

# The Effects of Video Game Usage on the Academic Performance of University Students in Selangor

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## Abstract

With the rapid growth of the gaming industry, video games have become a ubiquitous part of students' lives, influencing their daily routines and behaviours. This widespread engagement with video games has raised concerns on the potential impact on students' academic performance.

**Objective:** This study investigates the relationship between video game usage and academic performance among university students in Selangor, Malaysia.

**Methods:** Conducted over 18 weeks with convenience sampling, a self-administered questionnaire was distributed via social media to students aged 18 and above.

**Results:** The 270 respondents were primarily undergraduates (98.89%) and Malaysians (98.52%), with an age range of 21 to 26 years, predominantly 23 years old (45.56%). Gender representation included 147 men and 123 women from various universities. Key findings indicate that students with high GPA scores (3.51 - 4.00) predominantly spent less than 1 hour per week gaming (59.26%), while low GPA scores (2.01 - 2.50) were more frequent among those gaming 10 or more hours weekly (66.67%). High classroom engagement was most common among those gaming less than an hour weekly (72.84%), whereas low engagement was typical for those gaming 10 or more hours weekly (60.61%). Additionally, males were more likely to spend over 10 hours per week gaming (84.85%) compared to females.

**Conclusion:** This study suggests a significant association between extensive video game usage and academic performance. Limiting gaming time may enhance academic outcomes and classroom involvement among university students. Further research is needed to explore causality and interventions for better balance between gaming and academics.

**Keywords:** Video Games, Academic Performance, GPA, University Student Engagement Inventory (USEI), Gender

## CHAPTER 1: INTRODUCTION

### 1.1. Background

Video games are an advanced kind of interactive media that require active human-computer interaction and have gaming features. Worldwide, there have been reports of over two billion users. Nowadays, almost everyone has easy access to technology from a young age, and those who utilise it find it interesting and enjoyable. Video game popularity can be explained by a variety of variables, such as photorealistic

graphics, increasingly complex systems, and communicational features. These features have led to an increase in the amount of time spent playing the newest generation of video games (Braun B, 2016).

The use of video games has hit all-time highs and is probably only going to get bigger. People who play video games for more than ten hours a day are considered high-risk for addiction (Mark D Griffiths, 2008). Video games are very engaging and have many addictive features that mimic real life, which entices players to put in more hours to become experts. Simple one- or two-player games gave way to massively multiplayer online gaming in the early days of video games, which concurrently connected players to thousands of other players. The complexity has increased along with the amount of concurrent participants. A trade body for the video gaming business, the Entertainment Software body, reports that 66% of online gamers and 55% of console gamers are older than 18.

Focusing on university students is crucial as they have their own flexible schedules to handle without the guidance of their parents. A study including 1502 teenagers found that there is a negative correlation between video game playing time and academic achievement (Gómez-Gonzalvo, F. 2020). Teens who play video games more than others tend to fail more subjects in school, according to the study, while those who play them less often tend to obtain the best results.

However, Jackson et al. (2011) reported that their research showed teens who succeed academically maintain their performance over time, regardless of how much time they spend playing video games. Their prior performance is the best predictor of future academic success; the popularity of video games has no bearing on academic progress. Some research indicates positive relationships between video game playing and academic success. For example, research by Badia et al. (2015) shows that students who play video games for longer periods of time do better academically than those who watch television, watch movies, or use a cell phone as leisure activities.

Based on the previously described research, it is still unclear how playing video games may affect academic performance; there is no clear-cut explanation for this effect. The goal of this study is to investigate how university students' use of video games may affect their academic achievement.

## **1.2. Research Objectives**

### **1.2.1. General Objective**

To investigate the effects of video game usage on university students' academic performance in Malaysia.

### **1.2.2. Specific Objectives**

1. To determine the correlation between video game usage and university students' GPA.
2. To study the association between playing video game usage and university students' engagement in class.
3. To identify the difference between gender and time spent playing video games.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1. To investigate the effects of video game usage on university students' academic performance in Malaysia.**

Based on research done by Gómez-Gonzalvo, F. There is an inversely proportional relationship between the amount of time adolescents spend playing video games and their academic achievement in school; by 2020, adolescents who spend more time playing games will fail more subjects. According to his research, playing more video games would have a detrimental impact on academic achievement.

