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Computer Games Addiction and Class Performance of Selected Philippine Senior High School Students

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ABSTRACT

This study was conducted to determine the relationship of computer games addiction, and class performance of Adventist Academy Iloilo Senior High School students in online classes enrolled in School Year 2021-2022. The study employed a descriptive-correlational analysis utilizing 16 student-respondents by answering a researchers-made Google form survey as the research instrument and measured using the following statistical tools: standard deviation, mean, and Pearson's r correlation coefficient. The inferential tests were set at 0.05 alpha level. The findings of the study showed that the level of computer games addiction of the respondents when taken as a whole is "average" and when grouped according to gender, the male is "high" and the female is "low" ; their level of class performance when taken as a whole is "average" and when grouped according to gender, the male has "average" and the female has "high" level of class performance; and a significant relationship of computer games addiction, and class performance when taken as a whole and when grouped according to gender is noted. The correlation coefficient is negative meaning that if there is a higher level of computer games addiction, there will be a lower level of class performance. This study implies that learners are encouraged to control their time spent in playing computer games since it affects their class performance. Parents and teachers are asked to form a partnership and use different strategies to help in improving the students' class performance.

1. Introduction

Since the emergence of technology in the past two decades, such as the large number of usage of devices like smart phones, tablets and computers, both the internet and electronic games have become increasingly popular with people of all ages, particularly with children and adolescents (Wang et al., 2014; Anderson, Steen, & Stavropoulos, 2017; Oliveira, 2017).

Estimates from UNICEF (2017) have shown that one in three under 18-year-olds across the world uses the internet, and 75 percent of adolescents play electronic games daily in developed countries like the United States of America, Europe and Australia. In the Philippines, as released by the Manila Times (2022), the 2020 statistics revealed that 43 million gamers drove the unprecedented rise in the Philippine gaming industry and across Southeast Asia with 74 percent of the Philippine online gaming population playing on their mobile devices, 65 percent on PC games, and 45 percent playing on the classic console games. According to Wakoopa (2012), computer games are the second most frequently used application in the internet after the social media. Online gaming is one of the most widely used leisure activities by many people and may be therapeutic but sadly it can also become addictive. In the recent years, engagement in computer literacy has evolved to internet gaming station and has become a serious problem facing the younger generation of today. This is a kind of entertainment and leisure activity that has more negative effects than positive ones with the following enumerated detrimental effects: (1) reduced sleeping time, (2) behavioural problems (e.g. low self-esteem, anxiety, depression), (3) attention problems, and (4) poor academic performance in adolescents (Wang et al., 2014; Rikkers et al., 2016; Drummond & Sauer, 2014). Additionally, increased electronic gaming may cause serious functional impairments in the daily life of children and adolescents (Wang et al., 2014; Rikkers et al., 2016; Jackson et al., 2011; Drummond & Sauer, 2014).

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Addictive game playing may be labeled as computer games addiction and it is considered as a disorder. Internet gaming disorder is included in the Diagnostic and Statistical Manual of Mental Disorders alongside Schizophrenia, Post Traumatic Stress Disorder, Manic and Depressive (Bipolar) Disorder and many more (Petry & O'brien, 2013). It must then be a noble pursuit to stop this behavior. Computer games addiction should be brought to a halt! Strategies and solutions should be thought of to fight this growing condition in spreading more. This is not a local problem but it has become a global one!

However, due to the numerous and massive establishment of gaming and internet stations protected by business permits from local government units (LGU), students may have enough reason to skip their classes and indulge in playing computer games during class hours or even way past their bedtimes (Lardizabal-Dado, 2019). Also, nowadays, because students have their online classes and they are allowed to use mobile devices and computers, they can readily access the internet and be involved in playing online computer games not only in their homes or Internet cafes, but also in educational environments (Sahin, Gumus, & Dincel, 2014). Gender and age are important factors of computer games addiction, computer game usage time, and choice of genres (Xu, Turel, & Yuan, 2012). Boys and men are more addicted (Walther, Morgenstern, & Hanewinkel, 2012; Xu et al., 2012) and spend more time playing on computers than girls (Festl, Scharkow, & Quandt, 2013). In 2020, men amounted to 59 percent computer game players while women accounted for nearly 41 percent of all gamers in the United States. And in Asia, which accounts for 48 percent of the world's total gaming revenue, men now consist of 55-60 percent of gamers while women make up 40-45 percent of the Asian gaming population (Yokoi, 2021). Thus, males are to be more observed and guided while they use computers.

