al*., 2008; Rifkin *et al*., 2009).

Johnston (2014) found that serious gamer status was significantly associated with eating and exercise habits of the student, but not with study habits. Leung and Lee (2012) revealed that leisure-oriented Internet activities can be much more addictive than other applications such as communicating by e-mail or browsing webpages. Wang and Zhu (2011) showed that most of the students whom were interviewed are having problems with health and studies because of online gaming and some of them are having bad relationships with friends and families. Gros (2007) suggested that multimedia design for training and education should combine the most powerful features of interactive multimedia design with the most effective principles of technologically-mediated learning.

Mursidin *et al.* (2022) showed that students have difficulty finding good learning conditions especially during this pandemic because it requires students to learn via online, students experience problems in managing independent learning time, doing assignments so you play more often.

Verecio (2018) found that majority of the students expressed that playing online games has adverse effects in their academic performance. Moreover, Papp *et al.* (2021) stated that video gaming is an extracurricular activity that could affect academic effectiveness positively and negatively at the same time. No differences were found between students' academic achievements and their positive and negative social media use (Mushtaq and Benraghda, 2018). However, Naaj & Nachouki (2021) found that digital game addiction is positively associated with academic performance.

In addition, teenagers and young adults have especially embraced these sites as a way to connect with their peers around the globe, share information, reinvent their personalities, and showcase their social lives (Boyd, 2007). Kwok *et al.* (2021) showed the Internet gaming was negatively correlated with physical activity and psychological QoL; smartphone addiction was negatively correlated to sleep and academic performance; physical activity was positively correlated to psychological QoL. Islam *et al.* (2020) revealed that addiction tendency to internet and game-play is adversely associated with academic performance.

In the context of Nepal, Karki *et al.* (2020) advised that young people should be educated about conscientious use of smartphone to avoid detrimental impact on daily life. Nirmala Sharma (2021) explained that the successful integration and implementation of digital games in educational sectors may result in a lot of positive changes and bring innovative ideas due to its attractive feature of interactive online environments to the modern students while learning in the online classes during the COVID-19 pandemic in Nepal. Bista et *al.* (2014) examined that gamification data has a potential to be useful to community providers to better understand the community needs and addressing them appropriately to maintain a level of engagement in the community. Dhakal and Dhakal (2020) found that access to digital devices associated with various risks affecting their physical, mental and social wellbeing. In addition, Paudel & Rana (2022) perceived that video games unless specifically designed for educational purposes can negatively impact students' health. The appropriate integration of video games into educational practices can strengthen students' self-learning habits and develop their capabilities.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning on the impact of online gaming on academic performance of Pokhara university business students in Kathmandu Valley. Though there are above mentioned empirical evidences in the context of other

countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to examine the impact of online gaming on academic performance of Pokhara university business students in Kathmandu Valley. Specifically, it examines the relationship of online games, social media network, time spent on social media, mobile phones, friends and people connection and internet addictions with the academic performance of Pokhara university business students in Kathmandu Valley.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 123 respondents through questionnaire. The respondents' views were collected on online games, social media network, time spent on social media, mobile phones, friends and people connection and internet addictions Pokhara university business students in Kathmandu Valley. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that online games, social media network, time spent on social media, mobile phones, friends and people connection and internet addictions effects academic performance of Pokhara university business students in Kathmandu Valley. Therefore, the estimated model takes the following form:

$$APBS = \beta_0 + \beta_1 OG + \beta_2 SMN + \beta_3 TSSM + \beta_4 MP + \beta_5 FPC + \beta_6 IA + \varepsilon$$

Where;

APBS = Academic performance of business students

OG = Online games

SMN = Social media network

TSSM = Time spent on social media

MP = Mobile phones

FPC = Friends and people connection

IA = Internet addiction

Academic performance of business students was measured using a 5-point Likert scale where the respondents were asked to indicate the responses

using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Online gaming facilitates academic activities and coordinate with peers,'' "I believe online gaming has affected my academic performance negatively" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.825$).

