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The Impact of Video Game Usage on Academic Achievements among Secondary School Students in District Dir Lower

Hamayoon Said[1] and Dr. Niaz Ali[2]

1. M.Phil. Scholar, Department of Education, Shaheed Benazir Bhutto University Sheringal, KP
2. Lecturer, Department of Education, Shaheed Benazir Bhutto University Sheringal, KP

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Corresponding Author:
Dr. Niaz Ali
Email: niazyousafzai2000@gmail.com

Abstract: *As the world increasingly becomes interconnected, often referred to as a 'global village,' this concept was first introduced by Canadian scholar Marshall McLuhan in 1960. The rapid advancement of technology has brought about numerous changes, some of which have simplified life, while others have introduced new complexities. One such development is the emergence and widespread popularity of video games. This study examines the impact of video game usage on academic achievements among secondary school students in District Dir Lower, Khyber Pakhtunkhwa, Pakistan. A correlational survey design was employed for conducting this study. A close ended instrument, consisting of 15 items, was used to collect data through five points Likert Scale Questionnaire. Data were collected from 278 students across 07 secondary schools using a simple random sampling technique. The analysis, including and Pearson's correlation, revealed a strong positive relationship between effects of videos games and students' academic achievements. In reflection of the findings, it is suggested that the given model should be applied in other tiers of education to bring new outcomes.*

Introduction

A video game, often referred to as a computer game, is an electronic entertainment medium that requires the use of an input device, such as a keyboard or controller, to interact with the system, Playing video games may be a relaxing and enjoyable activity. Valdemoros et al. (2017) stated that, this form of entertainment has led to significant changes in societal leisure habits, particularly among young's students. Additionally, it is affecting social dynamics and the nature of interpersonal relationships within communities.

Vázquez-Cano et al. (2023), argue that administrators, parents, and educators are becoming increasingly concerned about how much time adolescents spend playing video games during their free time. Despite the enjoyment and relaxation associated with video games, there are concerns regarding their potential negative effects on students' academics and their personality. The argument over the relative benefits and drawbacks of video games has heated up. According to Previous studies have found that children who regularly play video games tend to have lower CGPA scores compared to their peers who do not engage or play online gaming, suggest that video game may have negative impact. Additionally, video game involvement has been linked to increased aggressive behavior and strained relationships with teachers.

Given the potential risk to their general performance and quality of life, it is imperative to look into the reasons behind the increasing quantity of time that young people spend playing video games. According to Islam et al. (2020) statement's video gaming as one of the most popular harmful activities, with Aevi et al. (2018) stated that young people are dedicating more time than ever to gaming. In Spain, a 2016 study found that 80% of youth engage in video gaming (Benedicto et al., 2017). According to another research studies, such as those by Pan et al. (2022) indicate that excessive gaming and internet use can negatively effects on cognitive development and education achievements. Given that adolescence is a crucial period for identity development, it is important to think about the possible long-lasting effects of extended video game playing on teenagers, since the behaviors they develop during this time frequently affect their adult lives (Pedrero et al., 2018).

It is widely recognized that different types of video games can negatively impact students' tolerance, behavior, and academic achievement. Future research could explore which specific types of games are most harmful and how to mitigate their addictive effects on the younger generation. Additionally, video games are known to affect children's eyesight, with many students experiencing a decline in vision at a young age. Research has also indicated that certain video games contribute to unhealthy weight gain among youth. While numerous studies have investigated the link between video gaming and academic performance, most have been conducted in Western countries. Previous research has shown that excessive internet use, including video game addiction, negatively impacts both intrinsic and extrinsic motivation for learning (Ye et al., 2023). Moreover, mobile phone addiction is linked to lower academic performance, decreased academic engagement, and impaired social relationships, all of which hinder academic progress (Tian et al., 2021).

Video games have become an increasingly popular form of entertainment and engagement, particularly among students. Their immersive and interactive nature, often incorporating collaborative elements, has captured the attention of students worldwide (Conley et al., 2020). A study by Cooper (2022) from Nottingham Trent University in the United Kingdom revealed that 32% of children aged 9 to 17 play video games daily, with 60% attempting to do so regularly. Similarly, Schneider et al. (2019) found that higher levels of video game addiction were associated with poorer academic outcomes among secondary school students.

