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Online Gaming Frequency and Student's Academic Performance in the Kathmandu Valley

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Abstract

Background: Digital technology has made a big difference in the lives of younger people, especially students. They socialize through mobile and internet interaction. College-level students spend too much time playing online games to interact with others.

Objective: The study examines the relationship and impact of online gaming on students' academic performance in the Kathmandu Valley.

Design/methodology/Approach: The study has adopted descriptive and causal research designs to deal with the various issues raised in this study. Respondents were BBA-level students in the Kathmandu Valley. We selected four hundred respondents through a purposive sampling technique. Primary data was the main source of information. It was quantitative. The study used a well-structured survey questionnaire to collect the data. We analyzed the data using mean, median, standard deviation, variance, correlation, and regression analysis.

Findings: The analysis indicates that the frequency of online gaming has a certain impact on students' academic performances, although this impact is relatively minor. Moreover, the data reveal that online gaming does affect academic performance in terms of gender.

Conclusion: Concerned institutions need to organize awareness programs to inform of the positive and negative impacts of online gaming frequency to students, parents, and teachers. Teachers can use only educational games to get students involved in the classroom because game apps related to course books are made to test a person's ability to think critically and analyze information so that students can solve more complicated problems. Future researchers can study other factors that affect students' academic performance with a larger sample size and from a wide area using quantitative data to address the research problem.

Keywords: Digital technology, Younger generation, Socialization process, Online gaming frequency, and Students' academic performance

Paper type: research paper

Introduction

Digital technology has had a significant effect on the lives of young people, especially on the lives of students. They socialize through mobile and online interaction. Spending time on technological gadgets is an essential component of their daily lives. This attraction to the digital environment inhibits their academic concentration (Arockiyasamy et al., 2016). Online video games are popular with college students because they are made with much detail to impress and interest the players. Video games typically feature appealing gameplay, realistic graphics, and impressive noises to awe gamers (Eskasasnanda, 2017). College students who spend excessive time playing online games each week typically perform poorly academically, have trouble focusing, and engage in less social contact (Lin et al., 2013).

These days, technology runs the world. In a short time, we have become engrossed in a world of high-definition television, Facebook, YouTube, internet radio, environmentally friendly autos, extreme roller coasters, 3D technologies, etc. However, video gaming has been more prominent than the other technology sector (Wright, 2011) among youngsters. Digital game-based learning combines instructional content with the use of video games. Digital games are expressly developed for instructional purposes and can engage various learning styles and behaviors (Turner, Johnston, Kebritchi, Evans, & Heflich, 2018). Over the last few decades, interactive electronic media has evolved from virtual obscurity to one of the crucial sources of amusement for college students. In the past few years, the Internet has changed how people use electronic media, from personal and static to social and shared (Craton, 2011). Adolescents' lives today include video games and internet use. Video games are a typical kind of leisure activity in developed countries. Ip and Jacobs (2008) say that gaming frequency is defined here not by how often a game is played in a controlled or educational setting, like in intervention studies, but by how often a game is played as a hobby.

The impact of video game habits, both positive and harmful, on diverse behaviors is still hotly debated (Kaur & Lavleen, 2017). Students learn unexpectedly, yet excessive internet gaming use causes issues, such as distraction in class. Furthermore, where the child's attention is divided, their health and social lives are unwittingly damaged (Dumrique & Castillo, 2017). Every generation is distinct from the previous one, and some generational gaps have been tiny. However, rapid technological advancements are exacerbating generational divides. For example, communication today is significantly different from only a few years ago, and our culture's language is altering to reflect this developing revolution (Starkey, 2013). Today's developments in science and technology significantly impact our way of life. They have enforced numerous modifications in all sectors of life. In education, a new generation of tech tools has been created to replace old ways of teaching and help students learn better. Most modern classrooms contain computers, allowing instructors and academics to use ICT to improve teaching and learning (Mahmoudi, Koushafar, Saribagloo, & Pashavi, 2014). The study showed that engagement in social media has a negative relationship with students' academic performance. However, most students feel its use should not be stopped (Hamal, 2021). A research problem is a clear statement about an area of concern, a situation that needs to be fixed, a problem that needs to be solved, or a troubling question in scholarly literature, theory, or practice. The study examines the relationship and effect of gaming frequency on students' academic performance.

This paper has the following sections: introduction, literature review, research methodology, data analysis and results, discussions, conclusion, implications, limitations, and scope of future research.

Review of Literature

Online game interactivity theory

In 2002, Friedl developed the theory of online game interactivity. "Fighting Legends" was his online game. Austria awarded the individual a Master's in communications and media design and techniques.