Based on the statement from the research of Haghbin et al. (2013), in all the aspects of educational systems around the world, the level of the students' academic achievement serves as one of the main success indicators of their educational activities. Their extracurricular activities matter and many different factors are involved in academic achievement such as personality and contextual factors. Self-control and temperance is considered one of these personality traits. How the students will make use of their spare time whether they study or not will warrant success for their academic pursuits. Farillon (2022) has even said that quality time spent studying will ensure the success of the students as this time spent will further their skills that are essential in producing global and competitive students who are resilient in these seasonal and changing times. Thus, students must be wise on how they employ their time and how they spend it. Hopefully, their time must be used in honing their skills and not in idle works and jobs that will not produce progress in their academic pursuits such the problem stated in this research study which is computer gaming and excessive internet usage. According to a study by Animasaun & Abegunrin (2018), academic performance is the end result of education; it measures how well a student, lecturer or instructor, or institution has achieved its educational objectives. Thus, we must be mindful of the training that the students receive.

The Australian Kids Online survey by Green et al. (2021) reported that 50 percent of children from Australia were more likely to experience behavioural problems associated with Internet use compared to children from 25 European countries. These mixed results require an urgent need of understanding the effect of the Internet use and electronic gaming on the development of children and adolescents, particularly on their academic performance. Labana et al. (2020) found in their study that there is a rise in excessive online gaming that is emerging in the Philippines with a number of 29.9 million gamers recorded in the country. There is also a rise in the depression and poor class performance of the citizens of the country.

Conversely, one study by Lin et al. (2013) showed that college students spending too much time on online games every week tend to suffer from worsened learning ability, concentration problems, poor academic performance, and decreased interactions with other people. Also, the study by Rodica and Talania (2020) of 151 respondents from Senior High School students of Mount Carmel School of Maria Aurora (MCSMA) in the Philippines mentioned that online games have negative effect to the academic performance of Senior High School students of MCSMA. Their study revealed that online gaming has a huge impact among the students regarding their academic performance which led them to have poor or low grades and physical distress. Majority of the respondents replied that online games have negative outcomes to their study and health. The researchers found out that the students cannot focus on their studies, they cannot do their home works as well as their projects, and they have low grades.

Due to the gravity of students having internet usage and computer games addiction, this research intended to determine the relationship of computer games addiction, and class performance of Adventist Academy Iloilo Senior High School (SHS) students in online classes enrolled in School Year 2021-2022.

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1.1 Research Questions

The researchers of this study attempted to determine the relationship of computer games addiction, and class performance of Adventist Academy Iloilo Senior High School students in online classes enrolled in School Year 2021-2022 as it is the school where one of the researchers is studying and she would like to understand her peers. Specifically, it sought to offer a response to the following questions:

1) What is the level of computer games addiction of the Senior High School online students of Adventist Academy Iloilo when taken as a whole and when grouped according to gender?
2) What is the level of class performance of Senior High School online students of Adventist Academy Iloilo when taken as a whole and when grouped according to gender?
3) Is there a significant relationship between computer games addiction and class performance of Adventist Academy Iloilo Senior High School online students when taken as a whole and when grouped according to gender?

1.2 Hypothesis

Based on the problems stated above, the following hypotheses were formulated:

1. Males have a higher computer games addiction level than females.
2. Females have a higher level of class performance than the males.
3. There is no significant relationship between computer games addiction and class performance of Senior High School online students in Adventist Academy Iloilo.

1.3 Conceptual Framework

This study has the following variables shown below. The independent variable is the level of computer games addiction. The moderator variable is the gender of the respondents. The dependent variable is the class performance of the respondents.

