**CET351 Research**

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**An evaluation of the impact of online and mobile gaming on academic performance**

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**Abstract**

It is concerning that more and more students are becoming addicted to playing online mobile games (OMG). In prior studies, the consequences of internet gaming were assessed, as well as the connection between playing video games and academic accomplishment.  In multiplayer video games like League of Legends, Clash of Clans, Free Fire, Pubg, and many more, guys are found to be better gamers than ladies. Their scholastic success is adversely connected with how much time kids spend playing video games. These study demonstrated that the GPAs of those participants who admitted to engaging in games were lower than those who stated that they were not to engaging in online video games. If students know how to set boundaries, playing online games has little impact on their academic performance.

1. **Introduction**

Technology makes up a major portion of the globe nowadays. We have quickly become attached to technologies. However, no sector of technology has gained as much attention as video gaming. Images, video, virtual worlds, and the subjects on which the games are based are all considered to be part of the game content, which may be used to offer users with amusement or information. A videogame played online that requires a steady, high-speed internet connection is referred to as a "online mobile game" (OMG). In a multiplayer game, players are paired according to their present skill level and compete against one another in a virtual world (Cornillez Jr, et al., 2020). This introduction shows the many academics' analyses of online games after defining the fundamental characteristics of online games. Online gaming is the most common pastime among students in today's culture and mostly involves fun. According to (Zafar & Mahar, 2019), Chris Crawford, a pioneer in the development of computer games, describes a game as an interactive work of art that is intended to be played with. Many researches draw attention to the problems with online games, including the social interaction of the student, cultural disparities in game design, concentration challenges, poor academic performance, low learning capacity, and poor interactivity skills among online game players. Online games, according to some researchers, have less educational goals. Few studies have demonstrated the need of choosing games wisely and according to age ranges to prevent kids from acting harshly, engaging in violence, or engaging in antisocial behavior. Playing video games can improve people's spatial visualization abilities as well as their interpersonal and social skills (Calado, et al., 2014), their ability to concentrate, recall information, and multitask (Granic, et al., 2014), their ability to make online friends (Sonja, et al., 2012), as well as their innovation (Jackson, et al., 2012)and problem-solving abilities (Adachi & Willoughby, 2013).

Online gaming is one of the most popular pastimes for many individuals, particularly teens, young adults, and college students. (KUSS & GRIFFITHS, 2012) State, playing video games online is a passion for teenagers. They play because they want to feel so relaxed, not merely because they are genuinely serious. Children typically feel stressed out during school hours as a result of the extensive quantity of work they have to do. They could unwind by playing this game.

Video games have greatly affected nearly all children's and adolescents' lives in recent years, with a minimum of 90% young people who have purchased or leased video games, the penetration of video games in the United States alone is enormous. This is a record level, and it's getting higher. 66% of internet and 55% of console gamers are above the age of 18. College students seem to be the primary gaming population since they are unsupervised by parents and have more flexible schedules that allow for more play time. (ANAND, 2007).

1. **Correlation Analyses**
   1. **Scholastic Aptitude Test (SAT) and grade-point average (GPA). Participants’ time management.**

College-age students, ranging in age from beginners to seniors, made up the study's participants. A survey was given to the participants to evaluate how they would manage their time on a regular holiday weekend (figure A). The study asks that distinguish between the kind and type of online games that respondents play most frequently. The Scholastic Aptitude Test (SAT) and individuals' allround GPA were used as academic indicators. When asked how many hours they spend doing homework, working, watching TV, using the internet, and engaging in other leisure activities on a typical workday, participants' time management was evaluated.

245 of the 276 questionnaires that were given to the students and successfully returned for this study. Surveys that were not utilized frequently have inaccurate or partial information on them. The data was then collected and examined for resemblance, trends, and patterns, as well as any connections between playing video games and academic success. Indicators of academic success, such as GPA and the SAT, were evaluated using chi-squared analyses in relation to time management factors for extracurricular activities. To determine the significance of data from a bivariate tabular analysis, utilize the chi-squared test. The exam assesses whether generalizations or patterns may be made from the sample and the degree of confidence in the data that was acquired.