Their interactivity defines games. The interactive design may be difficult for even the most seasoned game developer. Developers of multiplayer online games must understand game design and human interaction. This theory covers online game design's essential principles, methods, and tools. This paper discusses online gaming's origins, single-player and multiplayer games, and how categories affect game design. Interactivity's definition, complexity management, and conceptual framework integration underscore its importance. Player-to-computer, player-to-player, and player-to-game interactions make up online game interactivity theory. By studying the fundamentals of the three types of interaction, one can learn how a game's interactivity affects its success and how to improve it. Interactivity in online games is examined in the paper. This article discusses building multiplayer games and how to integrate them into game production. Community design and avatar importance standards are given. The theory presents practical methods and novel ideas to improve workflow efficiency. Conversations with key computer game industry personalities provide significant insights into their views on online games and their qualities. These criteria can be used to evaluate internet-based game creation and design. Game creators need online game interaction theories to create fully interactive games.

Gaming frequency and students' academic performance

Blinka and Mikuka (2014) investigated the Internet as an entertainment medium through online computer games, which became immensely successful and changed how many people spend their free time.

According to Zamani et al. (2009), playing computer games can be beneficial to a certain extent; however, excessive play can lead to various physical and mental issues, generating anxiety symptoms in the player.

Sherry et al. (2001) studied why adolescents between 15 and 20 in the West of the United States play video and computer games. They discovered that most adolescents had these games as their primary source of weekly pleasure. Boys were drawn to these activities because of the thrills and challenges they presented and were adamant about coming out on top. In addition, guys were more interested in games that involved physical conflict and competitive sports.

Scott (2013) argued that playing online games could be a source of fun, but they also had the potential to cause difficulties. Playing online games has been linked to problems such as aggression, physical injuries, and addiction. Some of these issues include the following: The problem of addiction to playing online games has been brought to light on a global scale, and measures have been taken to address it.

Researchers Ballarotto, Volpi, and Tambelli (2018) looked into whether emotionally stimulating events could stop essential changes in many parts and systems of the brain, like the prefrontal cortex and the limbic system. This study also focused on how playing online video games influences the brain development of adolescents.

Eren and Orsal's (2018) research shows that as technology has improved, the Internet has become something everyone needs. People use the Internet for various activities, including looking up information, playing games, listening to music, exploring the web, and checking their e-mail. In particular, the amount of time children and young adults spend consistently on the Internet could lead to inappropriate use. It generated problems such as addiction to the Internet and computer games.

Granie et al. (2014) concluded that found that in the United States, 91% of children between the ages of 2 and 17 play video games. Additionally, a nationally representative study of teenagers in the United States discovered that up to 99% of boys and 94% of girls play these games. Even though there has yet to be much research done specifically on the positive effects of playing video games, researchers have been looking at the functions and advantages of play in general for decades.

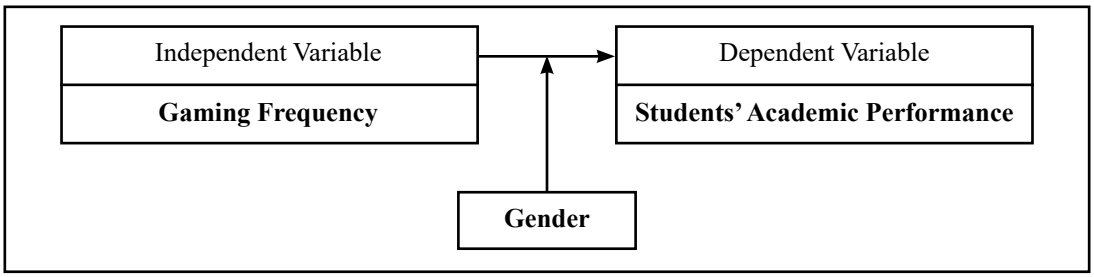
Ip et al. (2008) found that examination scores negatively correlate with the amount of time spent gaming. This means that, on average, gamers who spend more time gaming receive lower grades than gamers who spend less time gaming.

Canarias (2019) says that students' use of mobile games affects how well they do in school overall. In addition, mobile gaming positively contributes to the development of the student's cognition, making it easier for the student to solve difficulties, regardless of how difficult the problems may be. The use of mobile gaming has a detrimental effect on the academic achievement of students (Canarias, 2019)

Conceptual Framework

According to the literature review, various factors affect students' academic performance. The study's dependent variable was how well students did in school, and its independent variable was how often they used the Internet. The relationship between these variables can be summed up as follows:

Figure 1 Conceptual Framework



H_1 : There is a significant relationship between gaming frequency and students' academic performance.

H_2 : There is an effect of gaming frequency on students' academic performance.