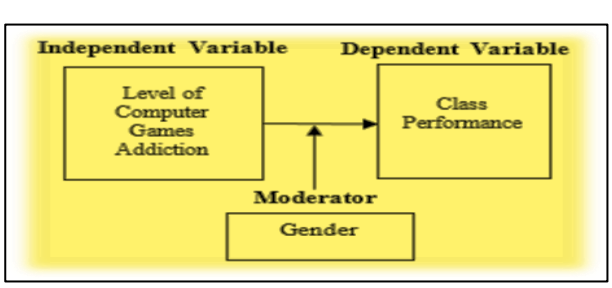

Figure 1. Schematic diagram that shows the relationship that exists between computer games addiction, and class performance

2. Literature Review

According to Cavus & Ayhan (2014), game is considered to be equal to the history of humanity and an indispensable factor for human beings; because, game is one of the major instruments of leisure which is a component forming the society. In this sense, game provides the maintainability of social system and has significant functions for the society. When the functions of game are considered, the topics such as socialization, participation, learning, entertainment, relaxation, creativity, dreaming, imitating and recreation come into prominent.

Also, based on Dumrique and Castillo (2017), for some people, playing video games are done for fun and pleasure and is used for a number of reasons. These reasons could range from simple to complex ones such as it can serve as a stress reliever, for challenge and competition, for relaxation, for enjoyment, for social interaction, and even for mentally escaping from the real world. Computer and online game play rates and sales are increasing every day and are preferred by a wide range of people ranging from children and adolescents to adults. Entertainment Software Association's (2012) research has showed that the typical game players' age is 30 years old and 32 percent of the players are aging less than 18 years old.

Computer games may at times be therapeutic in healthy doses. Yu and Baxter (2015) have even said that the Internet and electronic games are regarded as important, not just for better results at school, but also for self-expression, sociability, creativity and entertainment for children and adolescents. For instance, 88 percent of 12–17 year olds in the United States of America have considered the Internet as a useful mechanism for making progress in school, and similarly, electronic gaming in children and adolescents may assist in developing skills such as decision-making, smart-thinking and coordination (Oliveira et al., 2017). Further, according to Kuss & Griffiths (2012), teens that play online games are just having fun and excitement. They do not just actually engage in computer gaming because of some sort of seriousness, but mainly because they just want to feel relief. During classes and school hours, these students tend to feel so stressed due to heavy loads of school works and tasks and through playing computer games, it will relive their stress and the pressure imposed on them.

Moreover, as Farillon (2022) has stated in her research study that students are having many difficulties at school such as developing their scientific reasoning skills and critical thinking skills, a great burden is being put on their shoulders.

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Countless drills and teaching techniques are employed to hasten their learning abilities to create students that are literate and globally competitive. They are taught most days how to be computer users and efficient people to incorporate the progress that is evolving in our country and world today.

Studies have shown the following estimates and results of Internet and video games usage: 59 percent of all Americans play video games (Ipsos MediaCT, 2014); an average of 48 percent of Europeans have played video games (Ipsos MediaCT, 2012); 56 percent of young adult Norwegians (aged 16–40 years) play; and 98 percent of Australian children aged 15–17 years are Internet users and 98 percent of adolescents play electronic games (Posso, 2016; Brand, 2017; Rikkers et al., 2016).

In this modern world of computerization where transactions in government and in all aspects are made through the internet, connectivity for people seems to rely on the usefulness of computers. Its purpose is sensible and positive when used appropriately. However, other computer users used it extensively and beyond time limits that become hazardous to their health. Because according to the American Addiction Centers (2022), anything that is being used without control is harmful and disastrous to human's health like overeating, drinking, smoking, gambling and other similar vices.

In the 2000s, according to Kuss (2013), online games became popular and the studies of Internet gaming addiction emerged showing many negative risk factors. Internet gaming became a booming market and many have accessed it. Kuss' research showed that in 2012, there were more than 1 billion individuals that played computer games, which spurred the 8 percent growth of the computer gaming industry in that same year. In the Philippines alone, based on the statistics written by Elliot (2020), 43 million gamers spent 572 million dollars on computer games last year. This makes the Philippines the world's 25th biggest market by game revenues, as well as a key driver of Southeast Asia's overall games market. For the majority of gamers in the Philippines—and across Southeast Asia in general—mobile device is their platform of choice. Nevertheless, PC games—and to a lesser extent—console games are also popular. The following percentage of devices used applies: 74 percent of the Philippines' online population plays games on mobile devices; 65 percent plays PC games; and 45 percent plays console games.