Online games was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Online games effects in academic performance of students'', "Online games help in creating network" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.717$).

Social media network was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Facebook, YouTube and other social media impact on students' academic performance", "I used social media like Facebook, blogs, twitter for the purpose of communication, sharing photos as well as videos" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.738$).

Time spent on social media was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Spending too much time on social media affect academic performance", "I spent time on social media for research activities" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.788$).

Mobile phones were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly disagree. There are 5 items and sample items include "Mobile phones have become an essential part of my daily life", "Smartphones and mobile technologies make access, exchange and mobility of information easier" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.787$).

Friends and people connection was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "I believe that social media helps me to do assignments and class projects", "Chatting with friends and people on social media affect academic performance" and so on. The reliability of the items was measured

by computing the Cronbach's alpha (α = 0.751).

Internet addiction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Addiction to social media is problematic issue that affects the students' academic life", "Students and teacher are using internet to support their teaching and for assignment" and so on. The reliability of the items was measured by computing the Cronbach's alpha (α = 0.796).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Online games

An online game is a video game that is either partially or primarily played through the internet or any other computer network available. Online gaming can negatively influence school performance by displacing time that would have been spent in other educational activities such as reading and homework (Gentile *et al*., 2004). There exists significant negative association between time spent in gaming and academic performance (Anderson and Dill, 2000). Adachi and Willoughby (2013) showed the positive effects of video games on students' performance. Dumrique and Castilo (2018) found that there is a negative relationship between online gaming and grades of students. Similarly, Papastergiou (2009) revealed that there is an inverse relationship between the online gaming and grades of students. Based on it, this study develops the following hypothesis:

H_1: There is a negative relationship between online games and academic performance of business students.

Social media network

Social media, also known as social networking, are internet-based interactive platforms where individuals and communities share and communicate. Kubey *et al.* (2001) stated that there is a positive correlation between academic performance and the dependency on social media platforms. However, student's exposure to social media network has no significant influence on students' academic performance (Melani and Andrew, 2017). According Mensah and Nizam (2016), student academic performance is affected the more they use Facebook. Nalwa and Anand (2003) claimed that those who are addicted users love to use the internet has negatively affecting their personal and professional responsibilities in which the final outcome is poor academic performance. Paul *et al.* (2012) revealed that there is a negative impact of social network sites usage on academic performance. Based on it,

the study develops the following hypothesis:

H_2: There is a negative relationship between social media network and academic performance of students

Time spent on social media

Mim *et al.* (2018) stated that there is positive consequence of average study time and negative impact of time spending on various social networking websites on students' academic performance. Talaue *et al.* (2018) found that academic outcome of students who spent most of their time interacting using social media are positive because they were able to share and generate ideas and concepts related to their studies. However, the time spent on social media can negatively affect student academic activities (Celestine and Nonyelum, 2018). The time spent on internet has affected student's interpersonal, educational, psychological and physical factors (Hasnain, 2015). Likewise, Selvaraj and Rithika (2013) found that there is a significant impact on more time spending on social networking sites and these websites create negative impact among students. Based on it, this study develops the following hypothesis:

H_3: There is a positive relationship between time spent on social media and academic performance of students.

Mobile phones

Mobile phone is an electronic device which is widely used in today's generation in order to complete the works, having fun, sending and collecting information from one place to another. Jackson *et al*. (2011) opined that mobile phones' usage negatively impacting students' academic performance. Similarly, Lepp *et al.* (2014) found a negative impact of smartphone addiction on academic performance on college students. Moreover, smartphone addiction does have positive influence on satisfaction in life but negative impact on academic performance (Raza *et al*., 2020). Hawi and Samaha (2016) showed negative relationship between smartphone usage and academic performance (GPA) of male and female students. In contrary, Al-Tarawneh (2014) noted positive contributions of smartphones towards students give them the ability to obtain academic support and assistance. Based on it, the study develops the following hypothesis:

H_4: There is a negative relationship between mobile phones and academic performance of students.