Nonetheless, there was no discernible correlation between the amount of time spent playing video games and academic achievement, according to Jancee Wright's (2011) study. His study's conclusions conflict with the earlier study's. Video games have no detrimental effects on adolescents' academic performance in science, math, or reading, according to a different study by Aaron Drummond from 2002. Therefore, previous research cannot be used to definitively answer the question of whether playing video games affects academic performance. This study aims to find out if playing video games affects university students' academic performance.

### **2.2. To determine the correlation between playing video games and students' GPA.**

In 2013, 193 students from a small private university in northeast Ohio, aged 18 to 35, participated in a descriptive correlational study to investigate the relationship between video games and college-age students' grade point averages (GPAs). There are some differences between the two groups of gamers: those who play video games frequently and those who don't. A mean college GPA of 3 points was reported by the low usage video game player category and a mean college GPA of 3 points by the high usage video game player category. The t-test yields a p-value of 0.043, and its result is 2.04.

A cross-sectional study that was carried out in 2017 with one hundred students from Slemani City, Iraq's basic school, revealed the effect that computer games had on students' GPA. According to the results of the study, students who play electronic games for one to three hours a day see little to no decrease in their GPA (-0.22 percent per hour). Conversely, students who play for more than three hours a day see a greater decrease in their GPA (-2.41 percent per hour).

A descriptive survey ranging from the fourth to the fifth grade, carried out in October 2014 among 396 students from three public primary schools in the city of Ankara, Turkey, under the auspices of Turkey's Ministry of National Education, revealed the relationship between grade point average and video game addiction. bringing a 3 percent contribution to the overall explanation. Variables remain stable, the Beta coefficient of the variable "GPA" was found to be -0.202. The t values of these three Beta coefficients were found meaningful.

The studies included depict students who have a higher video game usage would have a lower GPA. However, as stated in the previous studies, this is not always the case, as some studies state that video game usage has no effect on their GPA.

### **2.3. To study the association between playing video games and students' engagement in class.**

According to a quasi-experimental study done in December 2008, 129 students from a single high school in the Southern Eastern United States, ages 14 to 18, participated in the study to find out how video games affected their participation in class. The engagement results showed that, with a p value of 0.03, students who were addicted to video games were less engaged.

An investigation into the participation patterns and prevalence of video arcade and computer game addiction was carried out in June 2010 among 1326 students from rural and urban Tasmanian schools, spanning from grade 7 to 12, as well as university students. The study was cross-sectional in nature. The findings of weekly student participation show that university and school students who play video games participate less frequently.

The purpose of the study, which took place in May 2000, was to record the impact of violent video game habits on academic performance in class, according to a descriptive survey completed by 607 students from four Midwestern schools, ranging in grade from eighth to ninth. Exposure to violent video games was found to be both directly and indirectly linked to physical fights, with trait hostility acting as a mediator (p value of <0.001) between the two effects. Research indicates that increased video game

consumption could result in students being less attentive in class. The studies depict that higher video game usage would lead to students being less engaged during the class.