The market for computer games is very profitable and the earning potential in this industry is magnanimous. Not only people buy the games but also the devices to engage in it. It is pricey and the cost is high. Still, people are being drawn to it. Thus, in understanding the appeal of Internet gaming, the context it covers, and its neurobiological correlates can we determine and fight the phenomenon of Internet gaming addiction (Kuss, 2013).

Garnada (2020) noted that in the recent years that has passed, the research pertaining to Internet gaming addiction has amplified both in its quantity and in its quality. In the South-East Asian countries, the negative impacts of Internet gaming addiction have aroused interest in the governments and the different health care providers to take its spectrum and the problems it brings to be seriously tackled and discussed to strategize series of different initiatives to curb, fight and alleviate the various problems this addiction is bringing to our society.

The Internet has an endless number of things to keep people entertained and one of them is through computer games. Playing computer games can be extremely fun, gratifying, and a great escape. Unfortunately, computer gaming, especially online games, can be very addictive, and many are designed to keep you playing as long as possible. Computer addiction is a condition that occurs when someone's life is consumed being on the computer. Computer addiction is a growing health problem that is often treated through setting limits, therapy, and support groups (Computer Hope, 2021).

Computer addiction is becoming increasingly common as more and more people have access to personal computers. Personal computers do not have to be the standard desktop or laptop computer; it could include tablets, smart phones, gaming consoles and even televisions (i.e., Smart TV) as they have a similar functionality and could be just as addicting as a standard computer (Luigi, 2021).

The reason that computer addiction is something that warrants attention is that it can negatively affect various parts of your teen's life. Any type of addiction, including computer games addiction, can lead to trouble in school and trouble maintaining employment. There are also physical effects of a computer addiction. Sitting for hours per day is not good for the cardiovascular system or the muscles (StuDocu, 2020).

In a study which Desai et al. (2010) executed on 4028 adolescents who play computer games in high school, they experience problems due to the computer games in the same year; half of the participants stated that they played computer games and boys played computers more than girls. About 5% of the participants are the problematic users of computer games. Playing games is generally more common among the boys while playing games is related to more reflexive behaviors and they have less internalization symptoms. The girls who state

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that they play games don't experience depression; on the contrary, they cut up rough and display a behavior up to bringing guns to school.

On the other hand, there is a negative relationship between playing computer games and smoking regularly. In the research carried out by Jeoung and Kim in 2011 on 600 subjects from secondary and high school students (ages 12-18) in South Korea, high school students were found to be more addicted to computer games than secondary school students while boys are more addicted than girls. In the study which the role of parents, friends and teachers were considered as variants; the relationships between adolescent and parents were determined to be more significant patterns from the point of addiction. The adolescents with positive relations with parents were observed to have negative addiction patterns.

In the research carried out by Festl et al. in 2012 on adolescents, young people and older ones in Germany, it was revealed that men spent more time playing games than women; there was a negative correlation from the point of ages; young people mostly preferred digital games while the adolescents had higher problematic playing games and addiction levels than the other groups.

From the blog post of StuDocu (2020), studies show that 94 percent of video game addicts are male and only six percent are female. Of the males surveyed, many were unsatisfied with their social lives and had lower self-esteem. Understandably, these two traits could influence a student's performance in school. A study was conducted in the United States that had 3,034 participants. Of the adolescents surveyed, nine percent showed signs of addiction. Around four percent played video games at least 50 hours a week. On average, the participants in the study played for around 20 hours a week. Students who were addicted to video games tended to perform lower than their non-addicted peers in school. It's interesting to see the way that China is reacting to the potentially negative influence video games can have on students. For example, China has passed laws banning children from spending more than 90 minutes a day gaming and children are only able to play video games until 10 PM.

According to Reiss (2008) that young males are two to three times more likely than females to feel addicted to video games because males have neural circuitry that makes them more liable than women to feel rewarded by a computer game with a territorial component and then more motivated to continue game-playing behavior. Moreover, Bell (2018) articulately stated that performance in school is evaluated in a number of ways. For regular grading, students demonstrate their knowledge by taking written and oral tests, performing presentations, turning in homework and participating in class activities and discussions. Teachers evaluate in the form of letter or number grades and offer comments to describe how well a student has done or back up the specific grade that was given. Class performance is gained by earning skill levels and doing class work in their major subjects. Academic performance is the measurement of student achievement across various academic subjects. Teachers and education officials typically measure achievement using classroom performance, graduation rates and results from standardized tests. Academic performance is the outcome of students' effort in examinations. Students' academic performance is determined by a number of factors. Academic performance is measured by the average marks of the previous semesters and the total average marks (Eze, et al., 2016).