However, research on the specific impact of video game usage on academic performance in District Dir Lower is limited. This study aims to provide a localized understanding of the relationship between video game usage and academic achievement, examination scores (categorized as high, moderate, or low) and Student Learning Outcomes (SLOs) among secondary school students in the region. The findings will offer valuable insights for educational stakeholders, supporting informed decision-making and the development of targeted intervention strategies tailored to the unique context of District Dir Lower.

Objective of the study

1. To assess the effects of videogames on students' academic performance at secondary level in District Dir lower.

Research Question of the study

1. Is there a significance relationship between the effects of videogames and students' academic performance?

Conceptual Model of the study

The effect of Videogames

1. Poor Sleep Hygiene
2. Aggressive Behaviour
3. Exhaustion
4. Physical Health
5. Dehydration
6. Lack of motivation
7. Depression
8. Social anxiety

→

Students' academic achievement

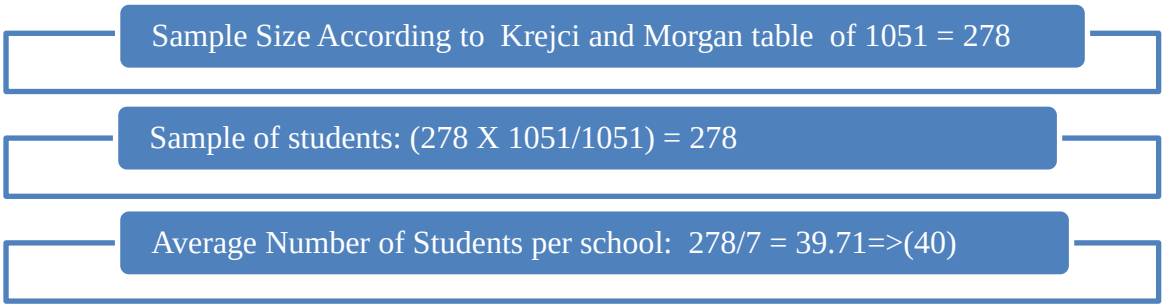
1. Exam Grades
2. SLOs

Methodology

The study was carried out through Quantitative Correlational Survey design to investigate the effect of video games on students' academic achievements at secondary level education in district Dir Lower. All the Public sector secondary level male students in district Dir Lower constituted the population for this study. According to District Monition Officer Education there are 75 secondary level schools having 31054 students located in 07 Tehsil of the stated district.

As discussed, there are 75 secondary level institutions in the district but the District Monitoring Officer education permitted the researcher to collect data from single school in each tehsil. In reflection of the permission the data was collected from 7 secondary level schools only. Looking to the populations' nature, the Simple Random Sampling Technique was utilized in this study and the sample size was determined by the Krejice & Morgan (1970) table. According to the stated table, the sample size for 1051 population is 278.

Figure 1: Sample Size



(Krejice & Morgan, 1970)

A close ended questionnaire, consisting of 15 validated items, ranging from strongly agree to strongly disagree was used to collect data from respondents in an unbiased nurture.

To confirm the instruments' validity, the face validation technique was justified by the two experts from Pakistani Public Sector University. Evaluating the suitability of the instrument in the context, simple rule of thumb method was utilized for pilot study. 20 participants were taken in consideration, their responses were statistically analyzed and the Cronbach alpha value obtained for the effects of video games was .71 and for students' academic achievements was .77. Following the ethical principles of data collection, the data was personally collected by the researcher to ensure greater response rate. The data was analyzed through SPSS using the Pearson's R statistics.

Results

The current study aimed to assess the effects of videogames on students' academic performance at secondary level in District Dir lower. As the study was correlational so the Pearson's R statistics was utilized to determine the correlation amongst videos games effects and students' academic achievements.