H_3 : There is an impact of gender on gaming frequency.

H_4 : There is an impact of gender on students' academic performance.

Research Methodology

This study is both descriptive and analytical in design. BBA students were the focus of the study, and 155 respondents from three good management colleges in the Kathmandu Valley were selected at random to give accurate data for the study. The information and data for the study were gathered via a questionnaire survey based on primary data. The questionnaire was created using a Likert scale with 5 points, ranging from strongly disagree to strongly agree. The participants in this study were college-level students of BBA in the Kathmandu Valley. As part of this survey, 200 questionnaires were distributed, but 165 questionnaires were returned, and 151 were valid, translating to a response rate of 76%. The questionnaires have been entered into an SPSS 26 spreadsheet. The data were analyzed and interpreted using the measures mean, median, standard deviation, variance, independent sample t-test, regression, and correlation to figure out what happened.

Reliability Analysis

Each question in the dataset was first subjected to a Cronbach's alpha test to ensure validity and reliability (Gliem & Gliem, 2003). To ensure the products were reliable, the models that included how often students played games and how well they did in school were checked independently. The following table provides evidence that the items on the scale are reliable.

Table 1 Reliability results of study variables

S.N.	Variables	Cronbach's Alpha
1	Gaming frequency	0.859
2	Students' academic performance	0.878

Source: Field Survey, 2022

The Cronbach's alpha for students' academic performance is 0.878, while the value for gaming frequency is 0.859. Cronbach's alpha for each table's variables is greater than 0.750. That demonstrates that all of the study's components are consistent. This analysis employed the subsequent regression model.

$$SAP = \beta 0 + \beta 1Gf + er,$$

Where,

SAP : Students' academic performance
β0 : Constant
GF : Gaming frequency

Data Analysis and Results

Table 2 Gender of respondents

Gender	Frequency	Per cent	Cumulative Per cent
Male	72	47.60%	47.60%
Female	79	53.40%	100%
Total	**151**	**100.00%**	

Source: Field Survey, 2022

Table 2 displays the characteristics of responses based on gender stratification. Table 2 shows that there is no equal participation in terms of gender. The study received 151 responses. There were 72 men and 79 women among the 151 responses. The results revealed that there were fewer males in the sample than females. Most responders, 53.40 per cent, were female, while the remaining 47.60 per cent were male.

Table 3 Education level of respondents

Education Level	Frequency	Per cent	Cumulative Per cent
Bachelor	136	90.10%	90.70%
Master	14	9.30%	100%
Total	**151**	**100%**	

Source: Field Survey, 2022

Table 3 depicts respondents' profiles based on strata within the education level category. Of the 151 respondents, 136 were from the bachelor's level, and 14 were from the master's level. According to Table 2.2, the bachelor level represented 90.10 per cent of participants in terms of education level, and the remaining 9.30 per cent of respondents were from the master level. There were more students from the bachelor's level than from the master's level in the sample.

Table 4 The age group of respondents

Age Group	Frequency	Per cent	Cumulative %
Below 20	12	7.90%	7.90%
20-25	139	92.10%	100%
Total	**151**	**100%**	

Source: Field Survey, 2022

The table shows respondents' profiles based on age group categories. Out of the total respondents, 12 are 20 years and below, and 139 respondents are between 20 to 25 years. Table 4 shows that 7.90 per cent belong to 20 years and below, and 92.10 per cent belong to the 20–25 age group.

Table 5 Preferences regarding playing games among respondents

Statements	Responses		Per cent
	N	%	
Action	67	22.60%	44.70%
Adventure	47	15.90%	31.30%
Strategy/puzzle	126	42.60%	84.00%
sports	56	18.90%	37.30%
Total	**296**	**100.00%**	**197.30%**

Source: Field Survey, 2022

In Table 5, among all the respondents, 22.60 per cent admit that they play action games. 67 respondents claimed that they had taken action. Similarly, 15.90 per cent agree that they play adventure games, with 47 responses. Likewise, 42.60 per cent of respondents play strategy or puzzle games. From 126 responses. 18.90 per cent agree that they play sports games, with 56 responses.

Table 6 Intentions to play online games

Features	Rank 1		Rank 2		Rank 3		Rank 4		Md	Rank
	No	%	No	%	No	%	No	%		
I like graphics/realism	30	20.00%	10	6.70%	16	10.70%	29	19.30%	4.0	4
I can play any time when I'm bored	10	6.70%	8	5.30%	78	52.00%	41	27.30%	3.0	3
It changes my mind	49	32.70%	68	45.30%	16	10.70%	14	9.30%	2.0	1
It is such a great achievement to finish the game.	35	23.30%	50	33.30%	31	20.70%	3	2.00%	2.0	2
Total	**151**		**151**		**151**		**151**			

Source: Field Survey, 2022

As evident from Table 6, most respondents (32.70 per cent) ranked changing their minds as their first choice. The great achievement of finishing the game is ranked second by the study's respondents, with 33.30 per cent. Similarly, respondents ranked the third important factor as playing games when bored. Graphics/realism ranked as the least important factor, i.e., ranked fourth among the four alternatives of factors.