According to Lamas (2015), the school performance study of students is, due to its relevance and complexity, one of the issues of major controversy in the educational research, and it has been given special attention in the last decades. School performance is an issue that deeply concerns students, parents, teachers and authorities. The complexity of the academic performance starts from its conceptualization. Sometimes it is known as school readiness, academic achievement and school performance, but generally the difference in concepts is only explained by semantics as they are used as synonyms. Conventionally, it has been agreed that academic performance should be used in university populations and school performance in regular and alternative basic education populations.

Several authors agree that academic performance is the result of learning, prompted by the teaching activity by the teacher and produced by the student. From a humanistic approach, Martinez-Otero (2007) states that academic performance is "the product given by the students and it is usually expressed through school grades". Fifteen years ago, Pizarro (1985) referred to academic performance as a measure of the indicative and responsive abilities that express, in an estimated way, what a person has learned as a result of a process of education or training. For Caballero et al. (2007), academic performance involves meeting goals, achievements and objectives set in the program or course that a student attends. These are expressed through grades which are the result of an assessment that involves passing or not certain tests, subjects or courses. On their part, Hoyos (2011) define academic performance as the level of knowledge shown in an area or subject compared to the norm, and it is generally measured using the grade point average.

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A study by Ghazvini & Khajehpour (2011) shows the existence of gender difference in variables under consideration, with girls showing internal locus of control, using attitude, motivation, time management, anxiety, and self-testing strategies more extensively, and getting better marks in Literature. With boys using concentration, information processing and selecting main ideas strategies more, and getting better marks in Mathematics. Gender differences were not found in external locus of control, in academic self-concept, and in study aids and test strategies. Results suggest that differences exist in the cognitive-motivational functioning of boys and girls in the academic environment, with the girls have a more adaptive approach to learning tasks. However, the influence of contextual variables that may differently affect boys' and girls' motivation was not taken into account.

Some literature reported that there are gaps in academic achievement based on gender. Dayioglu & Asik (2007) found a relationship between gender and academic achievement in a study sample of 10,434 graduates in Turkey. The findings indicated that there is academic gap between the male and the female graduates. Female graduates obtained higher CGPA than male graduates during the course although female graduates enrolled with lower grades. It shows that the academic gap still can be seen even at the tertiary level. Besides, female graduates were found to have higher literacy competency than male graduates. This is consistent with the findings of Tinklin (2003) which reported that more female secondary school students left school with better results than the male students.

As published by PsychGuides.com (n.d.), the Internet has made life a lot easier by making information more accessible to all and creating connections with different people around the world. However, it has also led a lot of people to spend too much time in front of the computer, so much so that it becomes the center of their lives. This can lead to an Internet or computer addiction. Whenever Internet addicts feel overwhelmed, stressed, depressed, lonely or anxious, they use the Internet to seek solace and escape. Studies from the University of Iowa show that Internet addiction is quite common among males aging 20 to 30 years old who are suffering from depression. Certain people are predisposed to having computer or Internet addiction, such as those who suffer from anxiety and depression. Their lack of emotional support means they turn to the Internet to fill this need. There are also those who have a history of other types of addiction, such as addictions to alcohol, drugs, sex and gambling. Even being stressed and unhappy can contribute greatly to the development of a computer or Internet addiction. People who are overly shy and cannot easily relate to their peers are also at a higher risk of developing a computer or Internet addiction.

The effects of being addicted to the computer can vary depending on the activity. However, common effects could include social isolation, loneliness, and dejection, mood swings, lack of sleep or difficulty in falling asleep, poor diet and lack of proper nutrition, backache, headache, or other body aches, carpal tunnel and computer vision syndrome, obesity and other health problems. If real-life money is used in the addiction (e.g., gambling or shopping), unpaid bills and even bankruptcy may result (Computer Hope, 2021).

