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UiTM CAWANGAN NEGERI SEMBILAN

The Relationship of Excessive Online Gaming on Academic and Lifestyle Outcomes Among University Students

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Abstract

This study investigates how time spent on online gaming affects university students' academic performance, stress levels, life skills, social interaction, and sleep schedule. A total of 338 students from five academic programs at UiTM Pahang, Raub Campus, participated in the survey. Data were collected using structured questionnaires and analysed using descriptive statistics and Spearman's correlation analysis. Results show that students who play less than one hour daily tend to have better academic performance and life skills. However, longer gaming durations are weakly to moderately linked to increased stress, disrupted sleep, and slight social changes. These findings highlight the importance of balancing gaming habits and digital wellness education.

Keywords*:* Online gaming, academic performance, stress, life skills, sleep patterns

Introduction

Online games are video games played over the Internet or a computer network. These games span various genres, including first-person shooters, strategy games, and role-playing games, and are accessible on personal computers, gaming consoles, and mobile devices. Many young people, particularly university students, are drawn to online gaming for entertainment and as a way to relieve academic stress.

However, growing evidence shows that excessive time spent on online games can have negative effects on students [1]. As games evolve in graphics and gameplay, they become more engaging, making it easy for students to lose track of time. Being engrossed in gaming would result in reduced study hours, missed classes, and neglected academic responsibilities. For instance, one study [2] discovered that Australian schoolchildren who played electronic games for more than two hours a day tended to perform poorly on reading and numeracy assessments, indicating a connection between gaming and a lack of focus in the classroom. These consequences may affect students' general well-being in addition to their academic performance.

Academic performance is a key measure of student success and usually, usually assessed through exam results, coursework, and classroom participation. Students who dedicate excessive time to gaming often struggle academically due to reduced time for studying, might miss scheduled class time and even struggle to focus in class. However, when digital game-based learning incorporates educational content and games, it has demonstrated potential for enhancing cognitive skills including critical thinking, memory, and problem-solving [3-4].

Mental health is also a significant area of concern. Students who are addicted to online gaming may experience elevated stress levels, particularly when exposed to violent or competitive content. Shin and Ahn [5] discovered that violent video games had significantly amplified the emotional reactivity and aggressive thoughts in teenagers, implying that repeated exposure can exacerbate stress and impair their focus. Yoo [6] identified five distinct patterns of gaming behaviour among adolescents and linked them to psychosocial factors such as academic stress, poor self-control, loneliness, and lack of peer support. These findings suggest that unrestrained gaming is both a symptom and a cause of psychological stress. This emphasises the complex interplay between emotional health and digital behaviour in student populations.

When students prioritise games over relationships, their social interactions can suffer as well. A lack of family or peer engagement can result in emotional dependence on games and frayed social bonds. Uncontrolled gaming time would also impact their sleep, as students frequently stay up late gaming, resulting in poor sleep quality and afternoon fatigue. Studies have found a clear correlation between sleep deprivation and poor academic performance [7-8]. Although Internet games are intended for entertainment, many students, particularly in poorer nations, exhibit signs of gaming addiction. This habit can jeopardise their academic achievement, mental health, social relationships, time management, and sleep patterns. Given that students are among the most regular users of online games, it is critical to understand the implications of excessive gaming and to devise preventive measures.

Therefore, the current study aims to examine the impact of time spent on online gaming on various aspects of students' lives. Specifically, it seeks to investigate the relationship between time spent on online games and students' academic performance, stress levels, life skills, socialisation, and sleep patterns. The study focuses on students at UiTM Pahang, Raub Campus and aims to contribute valuable insights for educators and policymakers to better support students' well-being and academic success.

Methodology

This study involved a total population of 2,479 students from Universiti Teknologi MARA Pahang, Raub Campus. The campus offers five academic programs: AM110 (905 students), BA119 (500 students), BA111 (557 students), CS110 (312 students), and CS111 (205). A cross-sectional study design was chosen to investigate the effects of excessive time spent on online gaming among students at a specific point in time. Data were collected using a standardised questionnaire distributed to selected students from various programs.

Measuring Instrument

The main instrument used for data collection was a self-administered questionnaire, developed to explore the relationship between online gaming and various aspects of student life. The questionnaire was structured into six sections, labelled Section A to Section F, each aligned with the study's respective research objectives. The instrument was designed to collect both demographic information and data related to the behavioural, academic, and psychological effects of online gaming. Section A addresses background information, while Sections B to F measure specific variables using a five-point Likert scale ranging from *"strongly disagree"* to *"strongly agree"*. A summary of each section is provided in Table 1.