Table 1: Correlation between the effects of videogames and students' academic achievements at secondary level (N=278)

	AVG							
SAA	**AB**	**PSH**	**PH**	**EXH**	**DEH**	**LM**	**DEP**	**SA**
English SAA	0.71**	0.67**	0.63**	0.69**	0.70**	0.65**	0.66**	0.61**
Urdu SAA	0.67**	0.65**	0.63**	0.69**	0.68**	0.70**	0.67**	0.66**
Islamic study	0.70**	0.69**	0.67**	0.65**	0.66**	0.72**	0.68**	0.63**
Overall							**Overall (SAA)**	**0.67****

Note: [p < 0.01, p* < 0.05 (sig: 2-tailed),**

EV= Effects of video game, SAA=Students' Academic Achievements, AB= Aggressive Behavior, PSH= Poor Sleep Hygiene, PH= Physical Health, EXH= Exhaustion, DEH= Dehydration, LM= Lack of Motivation, DEP= Depression, SA= Social Anxiety].

The correlation values between the aspects of students' academic accomplishments (SAA) and the impact of videogames (EVG) are displayed in Table 1 above, and they demonstrate a strong and substantial positive association. The overall "effects of videogames" (EVG) variable and the "students' academic achievements" (SAA) variable had a positive, significant, high connection [ρ=0.67, p<0.01].

Furthermore, the Table above shows clearly that the item No-1 of "students' academic achievements" (SAA), has a positive, high and significant relationship with "aggressive behavior" (AB) of the variable "effects of videogames" (EVG), item No-2 also shows clearly a positive, high and significant relationship with "aggressive behavior" (AB), of the variable "effects of videogames" (EVG).

Similarly item No-3 also have a positive, high and significant relationship with "aggressive behavior" (AB), of the variable "effects of videogames" (EVG).

It the same way item No 1 , 2 and 3 of "students' academic achievements" (SAA), shows a positive, high and significant relationship with "Aggressive Behavior"(AB), "Poor Sleep Hygiene"(PSH), "Physical Health" (PH), "Exhaustion"(EXH), "Dehydration"(DH), "Lack of Motivation"(LM), "Depression"(DEP) and "Social Anxiety"(SA).

The first term of dimension of "Students' Academic Achievements(SAA)" showed a strong, significant and positive relationship with all the eight dimensions of "Effects of Videogames (EVG)" such that "Aggressive Behavior(AB)" (ρ=0.71, p<0.01) , which shows a strong ,high and positive correlation. Similarly the fifth term "Dehydration (DEH)" (ρ=0.70, p<0.01) also shows a significant correlation. The fourth term "Exhaustion (EXH)" (ρ=0.69, p<0.01) shows the same, positive and significant correlation. The second term "Poor sleep hygiene (PSH)" (ρ=0.67, p<0.01), also shows a significant correlation. Similarly the seventh term "Depression(DEP), (ρ=0.66, p<0.01), the sixth term "Lack of Motivation(LM)"

(ρ=0.65, p<0.01), the third term "physical health(PH)" (ρ=0.63, p<0.01), and the last term "Social Anxiety(SA)" (ρ=0.61, p<0.01) also shows a high positive and significant correlation with the first term of the "Students' Academic Achievements (SAA)".

Similarly the second term of dimension of "Students' Academic Achievements(SAA)" also shows a strong, significant and positive relationship with all the eight dimensions of" Effects of Videogames (EVG)" such that the sixth term of the dimension of "Effects of Videogames (EVG)" is "Lack of Motivation(LM)" (ρ=0.70, p<0.01), shows a highly significant correlation with the second term of the dimension of "Students' Academic Achievements(SAA)". Similarly the fourth term, "Exhaustion (EXH) (ρ=0.69, p<0.01), also show a positive and high significant correlation .The fifth term "Dehydration (DEH)" (ρ=0.68, p<0.01), also shows a significant correlation with the second term of dimension of "Students' Academic Achievements (SAA)". The first and seventh terms such that "Aggressive Behavior (AB)" (ρ=0.67, p<0.01), "Depression (DEP)" (ρ=0.67, p<0.01), are shows the same positive correlation. It the same way the last term "Social Anxiety (SA)" (ρ=0.66, p<0.01), second term "Poor sleep hygiene (PSH)" (ρ=0.65, p<0.01), and third term "Physical health (PH)" (ρ=0.63, p<0.01), also shows a strong correlation with the second term of the dimension of "Students' Academic Achievements (SAA)".