Table 7 Independent sample T-test

Variable	Gender	Number	Mean	SD	P- Value
Gaming Frequency	Male	72	3.56	0.724	0.003
	Female	79	3.11	0.898	
Students' academic performance	Male	72	3.03	0.693	0.024
	Female	79	3.31	0.621	

Source: Field Survey, 2022

Table 7 shows that men and women play video games at different rates, with a significant difference p-value is 0.003. As the p-value is 0.024, higher than 0.05, we also cannot conclude that there is a gender gap in students' academic performance.

Correlation Analysis

The correlation between the dependent and independent variables is now measured by the person's method.

Table 8 Correlation coefficients

Variables	GF	SAP
GF	1	
SAP	0.465	1
	P = 0.004	

Source: Field Survey, 2022

Correlation analysis of the investigated variables is presented in Table 8 for the entire sample. The table shows a relationship between students' academic performance and gaming, with a correlation coefficient of 0.465 across all samples.

Regression result

The sample included all 151 respondents. Among them, 72 respondents were male, and 79 respondents were female. All variables were defined as described in Chapter I. The table represents a regression analysis of the whole sample. The values in parenthesis are p-values.

Table 9 Regression Table with Model Summary

	B	Std. Error	Beta		
(Constant)	2.588	0.198		13.042	0.001
Gaming Frequency	0.067	0.047	0.115	1.413	0.16

Source: Field Survey, 2022

Students' academic performance is the dependent variable, and gaming frequency is the independent variable. In Table 9, the sig value of gaming frequency is 0.16, which is insignificant with a coefficient of 0.067.

Table: 10: Regression Table with Model Summary

	Coefficient	Sig
(Constant)	1.0265	0.001
Gaming frequency	0.252	0.16
R2	0.013	
F value	19.95	
p-value	0.001	

Source: Field Survey, 2022

Summary of Hypothesis Testing

Hypothesis statement	Decision
H1: There is a significant relationship between gaming frequency and academic performance.	Accepted
H2: There is a significant impact of gaming frequency on students' academic performance.	Rejected
H3: There is a significant impact of gender on gaming frequency.	Accepted
H4: There is a significant impact of gender on academic performance.	Rejected

Discussion, Conclusion, Implications, and Scope for Future Research

Discussion

The study discovered a detrimental link between gaming frequency and academic achievement. The finding is congruent with the findings of Ip et al. (2008), who found that test grades are, in fact, inversely connected with gaming frequency, i.e., frequent players generally get worse marks than less frequent gamers. Similarly, Zamani et al. (2009) observed that while playing computer games can be beneficial in the short term, long-term play leads to various physical and mental issues that induce anxiety symptoms in the player. The study also discovered that gaming frequency does not affect pupils' academic performance. Canarias (2019) noticed that mobile gaming is an element that impairs pupils' academic performance. Furthermore, mobile games improve a student's intellect, which will help him solve difficulties, whether complex or not. Mobile gaming hurts students' academic achievement (Canarias, 2019).

Conclusion

According to the findings, concerned institutions need to organize awareness programs to inform of the positive and negative impacts of online gaming frequency to students, parents, and teachers. Teachers can use only educational games to get students involved in the classroom because game apps related to course books are made to test a person's ability to think critically and analyze information so that students can solve more complicated problems. Online games are brain-challenging and can assist a person in handling more complex difficulties.

Implications

From a managerial perspective, educational institutions need to organize awareness programs and conduct training seminars and workshops for students, parents, and teachers to provide information regarding the positive and negative effects of online gaming and how they can cope with it. So they can use games to help them learn, get more people involved in the classroom, and improve their critical thinking and analytical skills. As a result, they can solve more complicated problems. The study suggests that the student community should know about gaming frequency's positive and negative impacts. They should be engaged in teaching-learning activities through subject matter-related games to enhance their knowledge and skills.

Limitations and Scope for Future Research

This study surveyed 151 respondents within Kathmandu Valley using quantitative data to address the research problem focusing on the effect of gaming frequency on students' academic performance. Future researchers can use quantitative and qualitative data to study other factors affecting academic performance with a larger sample size and from a wide area.

Conflict and Interest: There is no conflict of interest while preparing this paper.

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