Table 1: Overview of questionnaire sections

Section	Content Description
A	Demographic information
B	Academic Performance
C	Stress Level
D	Life-Based Skills
E	Socialization
F	Sleep Schedule

Sampling Technique

A stratified sampling technique was employed to ensure that all academic programs at UiTM Pahang, Raub Campus were proportionally represented in the study. Stratified sampling involves dividing the population into subgroups or strata that share similar characteristics. In this case, students enrolled in five different academic programs acted as strata. For a population of 2,479 students, the total number of

students enrolled at UiTM Pahang Branch, Raub Campus, according to [9], the appropriate sample size is 331 respondents. The sample size for each course was calculated using a stratified sampling formula based on the proportion of students in each program relative to the total population. The sample for each Course is listed in Table 2.

Table 2: Number of respondents by course

Course Code	Program Name	Number of Respondents
AM110	Public Administration	121
BA119	Banking Studies	67
BA111	Business and Management	74
CS110	Computer Science	42
CS111	Statistics	27

This stratified approach is hoped to improve the sample's representativeness and enable more accurate comparisons of students from various academic disciplines related to gaming, academic performance and lifestyle.

Procedure for Data Analysis

The Cronbach's Alpha was used in this study to determine the reliability of the questionnaire. An alpha value of 0.70 or higher is often deemed satisfactory, suggesting that the instrument produces reliable results [10,11]. In this study, descriptive statistics were used to summarise and interpret the basic characteristics of the collected data. This included using statistical measures such as mean, standard deviation, frequency, and percentage, as well as visual representations such as tables and bar charts. The descriptive analysis provided a clear overview of the demographic characteristics and response distribution, allowing for the identification of patterns and trends in the amount of time students spent playing online games.

To investigate the relationships between variables, the study employed Spearman's Rank Correlation Coefficient, a non-parametric measure that assesses the strength and direction of the association between two ranked variables. This strategy was appropriate given the ordinal structure of the Likert-scale responses. In this study, the independent variable was time spent playing online games, while the dependent variables were academic performance, stress level, life-based skills, socialisation, and sleep schedule. Spearman's correlation was used to assess the research goals, evaluating whether there are significant associations between excessive gaming and each of these characteristics among students in the selected academic programs at UiTM Pahang, Raub Campus.

Results and Discussion

Descriptive Analysis

Cronbach’s alpha was used to determine the internal consistency of the instrument. According to Lavrakas [12], a Cronbach’s alpha value of 0.80 or above is generally considered acceptable, while values between 0.90 and 0.95 are deemed excellent. In this study, the overall Cronbach’s alpha was 0.927, indicating a high level of reliability for the instrument used. Table 3 summarises the reliability values for each variable in the study.

Table 3: Number of respondents by course

Variables	Cronbach's Alpha	Number of Items
Academic Performance	0.787	7
Stress Level	0.858	7
Life-Based Skills	0.919	7
Socialization	0.742	10
Sleep Schedule	0.943	8

The results demonstrate that all constructs have acceptable to excellent levels of internal consistency, with the highest reliability found in the sleep schedule variable (α = 0.943) and the lowest in socialisation (α = 0.742), which is still within acceptable limits.