Video game addiction in children does not happen in total isolation. The negative effects of video game addiction are clear for perceptive individuals to see. Both parents and teachers may notice decreased performance at school coupled with lower grades and failing classes. Because of hours spent playing video games, video game addicts exhibit fatigue and regularly sleep during school. They may not complete assignments or may not turn assignments in on time. Video game addiction leads to a loss of interest in after school activities, including social clubs and sports. Video game addicts may actually isolate themselves from family members and friends in order to play video games (StuDocu, 2020).

However, Clark (2018) has written the different side of computer games on students' academic performance. She stated that unleashing video games into the classroom, one can witness increased motivation, collaboration, and even a boost in academic performance. She has even cited numerous notable studies to support her claim and enumerated five impacts that video games have on academic performance. The first is video games can foster cooperation; second, they have cognitive benefits; third, they can increase academic motivation; fourth, they can improve educational mindset; and lastly, they can positively affect cognitive and social health.

According to Leung & Lee (2012) Internet literacy, especially in publishing and technology, increases not decreases the likelihood of someone getting addicted to the Internet. As expected, Internet activities, especially SNS and online games, were significantly and positively linked to Internet addiction as well as to all Internet addiction symptoms. This finding suggests that leisure-oriented Internet activities can be much more addictive than other applications such as communicating by e-mail or browsing web pages. Furthermore, the higher subjects scored on tool and social-structural literacy, the better their academic

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performance would be; however, technical literacy skills, such as publishing and technology literacy, were not significant predictors for academic performance. This indicates that adolescents who can locate, browse, and access different information resources and who are knowledgeable about the context under which the information was created performed better both in overall grades and in academic competence.

Terry & Malik (2018) has even attempted to investigate the concerns expressed by their high school counselors over the increases in the problematic effects of recreational video gaming on their students' school attendance and grades. Their research purpose was to study the correlations of video gaming between the variety of factors and academic performance of the selected student respondents. They developed a quantitative Likert-scale survey to assess the relationship between recreational video gaming and academic performance (and they defined it as school attendance and final grades) in Grade Nine. Questions about video gaming appeared with other questions about social relations, extra-curricular activities, and leisure-time activities. The complete data sets resulted for 82 of the 96 Grade Nine students in three mid-western Canadian high schools who volunteered for the study with their parents' permission. They were not surprised of the results of the study but were even more intrigued and enamored to conduct further studies as the results of their study showed correlations that warrant further investigation but confirming their school counselors' concerns over the relationship between recreational video gaming and academic performance. Video gaming negatively affected the academic performances of the students. Also, online activities and video game addiction may lower teenagers' motivation for communicating with other people and consequently impose negative effects on their social relationships (Kuss & Griffiths, 2012). Furthermore, Hauge and Gentile (2003), among others, note that video game addiction may cause a failure in teenagers' academic performance.

According to Noreen (2013), the excessive use of the Internet can adversely affect one's physical health, family life, and academic performance. Various academic problems have been caused by Internet addiction of which include the following: a decline in study habits, missing classes, significant drop in grades, poor integration in extracurricular activities and increased risk of being placed on academic probation. Other than this, Internet addicted adolescents often suffer from severe psychological distress, such as depression; compulsivity; anxiety; fear that life without Internet would be boring, empty, and joyless; feeling of self-effacement; as well as feeling of loneliness and social isolation.

Nevertheless, Islam, Biswas & Khanam (2020) found in their study the association of internet use, and electronic game-play with academic performance in Australian children. Involving 14 children of 11 to 17 year-olds from young minds matter, they had organized a cross-sectional nationwide survey. One of their notable findings is that addiction tendency to internet and electronic-gaming is found to be adversely associated with academic achievement. Further, their study's results indicated the need for parental monitoring and/or self-regulation to limit the timing and duration of internet use/electronic-gaming to overcome the detrimental effects of internet use and electronic game-play on academic achievement. The study of Sahin et al. (2014), however, showed a negligible negative correlation between computer games addiction and academic achievement. They have studied students from Turkey and measured computer and video games addiction among the adolescents with a promising future ahead of them.