Friends and people connection

Ahmed (2020) found positive correlation in social networking sites usage rate and students' networking with friends, family members, and

professionals. Furthermore, Mingle and Adams (2015) stated that there are some students experienced improvement in their reading skills as a consequence of participation and involving social media. Meanwhile, Mim *et al.* (2018) stated that the participation of the students on social media networks, its misuse could badly affect the academic performance. Moreno and Kolb (2012) revealed that social media benefits students by connecting them to one another on assignments and class projects. Further, Raut and Patil (2016) stated that having many friends through social networking sites might affect negatively to the performance of student. Mensah and Nizam (2016) found that there is a positive and significant relationship between friend connections and students' academic performance. According to Alshalawi (2022), students used platforms mainly for chatting and making friends which consequences of internet and social platforms on student academic growth. Based on it, the study develops the following hypothesis:

H_5: There is a positive relationship between friend & people connection and academic performance of students.

Internet addiction

Internet addiction is defined as an unhealthy behavior that interferes with and causes stress in one's personal, school, and/or work life. Jeong and Kim (2011) observed that internet addiction is significantly and negatively related to students' academic growth as well as emotional attributes. Islam *et al.* (2017) showed that excessive internet usage has a negative effect on the academic performance of students.

Internet addiction is shown to be positively associated with their propensity to engage in inside of the class and outside of the class (Aristovnik, 2012). There is no statistically significant correlation between internet use and academics achievements (Tsai *et al.,* 2009). Moreover, Misra *et al*. (2014) stated that initial use of internet patterns negatively impacts the academic performance of the students. Zamir *et al.* (2020) showed that respondents used internet more and stay online for more time which increases the quality of the study. Based on it, the study develops the following hypothesis:

H_6: There is a negative relationship between internet addiction and academic performance of students.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and

standard deviations have been computed, and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 123 observations. The dependent variable is APBS (Academic performance of business students). The independent variables are MP (Mobile phone), FPC (Friends and people connection), SMN (Social media networks), IA (Internet addiction), OG (Online games) and TSSM (Time spent on social media).

Variables	Mean	S.D.	APBS	OG	SMN	TSSM	MP	FPC	IA
APBS	2.317	0.882	1						
OG	2.179	0.606	0.281**	1					
SMN	2.096	0.655	0.289**	0.336**	1				
TSSM	2.307	0.722	0.402**	0.304**	0.463**	1			
MP	2.055	0.625	0.278**	0.256**	0.367**	0.439**	1		
FPC	2.114	0.689	0.432**	0.349**	0.356**	0.468**	0.425**	1	
IA	2.105	0.795	0.456**	0.333**	0.388**	0.427**	0.413**	0.679**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 1 reveals that online gaming is positively related to student performance indicating that using online gaming leads to increase in the level of academic performance of business students. Likewise, the result also shows that social media network is positively correlated to academic performance of business students. It means that use social media network helps in improving student's academic performance. Moreover, time spent on social media is positively correlated academic performance of business students indicating that more the time students spent on social media, better would be the academic performance of students. Moreover, mobile phones has a positive relationship with academic performance of business students. It implies that use of mobile phones helps in improving academic performance of business students. Further, the result shows that friends and people connection is positively correlated to academic performance of business students which means that connecting with friends and people through social media helps students to improve their academic performance. Furthermore, internet addiction has a positive relationship with academic performance of business. It implies that internet addiction in terms of searching reading materials and connecting with teacher and friends on social media helps in *improving students' academic performance.*

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of online games, social media network, and time spend on social media, mobile phones, friends and people connection, internet addiction on academic performance of business students.