Gender and Preference of Online Games

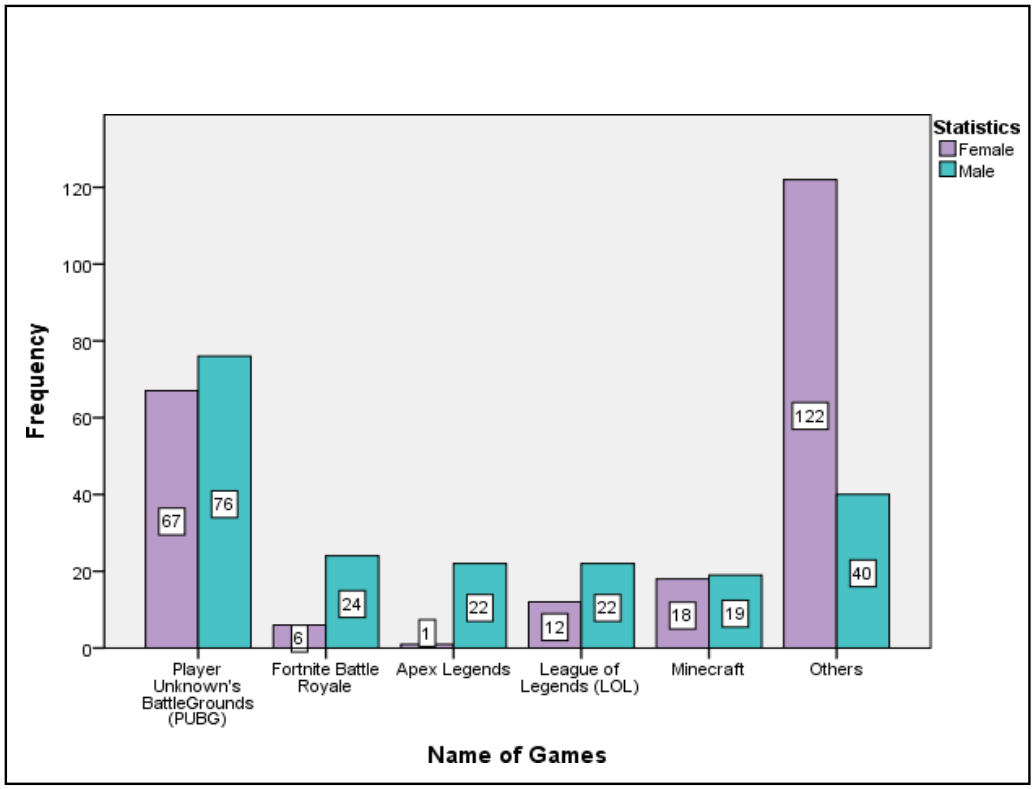

Figure 1: Frequency of respondents' preference for online games by gender

Figure 1 illustrates the types of online games played by students, categorised by gender. Among the games listed, Player Unknown's Battlegrounds (PUBG) was the most popular, with 76 male and 67 female respondents indicating it as their preferred game. This suggests high overall engagement with PUBG among both genders.

Male respondents showed a stronger preference for competitive, battle-based games such as Fortnite Battle Royale (n = 24), Apex Legends (n = 22), and League of Legends (LOL) (n = 22), compared to female respondents, whose frequencies for these games were relatively low: 6, 1, and 12, respectively. The minimal female representation in these categories suggests that these games are more favoured by male players.

In contrast, Minecraft showed a relatively balanced interest between genders, with 19 male and 18 female respondents indicating it as their game of choice. The most striking gender difference appeared in the "Others" category, where 122 female respondents compared to 40 males selected unspecified or

less common games, compared to 40 males. This suggests that female students have more diverse gaming preferences or engage in casual games not represented among the mainstream titles listed. The data indicates that male students tend to favour more competitive, action-based games, while female students demonstrate a more diverse range of game preferences, as shown by their dominant selection of the "Others" category.