The third term of dimension of "Students' Academic Achievements (SAA)" shows a strong, significant and positive relationship with all the eight dimensions of "Effects of Videogames (EVG)" such that the sixth term of the dimension of "Effects of Videogames (EVG)" is "Lack of Motivation (LM)" (ρ=0.72, p<0.01), which shows a highly significant correlation with the third term of the dimension of "Students' Academic Achievements (SAA)". The second one as "Aggressive Behavior (AB)" (ρ=0.70, p<0.01), shows a strong, significant correlation with the third term of the dimension of "Students' Academic Achievements (SAA)". Similarly the second term "Poor sleep hygiene (PSH)" (ρ=0.69, p<0.01) , also shows a positive and high significant correlation .

The seventh term "Depression (DEP)" (ρ=0.68, p<0.01), also shows a significant correlation with the second term of dimension of "Students' Academic Achievements (SAA)". It the same way the third term "Physical health(PH)" (ρ=0.67, p<0.01) , fifth term " Dehydration(DEH)" (ρ=0.66, p<0.01), and fourth term "Exhaustion(EXH) (ρ=0.65, p<0.01), last term "Social Anxiety (SA)" (ρ=0.63, p<0.01), also randomly shows a strong, positive correlation with the third term of the dimension of "Students' Academic Achievements(SAA)" .

Discussion

The study clarifies that there is a significant effect of videos game on students' academic achievements in the stated context.

The Effects of Video Games

In today's fast-paced world, we face growing pressure to maximize our free time, which has led to the rise of "digital leisure" new forms of entertainment driven by digital technology, such as the internet, gaming consoles, mobile phones, and digital programs. This shift in leisure activities is significantly changing interpersonal relationships and leisure habits, especially among young people. Among these forms of digital entertainment, video games have become the dominant industry in terms of revenue and growth (Valdemoros-San-Emeterio et al., 2017).

However, the effects of video games extend beyond leisure. Research indicates that prolonged exposure can impact children's eyesight, with many students experiencing vision impairment at a younger age. Additionally, various types of video games have been associated with poor physical growth and excessive weight gain among youth.

In Pakistan, the "Games" segment of the media market is expected to grow by 12.3 million users

(+31.7%) between 2024 and 2029, reaching 51.1 million users by 2029 (Pakistani Statistical Department, 2024). Similarly, in Spain, the video game industry is a key player in the audiovisual leisure sector, generating €1.35 billion in 2017, with 75.94% of 15.8 million players engaging in games weekly (AEVI, 2018). Recent data also highlights a growing trend, with 80% of young people in Spain playing video games (Benedicto et al., 2017), raising concerns among educators, parents, and administrators about the amount of time spent gaming (Gonzalvo, et al., 2020).

Given that adolescence is a crucial period for identity formation, the significant time teenagers devote to video games warrants attention (Pedrero-Perez et al., 2018). It is essential to assess how such leisure activities affect adolescent development, particularly since time spent gaming could otherwise be spent on more enriching activities (Aguilar et al., 2010). Concerns around video games include their content limitations, addictive qualities (Toker & Baturay, 2016), sedentary behavior and associated health risks and issues of gender disparity in gaming culture (Gómez Gonzalvo et al., 2014).

Students' Academic Achievements

This study aims to investigate the relationship between secondary school student's achievements and their video game usage. Various studies suggest that excessive time spent on leisure technologies, including video games, is a major contributing factor to this trend. In 2017, 18.3% of students in Spain dropped out of primary and secondary compulsory education, a figure well above the European Union average (10.6%).

According to studies, adolescents that restrict their gaming time typically succeed academically Academic achievement and video game use are in a constant inverse relationship, according to research. Adolescents that spend most of their time playing video games also typically have poor academic achievement (Lizandra et al., 2016). Similarly, a study by Aguilar et al (2010) examine that video gaming for more than two hours per day negatively impacted academic performance.

Whereas internet access, which has made it more accessible to communicate with individuals all over the world and has the potential to improve culture and language, video games do not have these advantages. Research studies have demonstrated that playing video games has little to no beneficial effect on language, science, or arithmetic (Drummond & Sauer, 2014). The importance of gaming habits for affecting academic results was further illustrated by a study by Hartanto et al. (2018), which found that students who played video games during the week did worse academically than those who only engaged in gaming on weeks. Based on the research findings, it is recommended that the given model be applied to other tiers of education to bring new results.

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