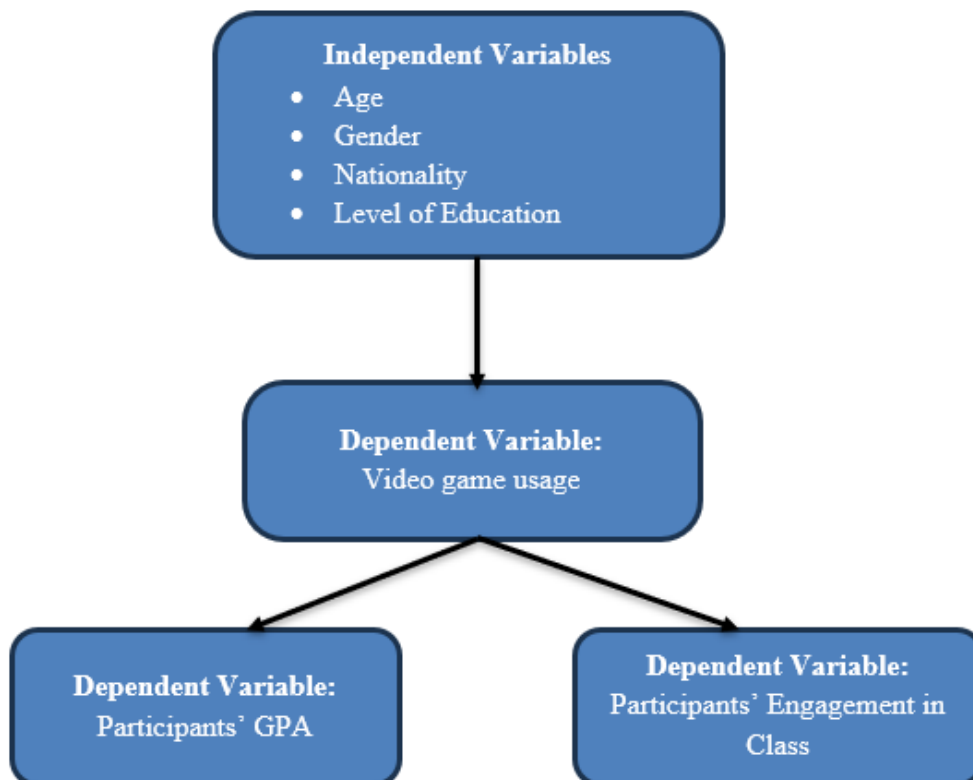
**2.4. To identify the difference between gender and time spent playing video games.**

A cross-sectional study of 403 East Tennessee State University students who are 18 years of age or older was carried out in May 2017 to find out the relationship between the user's sex and mood while playing video games and the use of gaming. There were 276 (68.3%) male participants and 128 (31.7%) female participants out of the 403 surveys. When comparing the means of men and women for the majority of the questions regarding the relationship between gender and the experience of mood while playing video games, the male means were considerably higher.

Between November 2021 and January 2021, a study was carried out to find out whether there were any notable disparities in the usage and consumption patterns of mobile video games between the sexes. A sample of 755 university surveyors who are enrolled in the University of Salamanca's Degree in Communication and Audiovisual Creation program was obtained. It is not significant because the p-value is greater than 0.05. As a result, there is no difference in the amount of time spent playing video games between the sexes.

In order to better understand the relationships between the various genders of preadolescents and their preferences and habits related to video games, a study was carried out in September 2012 among children aged 10 to 15 from urban schools in the northeastern United States. It is typical for preadolescent boys and girls to spend a significant amount of time playing video games, despite the gender differences.

**2.5. Conceptual Framework**



**Figure 2.5.1: Conceptual Framework**

## CHAPTER 3: MATERIALS AND METHODS

### 3.1. Study Design

The study design used for this research was cross-sectional study.

### 3.2. Reference Population

The reference population includes all university students currently studying at universities in Selangor, Malaysia.

### 3.3. Source Population/Sample Population

The sample population that was used in the study includes university students currently studying at universities in Selangor, Malaysia that participate in the questionnaire.

### 3.4. Study Participants

#### 3.4.1. Inclusion Criteria

- Student at any university in Selangor, Malaysia.
- Aged 18 years old and above.
- Able to give informed consent.
- Able to understand English.

#### 3.4.2. Exclusion Criteria

- Not a student of a university in Selangor.
- Under 18 years old.
- Inability or unwillingness to participate in the study.

### 3.5. Sample Size

Sample size was calculated by using the formula below:

Where,

N = sample size

Z score,  $z = 1.96$  (95% CI)

Margin of error,  $m = 0.05$  (5%)

Proportion, P; prevalence from previous studies.