The following stage was creating a table, which figures out the difference between the observed and predicted frequencies. These frequencies should virtually match for any cell if the data is statistically significant. The frequency of the actual data is listed in one table, and the frequency of the predicted data is listed in the other. The likelihood that the hypothesis will be rejected rises as the difference between the two grows. Chi-squared has fewer limitations, allowing for more data flexibility and freedom. Chi-squared is the best test to run on less consistent data.

|  |  |  |
| --- | --- | --- |
| **Test** | **Chi-squared**  **value** | **p-value**  **(\*significant)** |
| Total SAT score vs. VG play | 71.304 | 0.026\* |
| Math SAT score vs. VG play | 63.128 | 0.038\* |
| Verbal SAT score vs. VG play | 36.408 | 0.816 |
| GPA vs. VG play | 71.283 | 0.007\* |
| GPA vs. total SAT score | 80.738 | 0.747 |
| Time watching TV vs. total SAT score | 54.957 | 0.292 |
| Time working vs. total SAT score | 87.744 | 0.018 |
| Time studying vs. total SAT score | 73.789 | 0.016 |
| Internet vs. total SAT score | 57.012 | 0.231 |

TABLE 1. CHI-SQUARE RESULTS BETWEEN ACADEMIC PERFORMANCE INDICATORS AND EXTRA CURRICULAR ACTIVITIES

According to chi-squared studies, several extracurricular activities and academic performance indicators are correlated (Table 1). A correlation is suggested by the data with an asterisk (\*), which have significant p values. Significant p values can be seen in the data indicated by a delta (), however this research did not primarily focus on them. The relationship between gaming time and grades were negatively correlated, with more time spent playing games translating to worse GPA (Figure 1). Video games are only played by 57.4% of all female respondents, compared to 80% of men who play them. 74 percent of people play video games online, while 94.3% do so offline. The percentage of female gamers that play video games is 91% online and 88.8% offline. These statistics show how commonplace video games are in contemporary culture.

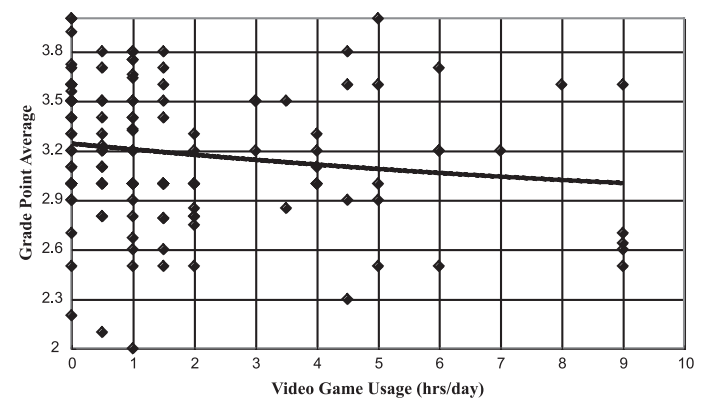


FIG. 1. Grade point average versus video game usage.

The everyday use of video games and GPA are trending in the opposite directions (Figure 1). The GPA drops as the overall amount of time rises. These two graphs revealed the data sets with the highest association, with a p value of 0.007, indicating a very high possibility that their relationship is causal rather than coincidental.

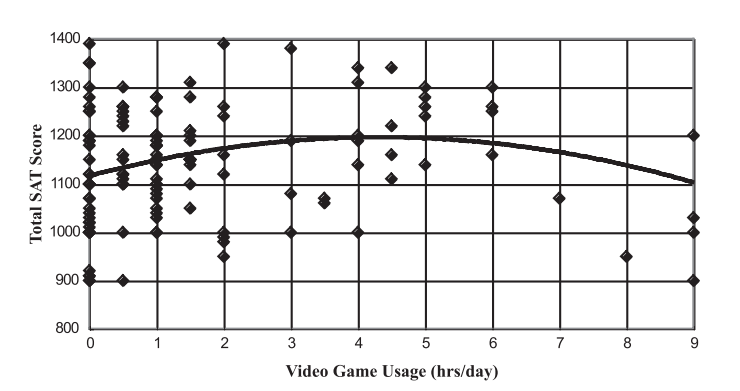


FIG. 2. Scholastic aptitude test versus video game usage.

Useful information about demographics and risk groups can be gained from comparing SAT results and video game usage (Figure 2). The overall Score on the SAT appeared to be at its highest about 4.5 hours every day and then started to decrease according to a second-order polynomial fit. The chi-squared test's p value was 0.026, indicating a strong correlation among the volume of playing video game and an individual's SAT score. However, a deeper analysis of SAT results yields more knowledge.

* 1. **Addiction, Engagement, and academic success**

The study's participants were college students of 2nd semester of the 2018–2019 academic year. A method for choosing respondents when purposive sampling is utilized. When the intended audience meets the specific criteria in order to be incorporated into the study, as indicated by the researchers. This sampling strategy was applied. There were 493 students enrolled and the researchers interviewed 134 of them.