Program Code and Frequency of Online Gaming

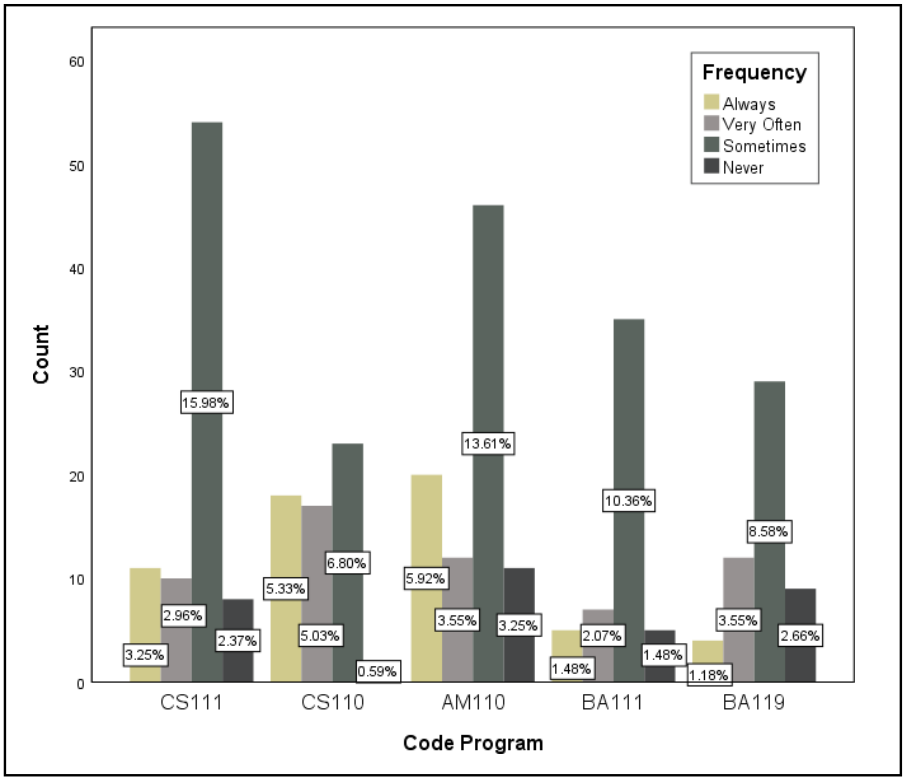

Figure 2: Frequency of respondents' course by frequency of online gaming

Figure 2 shows the frequency of online gaming frequency across different academic programs: CS111, CS110, AM110, BA111, and BA119, using four frequency categories: Always, Very Often, Sometimes, and Never.

The data reveals that "Sometimes" was the most common response across all programs. CS111 students constituted the highest proportion of occasional gamers, with 15.98% indicating they played online games "Sometimes." This is followed by AM110 students (13.61%) and BA111students (10.36%), suggesting a prevalent but moderate level of gaming activity in these programs.

In contrast, the "Never" category also shows a significant number of responses, particularly in CS110 (0.59%) and AM110 (3.25%), indicating that a notable group of students in these programs do not engage in online gaming at all. The "Always" and "Very Often" categories received comparatively fewer responses across all the programs. However, the CS110 and AM110 programs showed a higher tendency toward frequent gaming, with 5.33% and 5.92%, respectively, reporting that they "Always" played online games. Overall, the results suggest that while occasional gaming is common across all programs, particularly among students in CS111, AM110, and BA111, frequent gaming (Always/Very Often) remains limited to smaller groups, and a moderate number of students abstained from online gaming altogether.