Taking into account prevalence,  $p$ , is 35% based on prevalence of high video game usage based on earlier research by Raouf SYA et al. (2022), the calculation of sample size was as follows:

$$n = [(1.96/0.05)^2 \times (0.19) (1-0.19)] + 24 \\ = 260$$

The final sample size required was 260.

### 3.6. Sampling Method

Sampling method used was convenience sampling. The survey was distributed via social media to the students at the different universities present in Selangor.

### 3.7. Data Collection

Data collection was conducted by distributing a self-administered questionnaire to the targeted population. The questionnaire will be used to collect the data until the desired sample size has been reached. Data collection was conducted anonymously. The start of the questionnaire began with an explanation of the study's importance and goal, as well as a guarantee of data confidentiality and a form asking for informed consent. The consent form outlines the eligibility requirements to ensure that respondents were only permitted to continue with the study if they meet the requirements and consent to take part voluntarily. Consent was obtained by completing the Respondent Information Sheet attached to the questionnaire. After obtaining consent, respondents were able to continue with answering the questionnaire. Throughout

the research, the respondents were able to withdraw at any time. Subjects may withdraw either by not completing the form if they have not submitted, or by deleting their response in the system. Any participants that were withdrawn would be replaced with other participants in order to reach the targeted sample size. The questionnaire was only able to be submitted after it had been completed. Information obtained was automatically recorded in the Google Form System, and the form was closed after the desired sample size reached.

The data obtained were only available to the researchers. The respondents' confidentiality was strictly maintained. After completion of the data collection, the results were exported into Excel for further analysis.

### **3.8. Study Instrument**

The questionnaire used in this study was divided into a few sections, which were:

#### **3.8.1. Sociodemographic data**

Data of the respondents' demographic data including their age, gender, ethnicity, nationality, education level, and level of education.

#### **3.8.2. Gaming Activity**

Measured by asking respondents their average time spent playing games in a week. Refers to any type of gaming activity that has been played online or offline using a computer, laptop, game console, or other device (such as a mobile phone, tablet, etc.).

#### **3.8.3. GPA**

Consists of one question, which is the respondents' GPA in the last semester.

#### **3.8.4. Engagement in Class**

Consists of The University Student Engagement Inventory, USEI (Maroco et al., 2016). The USEI consists of 15 self-report items with response possibilities ranging from "1-never" to "5-always" on a Likert scale. Student engagement is a second-order factor construct with behavioural, emotional, and cognitive components. Behavioural engagement is defined as taking part in school-related extracurricular activities, acting appropriately, and participating in classroom activities. The commitment and readiness of students to put in the work required to comprehend and master difficult ideas and skills is known as cognitive engagement. Feelings of belonging at school, following instructions from teachers, and beliefs about the value of education are all regarded as elements of emotional engagement. The lowest score is 15, and the highest score is 75. A higher score indicates a higher level of engagement in class. The total score was placed into one of three categories, low (15-35), intermediate (36-55), and high (56-75) to indicate their level of engagement in class.

### **3.9. Data Analysis**

Data from the questionnaire was cleaned and coded using Microsoft Excel and a data dictionary was designed. Afterwards, statistical analysis was conducted using JASP. The data collected from the survey was analysed descriptively by calculating the mean, standard deviation frequency and percentage. Chi-square test was conducted to determine the relationships between gaming activity and GPA, engagement in class, and gender.

**CHAPTER 4: RESULTS**

**Table 4.1: Sociodemographic Data of University Students in Selangor**

<b>Sociodemographic Characteristics</b>	<b>Frequency (%)</b>	<b>Percentage (%)</b>
<b>Age</b>		
<b>20</b>	1	0.37
<b>21</b>	9	3.33
<b>22</b>	47	17.41
<b>23</b>	123	45.56
<b>24</b>	40	14.82
<b>25</b>	49	18.15
<b>26</b>	1	0.37
<b>Gender</b>		
<b>Male</b>	147	54.44
<b>Female</b>	123	45.56
<b>Nationality</b>		
<b>Malaysian</b>	266	98.52
<b>Non-Malaysian</b>	4	1.48
<b>Level of Education</b>		
<b>Undergraduate</b>	267	98.89
<b>Postgraduate</b>	3	1.11
<b>University</b>		
<b>University of Cyberjaya (UoC)</b>	94	34.82