The following sections made up the questionnaire: Part I of the report covers the respondents' demographic information, including sex, age, and year level; Second part asks questions about gaming by the responders habits, including the how several hours they time spent at work, home, and school playing mobile games online, the games they play the most at home and at school, as well as the motivations; and third part explores the respondents' perspectives on playing games. Testing for dependability, item analysis, and validation were done on the research instrument. Using the Composite reliability and Cronbach's alpha coefficient, the reliability or internal consistency of part III was evaluated.

Correlation analyses were used in the study to find answers to its goals. This paper focused particularly on looking at Pearson r-correlation and eta correlation. Results of the correlational analysis conducted on the student respondents were presented first before the data., the student's views regarding playing online mobile games, mean scores of the items, academic achievement, and the demographic profile, gaming profile, reliability and validity measure of the construct.

|  |  |  |
| --- | --- | --- |
|  | f | % |
| **Age** |  |  |
| Below 18 | 7 | 5.2 |
| 19-20 | 102 | 76.12 |
| 23-26 | 23 | 17.2 |
| 27-30 | 1 | 0.7 |
| Above 31 | 1 | 0.7 |
| **Sex** |  |  |
| Male | 51 | 38.1 |
| Female | 83 | 61.9 |
| **Year Level** |  |  |
| 1st year | 72 | 53.7 |
| 2nd year | 13 | 9.7 |
| 3rd year | 15 | 11.2 |
| 4th year | 34 | 25.4 |

**Table I: Respondents Demographic Profile.**

Table I displays the demographics of the respondents at the age, sex, and year levels. Male respondents who are hooked to playing online mobile games are more likely to be first-year students and range in age from 19 to 22.

|  |  |  |
| --- | --- | --- |
|  | f | % |
| **At School** |  |  |
| Less than 2 hours | 118 | 88.1 |
| 3-5 hours | 15 | 11.2 |
| More than 6 hours | 1 | 0.7 |
| Total | 134 | 100 |
| **At Home** |  |  |
| Less than 2 hours | 94 | 70.1 |
| 3-5 hours | 30 | 22.4 |
| More than 6 hours | 10 | 7.5 |
| Total | 134 | 100 |

**Table- II. Total amount of hours spent online playing games on mobile devices.**

The total number of hours that kids spend at resident and at class playing games, when their daily game-playing time was a time limit of two hours or less, is shown in Table II.

|  |  |  |
| --- | --- | --- |
|  | f | % |
| Enjoyment | 23 | 17.2 |
| Loneliness | 48 | 35.8 |
| Stress reduction | 29 | 21.6 |
| Individual Interest | 17 | 12.7 |
| fashionable with buddies | 9 | 6.7 |
| Want to compete | 8 | 6.0 |
| Total | 134 | 100 |

**Table- III. Motive for Playing Mobile Online Games.**

According to Table III, the main motivations for students to play online mobile games are relief from stress (21.6%) and Boredom is a common feeling among students at school and at home (35.8%).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicator** | **Item Loading** | **AVE** | **CR** | **CA** |
| Instead of going outside with my classmates to have a group study session, I rather prefer to play mobile games online. | 0.738 |  |  |  |
| I play online games so much that I can't do my schoolwork in time. | 0.872 |  |  |  |
| I have trouble getting to courses on time because I play mobile games online. | 0.795 |  |  |  |
| Due to playing mobile grades online, I had bad grades in the majority of my topics. | 0.644 |  |  |  |
| I devoted a lot of time to playing mobile games online. | 0.699 | 0.531 | 0.978 | 0774 |
| I make a lot of friends as a result of playing mobile games online. | 0.656 |  |  |  |
| I use playing internet games on my phone to feed my soul when I'm lonely. | 0.607 |  |  |  |
| I unwind by playing mobile games online due to the load of my studies. | 0.694 |  |  |  |
| I get less sleep as a result of playing mobile games online. | 0.748 |  |  |  |
| I believe that playing games online has improved my confidence. | 0.793 |  |  |  |

Notes: Each item loading has a significance level of 0.001 (p 0.001). AVE stands for average extracted variance; Cronbach's Alpha (CA) and Composite Reliability (CR) **Table IV. Measures of Reliability and Validity**