Gender, Online Gaming, and Academic Performance

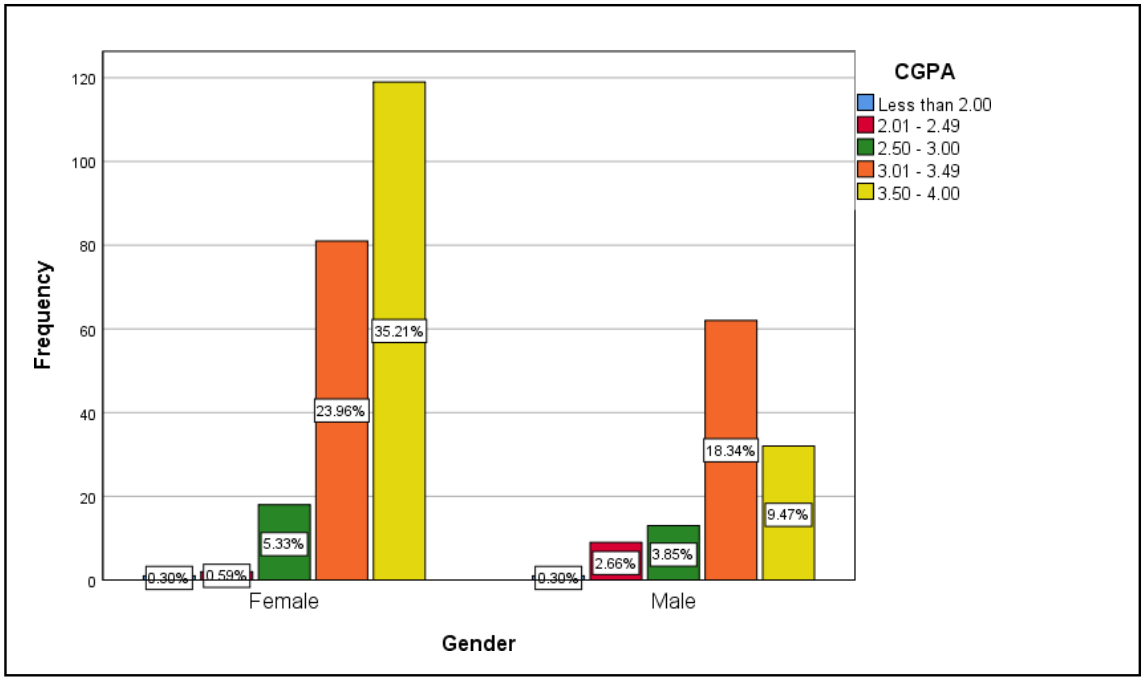

Figure 3: Frequency of respondents' CGPA by academic performance

Figure 3 illustrates the distribution of CGPA among male and female respondents who played online games. A significant proportion of respondents (44.68%) who achieved a CGPA between 3.50 and 4.00 were female (35.21%), whereas only 9.47% were male. Female students also dominated the other CGPA categories (3.01–3.49 and 2.50–3.00). Very few respondents, equally split by gender (0.30%), scored below 2.00. Overall, female students who played online games tended to perform better academically than their male counterparts.

Duration of Online Gaming and Academic Performance

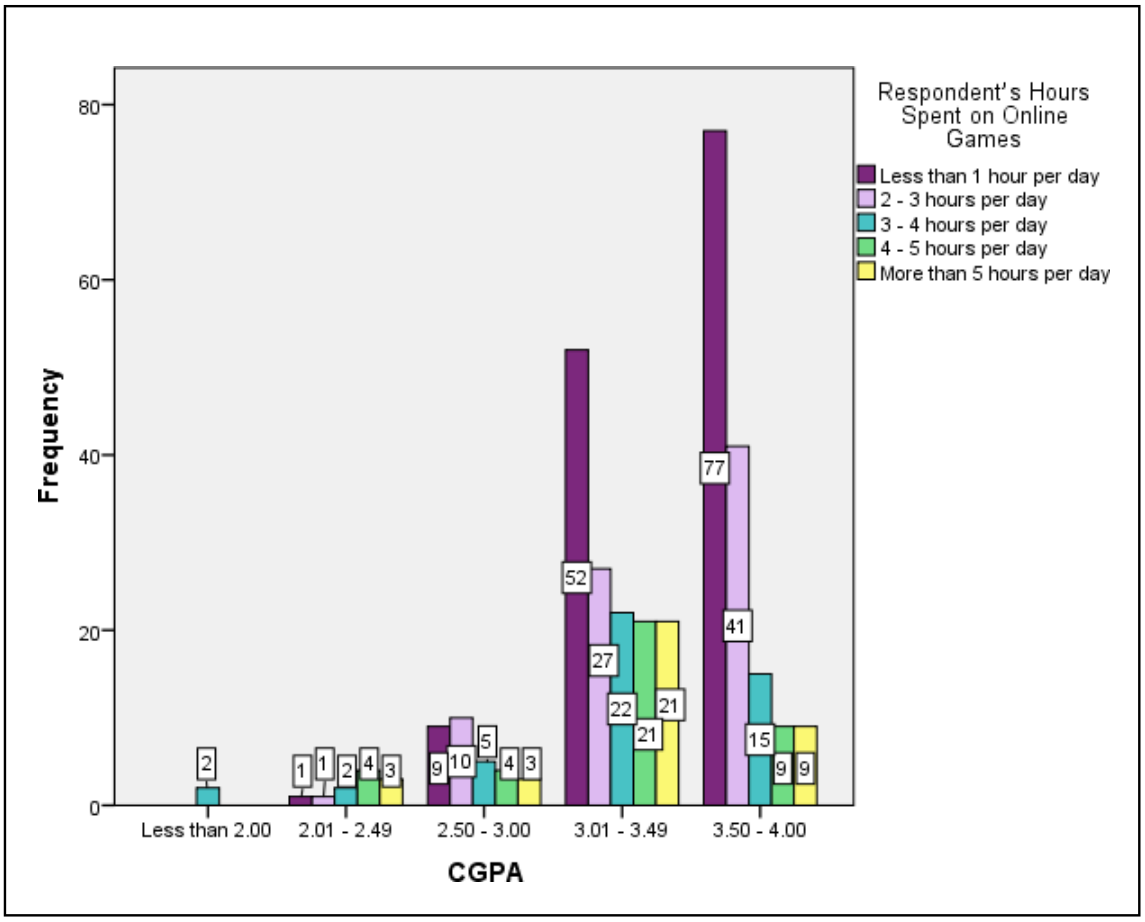

Figure 4: Frequency of respondents' CGPA by hours spent on online games

Figure 4 further illustrates the relationship between CGPA and gaming duration. A clear trend emerges where students who spend less than 1 hour per day on online games most frequently fall within the higher CGPA categories (3.01–3.49 and 3.50–4.00), with frequencies of 52 and 77, respectively. Conversely, students with lower CGPAs (below 3.00) are more evenly spread across all gaming durations, including those who play 3 or more hours per day. Notably, very few students with CGPAs below 2.50 reported gaming for less than one hour. This visual reinforces earlier statistical findings that limiting gaming time is associated with better academic performance.