<b>UiTM Shah Alam (UiTM)</b>	24	8.89
<b>Universiti Islam Antarabangsa (UIA)</b>	53	19.63
<b>Universiti Kebangsaan Malaysia (UKM)</b>	25	9.26
<b>Universiti Putra Malaysia (UPM)</b>	35	12.96
<b>Multimedia Universiti (MMU)</b>	28	10.37
<b>Other (UCSI, MAHSA)</b>	11	4.07
<b>Total</b>	270	100

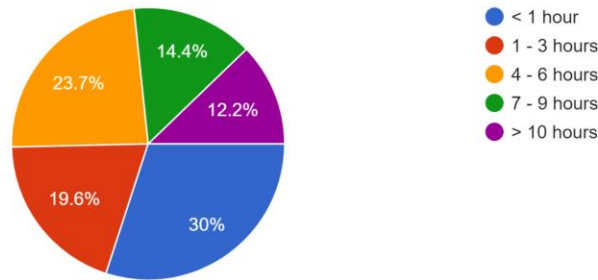
Table 4.1 shows the sociodemographic characteristics of university students in Selangor that took part in the questionnaire. The characteristics included age, gender, nationality, level of education, and university. A total of 270 respondents were collected, with age ranging between 20 to 26 years old, with the highest number being those aged 23 years old (45.56%). The gender distribution of the study was 147 males (54.55%) and 123 females (45.56%). The vast majority of respondents were Malaysian (98.52%) and undergraduates (98.89%). Students of University of Cyberjaya had the highest percentage (34.82%), whereas the distribution was obtained quite evenly between the rest of the universities.

**Table 4.2: Frequency Table of Gaming Activity in a Week of University Students in Selangor**

<b>Gaming Activity</b>	<b>Frequency (%)</b>	<b>Percentage (%)</b>
<b>&lt; 1 hour</b>	81	30.00
<b>1-3 hours</b>	53	19.63
<b>4-6 hours</b>	64	23.70
<b>7-9 hours</b>	39	14.44
<b>≥ 10 hours</b>	33	12.22



How many hours do you usually spend playing video games in a week?  
270 responses



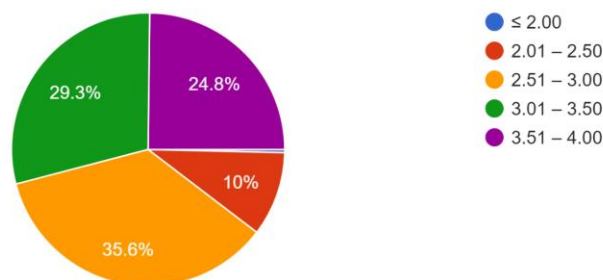
**Figure 4.1: Pie Chart of Gaming Activity in a Week of University Students in Selangor.**

Table 4.2 and Figure 4.1 shows the gaming activity in a week of University Students in Selangor. Students who reported a gaming activity of less than 1 hour per week had the highest frequency (30.00%) whereas those who played for 10 or more hours were the lowest (12.22%).

**Table 4.3: Frequency Table of University Students in Selangor’s GPA in Last Semester**

GPA	Frequency (%)	Percentage (%)
≤ 2.00	1	0.37
2.01 - 2.50	27	10.00
2.51 - 3.00	96	35.56
3.01 - 3.50	79	29.26
3.51 - 4.00	67	24.82

What was your GPA in the last semester?  
270 responses



**Figure 4.2: Pie Chart of University Students in Selangor’s GPA in Last Semester**

Table 4.2 and Figure 4.1 displays the GPA of University Students in Selangor in the most recent semester. The majority of respondents had a GPA of 2.51 – 3.00 (35.56%),