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **WM** | **SD** | **Interpretation** |
| Instead of going outside with my contact a buddy for a group study session, I rather prefer to play mobile games online. | 2.38 | 1.03 | Less positive |
| I play online mobile games so much that I can't do my schoolwork in time. | 2.38 | 1.11 | Less positive |
| I have trouble getting to courses on time because I play mobile games online. | 1.88 | 0.91 | Less positive |
| Due to playing mobile grades online, I had bad grades in the majority of my topics. | 2.77 | 1.04 | Moderately Positive |
| I devoted a lot of time playing games on mobile. | 2.48 | 1.14 | Less positive |
| I meet a lot of new people | 2.84 | 1.12 | Moderately Positive |
| I use playing internet games on my phone to feed my soul when I'm lonely. | 2.96 | 1.14 | Moderately Positive |
| I unwind by playing mobile games online due to the load of my studies. | 2.84 | 1.07 | Moderately Positive |
| I get less sleep as a result of playing mobile games online. | 2.71 | 1.19 | Moderately Positive |
| I believe that playing mobile games online has improved my confidence. | 3.02 | 1.05 | Moderately Positive |
| Total Mean | 2.58 | 1.13 | Less positive |

Notes: Unfavorable from 1.00 to 1.81; less favorable from 1.81 to 2.60; moderately favorable from 2.61 to 3.40; favorable from 3.41 to 4.20; and highly favorable from 4.21 to 5.00.

**Table V. Respondents' Attitudes on Playing Mobile Games Online**

|  |  |  |  |
| --- | --- | --- | --- |
| Rating | Analysis | f | % |
| 1.0-1.4 | Awesome | 0 | 0 |
| 1.5-1.9 | Better | 26 | 19.40 |
| 2.0-2.4 | Very Good | 77 | 57.46 |
| 2.5-2.9 | Good | 28 | 20.90 |
| 3.0 | Pass | 3 | 2.24 |
| Total |  | 134 | 100 |

Notes: Mean 2.19, SD 0.33. Very Good

**Table VI. Respondents Academic Performance**

|  |  |  |  |
| --- | --- | --- | --- |
|  | R-value | p-value | Interpretation |
| playing game on a device for hours |  |  |  |
| In class | 0.206 | 0.069 | Irrelevant |
| At residence | -0.188 | 0.039 | considerable |
| Motives for Playing Mobile Online Games | 0.1555 | 0.681 | Irrelevant |
| attitudes for playing games on a mobile device | -0.008 | 0.301 | Irrelevant |

**Table VII. Relationships between Respondents' Gaming History, Mobile Game Playing Attitudes, and Academic Performance**

The results revealed a significant negative association (r = -0.188, p = 0.039) between students' academic performance and the number of time they spent playing games at resident. However, the direction of the connection was reversed, showing that when a student puts in more time studying, their academic performance declines. On the other hand, there is an inverse relationship between academic performance and the amount of time spent in school, the most played games online at resident the motivations behind playing, as well as opinions toward online mobile game play.

1. **Discussion & Comparisons**

When comparing the implications of different ideas, it becomes evident through looking at different studies that certain theories are supported by other ideas and some theories don't exactly connect to other discoveries. Anand (2007) revealed a link between students' SAT and GPA scores and the duration of their video game playing. This indicates that as playing time rose, GPA and SAT scores fell. Anand (2007) did acknowledge the drawback of utilizing SAT results, though, as they only indicate a single standardized score. GPA is more reliable since it is a continual gauge of academic accomplishment. Because men tend to play video games more than women, he also discovered that men were more likely to face these outcomes. (Cornillez Jr, et al., 2020) states that, The kids' poor academic performance was linked to their use of online mobile gaming. By making a significant effort to control the students' internet access, the performance of the pupils may be strengthened and improved. To solve the issue, the institution may set restrictions or create a policy about the students' internet access and usage. In order for the pupils to receive the appropriate counsel, the student's guardian has to be aware of the consequences of using the internet, especially while playing mobile games online. Skoric, Teo, and Neo (2009) took a step further and distinguished between addiction and casual involvement in video games. There was no clear definition of addiction provided, however it was discovered that people who were addicted to gaming continuously underperformed in school contexts. In contrast, there was no negative association between playing time or involvement and academic performance. (Skoric, et al., 2009).

1. **Conclusions**

The findings of the current study might also be explained by certain outlier GPAs among the participants who admitted to playing video games. The group's average score may have been much lower than that of the non-player group if a few members had poor GPAs. For instance, the majority of GPA values in the current study ranged between 2.5 and 4.0, although a few were in the low 2.0 range. The results of the study have prompted researchers to draw the conclusion that students' ability to function academically is significantly influenced by their use of online mobile games. The results of the paper emphasize how crucial is to the variables including the time kids spend playing online games at resident and at class. The use of mobile internet gaming by students and their subpar academic achievement are related.

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