Table 2: Estimated regression results of online games, social media network, time spend on social media, mobile phones, friends and people connection, internet addiction on academic performance of business students in Kathmandu Valley

The results are based on 123 observation using linear regression model. The model APBS = $\beta_0 + \beta_1 OG + \beta_2 SMN + \beta_3 TSSM + \beta_4 MP + \beta_5 FPC + \beta_6 IA + \varepsilon$, where dependent variable is APBS (Academic performance of business students). The independent variables are MP (Mobile phone), FPC (Friends and people connection), SMN (Social media networks), IA (Internet addiction), OG (Online games) and TSSM (Time spent on social media).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		OG	SMN	TSSM	MP	FPC	IA			
1	1.240 (4.407)**	0.494 (3.970)**						0.108	0.833	15.760
2	1.411 (5.547)**		0.432 (3.728)**					0.096	0.839	13.896
3	0.886 (3.830)**			0.620 (6.481)**				0.252	0.763	42.005
4	1.288 (5.004)**				0.501 (4.177)**			0.119	0.828	17.450
5	0.901 (4.085)**					0.670 (6.754)**		0.268	0.755	45.611
6	1.004 (4.837)**						0.624 (6.695)**	0.264	0.756	44.820
7	0.915 (2.959)**	0.362 (2.695)**	0.124 (2.352)*					0.140	0.818	10.940
8	0.564 (1.906)	0.257 (2.029)*	0.055 (0.402)	0.568 (4.614)**				0.264	0.756	15.623
9	0.541 (1.765)	0.251 (1.950)	0.059 (0.425)	0.549 (3.939)**	0.042 (0.289)			0.259	0.759	11.648
10	0.469 (1.575)	0.199 (1.588)	0.042 (0.313)	0.370 (2.516)**	0.135 (0.892)	0.437 (3.025)**		0.307	0.734	11.791
11	0.452 (1.542)	0.211 (1.707)	0.126 (0.920)	0.385 (2.656)**	0.156 (1.051)	0.183 (0.998)	0.341 (2.2121)*	0.329	0.722	10.969

Notes:

1. Figures in parenthesis are t-values.
2. The asterisk signs (**) and (*) indicate that the results are significant at percent and 5 percent levels respectively.
3. Academic performance is dependent variable.

Table 2 shows that the beta coefficients for online games are positive

with student academic performance. It means that online games has positive impact on academic performance of students. This finding is consistent with the findings of Adachi and Willoughby (2013). The beta coefficients for social media network are positive with student performance. It means that social media network has positive impact on academic performance of students. This finding is consistent with the findings of Kubey *et al.* (2001). Similarly, the beta coefficients for time spent on social media are positive with student academic performance revealing that time spent on social media has positive impact on student academic performance. This finding is consistent with the findings of Talaue *et al.* (2018) Moreover, the beta coefficients for mobiles phones are positive with student academic performance indicating that mobiles phones has positive impact on student academic performance. This finding is consistent with the findings of Al-Tarawneh (2014). Likewise, the beta coefficients for friends and people connection are positive with student academic performance. It shows that friends and people connection has a positive impact on student academic performance. This finding is consistent with the findings of Mensah and Nizam (2016). Further, the beta coefficients for internet addiction are positive with the student academic performance. It implies that internet addiction has a positive impact on student academic performance. This finding is consistent with the findings of Zamir *et al.* (2020).

4. Summary and conclusion

An online game is a video game that is either partially or primarily played through the internet or any other computer network available. Online gaming has become one of the most addictive internet activities to date. At the same time, online games have become extremely popular among the young generation thus leading to the proliferation of online game addiction on a global platform.

This study attempts to examine the impact of online gaming on academic performance of Pokhara University business students in Kathmandu Valley. The study is based on primary data with 123 observations.

The study shows that online games, social media network, time spent on social media, friends and people connection, mobile phones, and internet addiction have a positive impact on students' academic performance. Hence, the study concludes that online gaming play's vital role in enhancing the level of academic performance among Pokhara University business students in Kathmandu Valley.

The study also concludes that friend and people connection followed

by internet addiction in terms of searching reading materials and connecting with teacher and friends on social media are the most dominant factors that affects the academic performance of students.

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