**Table 4.4: Frequency Table of Answers of University Students in Selangor to USEI Items**

USEI Item	Score				
	1 (N, %)	2 (N, %)	3 (N, %)	4 (N, %)	5 (N, %)
<b>I pay attention in class.</b>	4 (1.48)	39 (14.44)	81 (30.00)	66 (25.26)	77 (28.52)
<b>I follow the university’s rules.</b>	2 (0.74)	46 (17.04)	70 (25.93)	65 (24.07)	87 (32.22)
<b>I usually do my homework on time.</b>	5 (1.85)	59 (21.85)	55 (20.37)	78 (28.89)	73 (27.04)
<b>When I have doubts, I ask questions and participate in debates in the classroom.</b>	20 (7.41)	70 (25.92)	67 (24.82)	57 (21.11)	56 (20.74)
<b>I usually participate actively in group assignments.</b>	13 (4.82)	48 (17.78)	74 (27.41)	50 (18.52)	85 (31.48)
<b>I don’t feel very accomplished at this university.</b>	61 (22.59)	87 (32.22)	62 (22.96)	40 (13.82)	20 (7.41)
<b>I feel excited about the school work.</b>	9 (3.33)	81 (30.00)	69 (25.56)	54 (20.00)	57 (21.11)
<b>I like being at university.</b>	5 (1.85)	67 (24.82)	67 (24.82)	65 (24.07)	66 (24.44)
<b>I am interested in the schoolwork.</b>	12 (4.44)	63 (23.33)	83 (30.74)	61 (22.59)	51 (18.89)
<b>My classroom is an interesting place to be.</b>	15 (5.56)	83 (30.74)	60 (22.22)	63 (23.33)	49 (18.15)
<b>When I read a book, I question myself to make sure I understand the subject I’m reading about.</b>	10 (3.70)	47 (17.41)	76 (28.15)	61 (22.59)	76 (28.15)

<b>I talk to people outside the university on matters that I learned in class.</b>	19 (7.04)	54 (20.00)	74 (27.41)	66 (24.44)	57 (21.11)
<b>If I do not understand the meaning of a word, I try to solve the problem, for example by consulting a dictionary or asking someone else.</b>	7 (2.59)	64 (23.70)	51 (18.89)	70 (25.93)	78 (28.89)
<b>I try to integrate the acquired knowledge in solving new problems.</b>	9 (3.33)	62 (22.96)	57 (21.11)	79 (29.26)	63 (23.33)
<b>I try to integrate subjects from different disciplines into my general knowledge.</b>	20 (7.41)	56 (20.74)	57 (21.11)	61 (22.59)	76 (28.15)

**Table 4.5:** Frequency Table of University Students in Selangor’s Engagement in Class

Engagement in Class	Frequency (N)	Percentage (%)
<b>Low (15-35)</b>	31	11.48
<b>Intermediate (36 - 55)</b>	127	47.04
<b>High (56 - 75)</b>	112	41.48

Table 4.4 and 4.5 shows the study instrument used to measure the participants’ engagement in class, and the respective level of engagement in class. Most respondents were in the intermediate category (47.04) with a percentage of 41.48% and 11.48% for high and low categories respectively.

**Table 4.6: Association between Gaming Activity & GPA**

Gaming Activity	GPA						Chi-square Results	
	≤ 2.00 (N, %)	2.01 - 2.50 (N, %)	2.51 - 3.00 (N, %)	3.01 - 3.50 (N, %)	3.51 - 4.00 (N, %)	Total	df	P-value
<b>&lt; 1 hour</b>	1 (1.24)	0 (0)	9 (11.11)	23 (28.40)	48 (59.26)	81	16	<0.001
<b>1-3 hours</b>	0 (0)	0 (0)	8 (15.09)	34 (64.15)	11 (20.76)	53		
<b>4-6 hours</b>	0 (0)	1 (1.56)	48 (75.00)	12 (18.75)	3 (4.69)	64		

<b>7-9 hours</b>	0 (0)	4 (10.26)	30 (76.92)	5 (12.72)	0 (0)	39		
<b>≥ 10 hours</b>	0 (0)	22 (66.67)	1 (3.03)	5 (15.15)	5 (15.15)	33		
<b>Total</b>	1	27	96	79	67	270		

Table 4.76 shows the association between gaming activity and GPA. The majority of respondents that reported a gaming activity of less than 1 hours in a week had a GPA of 3.51 – 4.00 (59.26), whereas those who reported a gaming activity of 10 or more hours had the most figure of respondents reporting a GPA of 2.01 – 2.50. The results of the chi-square test also shows a p-value of <0.001, indicating a significant association between the two variables of gaming activity and GPA.