Table 4 summarises the average scores of students' perceptions of the effects of online gaming across five measured dimensions.

Table 4: Summary of mean scores

Variables	Mean Score	Interpretation
Academic Performance	2.76	Neutral
Stress Level	2.94	Neutral
Life-Based Skills	3.19	Slightly Positive
Socialization	2.97	Neutral to Positive
Sleep Schedule	2.91	Neutral

In terms of self-reported perceptions, the students generally held neutral views regarding the impact of online gaming across most domains. They agreed that their grades remained satisfactory despite gaming and acknowledged some skill-building aspects such as multitasking and problem- solving. Although the students maintained positive relationships with peers and family, minor sleep disturbances and stress related to gaming were reported. Overall, the scores suggest that the perceived impacts of online gaming are mostly neutral, with some areas showing mild benefits or manageable drawbacks.

The Spearman's correlation analysis indicated a strong positive relationship between limited gaming time and higher academic performance. Longer gaming hours showed weak to moderate correlations with elevated stress, diminished sleep quality, and slight social impacts.

Inferential Analysis

Spearman's Correlation Coefficient was used to evaluate the strength and direction of the relationships between time spent on online games and the five dependent variables.

Table 5: Summary of correlation coefficient results

Variables	Correlation Coefficient (r)	Strength	Significance ($p < 0.01$)
Academic Performance	0.543	Strong Positive	Yes
Stress Level	0.346	Weak Positive	Yes
Life-Based Skills	0.347	Weak Positive	Yes
Socialization	0.417	Moderate Positive	Yes
Sleep Schedule	0.473	Moderate Positive	Yes

All variables reported in Table 5 demonstrated statistically significant positive correlations with gaming duration. The strongest correlation was observed between academic performance and gaming time ($r = 0.543$), whereas weaker relationships were observed between stress and life-based skills. Moderate correlations were identified between socialisation and sleep schedule.

These findings align with those of previous studies suggesting that moderate online gaming does not necessarily harm students' academic or social development. Students who limit their gaming time to less than an hour per day demonstrate academic and skill-based improvement, supporting claims for digital learning and cognitive engagement. However, the modest to moderate beneficial relationships shown between prolonged gaming sessions and stress, interrupted sleep, and social pressure highlight the need for time management. These effects, albeit not severe, underline the importance of raising awareness of about the potential negative consequences of unlicensed gaming.

Overall, this study supports a balanced approach to gaming, where students can benefit from its cognitive and recreational aspects without compromising their academic responsibilities and well-being with profound self-control. Universities and educators should also consider integrating digital wellness education and time management training into student development programs to instil responsible gaming behaviours.

Conclusion

This study investigated five key areas, academic performance, stress level, life- based skills, socialisation, and sleep schedule, and whether they are affected by excessive time spent on online gaming among university students. The findings reveal that while online gaming is a common activity for entertainment among students, the impact varies depending on the intensity and duration of gameplay across certain academic programs.

The results from both descriptive and inferential analyses suggest that moderate exercise engagement with adequate time management in online gaming does not necessarily hinder academic success or social well-being. A significant number of students who played for less than one hour per day achieved high academic performance. Furthermore, respondents recognised the potential benefits of gaming,

particularly in improving problem-solving and multitasking abilities.

However, the study also identified weak to moderate positive correlations between excessive gaming and elevated stress levels, disrupted sleep schedules, and minor changes in social behaviour. These findings highlight the importance of maintaining a balanced approach to online gaming to mitigate the potential negative effects of excessive gaming

In conclusion, online gaming, when practised in moderation, may serve as a constructive activity that complements students' development. Educational institutions and stakeholders should consider incorporating digital literacy and time management strategies into student development programs to foster healthier gaming habits. With better time management, it is hoped that students will have a better quality of life without excluding the fun they can have. Future research should expand on upon these findings using longitudinal designs or qualitative approaches to explore the evolving impact of gaming across academic semesters or developmental stages.

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