**Table 4.7: Association between Gaming Activity & Engagement in Class**

<b>Gaming Activity</b>	<b>Engagement in Class</b>				<b>Chi-square Results</b>	
	<b>Low (N, %)</b>	<b>Intermediate (N, %)</b>	<b>High (N, %)</b>	<b>Total</b>	<b>df</b>	<b>P-value</b>
<b>&lt; 1 hour</b>	3 (3.70)	19 (23.46)	59 (72.84)	81	8	<0.001
<b>1-3 hours</b>	1 (1.89)	12 (22.64)	40 (75.47)	53		
<b>4-6 hours</b>	1 (1.56)	58 (90.62)	5 (7.81)	64		
<b>7-9 hours</b>	6 (15.49)	31 (79.49)	2 (5.13)	39		
<b>≥ 10 hours</b>	20 (60.61)	7 (21.21)	6 (18.18)	33		
<b>Total</b>	31	127	112	270		

Table 4.7 shows the relationship between gaming activity and engagement in class. The high engagement in class category has the highest number of students who reported a gaming activity of GPA less than one hour with 59 students, however largest figure of students in the low category were those who had a gaming activity of 10 or more hours. The chi-square test also shows a p-value of <0.001, signifying an association between the variables gaming activity and engagement in class.

**Table 4.8: Association between Gaming Activity & Gender**

Gaming Activity	Gender			Chi-square Results	
	Male (N, %)	Female (N, %)	Total	df	P-value
< 1 hour	26 (32.09)	55 (67.91)	81	4	<0.001
1-3 hours	31 (58.49)	22 (41.51)	53		
4-6 hours	38 (59.38)	26 (40.62)	64		
7-9 hours	24 (61.54)	15 (38.46)	39		
≥ 10 hours	28 (84.85)	5 (15.15)	33		
<b>Total</b>	147	123	270		

Table 4.8 shows the relationship between gaming activity and gender. The table shows that for those with a gaming activity of less than one hour, the female respondents were the majority, with 55 females compared to 26 males, however for the rest of the gaming activity categories, from 1-3, 4-6 hours, 7-9 hours, and 10 or more hours, the number of males were more than the females. The results of the chi-square test give a p-value of <0.001, proving an association between gaming activity and gender.

**CHAPTER 5: DISCUSSION**

Since its invention, the popularity of playing video games as a pastime has only grown. People now congregate in a social networking community every day for hours on end, fighting against one another to advance in level and win prizes and accomplishments. Video games are electronic pastimes that entice players to spend more time perfecting their skills because of their many addictive qualities. As a result, more time is now spent playing the newest video games (Braun B, 2016). One of the key indicators to be linked with video game consumption is academic achievement, and university students are a key demographic to concentrate on when it comes to gaming usage. According to Gómez-Gonzalvo, F. 2020, there is an inversely proportional relationship between the amount of time students spend playing video games and their academic achievement in school. However, according to another study, there is no significant correlation between students' gaming habits and academic achievement (Jancee Wright, 2011). Therefore, the purpose of this study is to examine how university students in Selangor perform academically in relation to their video game consumption.

**5.1. Association between video game usage and university students’ academic performance.**

Our study shows there is a significant association between video game usage and GPA, and video game usage and engagement in class. Those that have a higher time spent playing video games are more likely to have a lower GPA and level of engagement in class compared to those that played less than one hour a week. The reason may be due to those that spend more time playing video games have less time to spend

on other activities which may be beneficial to their academic performances, such as attending class and studying. According to a study conducted by Mahmud et al. (2023), the study revealed a relationship between university students' CGPA and internet gaming, whereby the average time student playing video games in the study was 30 hours a week which affected their ability to attend class, causing the reduction in their CGPA.

### **5.2. Correlation between video games and university students' GPA**

In a study conducted by Wakil, K., Omer, S., & Omer, B. (2017), to present the impact of computer games on student's creativity and academic achievement of basic school students, they proposed a questionnaire form for 100 students at basic schools. The result shows that the average student GPA before starting playing was 75% and after starting to play between 1-3 hours per day was 74.30%. The students that played more than 3 hours per day saw a decrease in their GPA from 76% (average GPA before started playing video games) to 68.80% (average GPA after started playing video games). In our study, the participants were 270 university students, and the results of our study show that students playing video games for < 1 hour per week have the maximum GPA score of 3.51- 4 and those who play >10 hours per week have the minimum GPA score of 2.01-2.50. It proves that the number of hours playing video games is inversely proportional to GPA score. Therefore, the result shows that there is a statistically significant association between the number of hours spent on video games and GPA ( $p < 0.001$ ). This indicates that increased hours of video game usage will affect academic performance.

### **5.3. Association between video game usage and university student' engagement in class**

According to a cross-sectional study conducted among 1326 students from rural and urban Tasmanian schools ranging from grade 7-12 and university students, the study conducted was to investigate the participation habits and prevalence of addiction to video arcade games and computer games in June 2010. The results of students' participation weekly are lesser in students engaged with video games in university and school. In our study, among university students who played video games for < 1 hour a week have the highest frequency of high engagement in class while for students who have gaming their activity of  $\geq 10$  hours has the highest frequency of low engagement in class. Therefore, there is a statistically significant association between playing video games and student's engagement in class where the increased hours of video game usage negatively affect the student's engagement in class. This indicates that increased hours of video game usage will affect academic performance.

### **5.4. Difference between gender and time spent playing video games**

One study that looked at gender variations in video game play was done by Romrell, D. (n.d). The study concludes that men and women play games for different reasons. In general, males are more driven by rivalry and achievement, while women are more driven by the social aspects of the game. Participating in another study by Camarata, Joseph (2017) required responding to an online survey. This study asked students about their thoughts and perceptions on the connections between their use of video games and their sex as well as their gaming mood. 403 students from East Tennessee State University made up the sample population for this study; 276 (68.3%) of them were male, and 127 (31.7%) were female. When comparing the means of males and females for the majority of the questions regarding the relationship between gender and the sense of mood when playing video games, the male mean was considerably higher. In our research, the objective was to identify the difference between gender and time spent playing video games. The results show, frequency of females compared to males is higher only in the <1 hour gaming activity category. For all other categories of gaming activity, the frequency of males is higher when compared to females. 84% of male and 15% of females are spending > 10 hours a week playing video

games. This shows that male individuals are spending more time on playing video games when compared to females. Therefore, there is a statistically significant difference between the gender and time spent on playing video games.

## CHAPTER 6: CONCLUSION, LIMITATIONS AND RECOMMENDATION

According to the study, playing video games negatively impacts academic performances. The study reported a significant association between video game usage and university students' academic performance, GPA, and engagement in class. It also found a significant difference between gender and time spent playing video games. However, these findings do not support previous studies, which have shown that while video game usage negatively affects academic performance, the overall impact remains unclear and without a definitive answer.

A significant limitation in the research study is the reliability of self-reported GPA data filled in by students. Inaccurate reporting is a concern, as students may intentionally or unintentionally provide incorrect GPA information, possibly due to social desirability bias or simple error. Additionally, memory recall issues can arise, with students potentially failing to accurately remember their GPA, especially if there has been a significant time lapse since their last result.

Suggestions: To address these limitations, implementing methods to cross-verify self-reported GPAs with other sources, such as academic transcripts or reports from educational institutions, is recommended. This approach can help identify discrepancies and improve the overall accuracy of the data.

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