3. Methods

3.1 Research Design

This study employed the survey approach of conducting research. More accurately, this study utilized the correlational method using survey questionnaires. According to Fraenkel et al. (2012), correlational research analyzes the possibilities of relationships between only two variables, although sometimes examinations of more than two variables are also common. Correlational research is a form of descriptive research because it illustrates an existing relationship between two or more variables. When you describe relationships using this form, it is quite different from the descriptions found in other types of research studies. A correlational study uses the degree to which two or more quantitative variables are related, and it is using a correlation coefficient.

The purpose of the researchers was to measure the level of computer games addiction and its relationship with the class performance of Senior High School students in online classes enrolled in Adventist Academy Iloilo in School Year 2021-2022 and to find out if there is a relationship between these two variables when the respondents were grouped according to gender with the gender acting as the moderator variable.

The descriptive method was accomplished by dividing the survey questionnaire into three subparts namely: Respondent's Information, Level of Computer Games Addiction and the Level of Class Performance.

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The researchers used the correlational- descriptive method because it was appropriate for this particular study since the correlational study was used to ascertain the relationship of the computer games addiction and the class performance of the Senior High School students enrolled in Adventist Academy Iloilo in School Year 2021-2022.

3.2 Sample and Sampling Technique

The chosen respondents of this research study were the Grade 11 & 12 online students of Adventist Academy Iloilo enrolled in School Year 2021-2022. The 16 student-respondents were selected through purposive sampling. Purposive sampling was utilized to squeeze a lot of information out of the data that the researchers have collected. This allowed the researchers to describe the major impact their findings have on the population. This kind of method is a non-probability sampling method that occurs when the elements selected for the sample are chosen according to the judgment of the researchers (Patton, 2002). In choosing the respondents, they should meet the following specific criteria: a) enrolled in Adventist Academy Iloilo, b) enrolled in Grade 11 and 12, c) take online classes as the mode of learning, and d) play online games.

Profile of the Respondents. The respondents' socio-demographic profiles include the respondent's gender. All respondents were Senior High School online students. Table 1 presents the distribution of the respondents according to their gender. The researchers gathered only have 16 respondents: 8 are males and 8 are females.

Table 1. Distribution of the Respondents by Gender

Gender	N	Percentage (%)
Female	8	50
Male	8	50
ENTIRE GROUP	16	100

3.3 Research Instrument

The instrument that was used in this study was the researchers-made questionnaire, which was answered by the Senior high school online students of Adventist Academy Iloilo.

Part 1, contains the respondent's information which requires them to put their gender and they can choose whether to put their names or not.

Part 2 contains only 1 question for the respondents to answer the question, how many hours do they spend playing online games daily, to determine the level of their computer games addiction.

To interpret the level of computer addiction by the hours they spent in playing daily, the following scale was made.

Scale	Descriptive Rating
5 hours-above	Very High
2 hours-5 hours	High
1 hour-2 hours	Average
30 min-1 hour	Low
10 min-30 min	Very Low

Part 3 contains a 10-item researcher-made questionnaire to determine the level of class performance of the respondents. Each item in the instrument was answerable with any of the following responses: "Always", "Frequently", "Sometimes".

Weight	Responses
5	Always
4	Frequently
3	Sometimes
2	Rarely
1	Never

To determine the level of the respondents' class performance, the following scale of means was used:

Scale	Descriptive Rating
4.21 – 5.00	Very High
4.41 – 4.20	High
2.61 – 3.40	Average
1.81 – 2.60	Low
1.00 – 1.80	Very Low

3.4 Data Collection Procedure

The data were collected by administering an online survey through Google forms. The researchers secured a permission letter from the School Principal to conduct the study. Upon approval, the researchers briefed the respondents of the nature of the data gathering procedure. The respondents who agreed to participate were then given questionnaires. They were given three days to answer and pass the survey to the researchers and were instructed to complete the survey by giving responses to every question.

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The data were consistently monitored through the online platform and the respondents were encouraged to answer honestly and assured that their responses would be kept confidential. Their answers were made to be the basis to answer the research problems regarding the level of computer games addiction and the level of class performance of the Senior High School online students. Data obtained from the study were then processed, encoded, and manually analyzed to check the consistency of the information in preparation for the data analysis.

3.5 Data Analysis Procedure

The following data analysis procedure was used during the conduct of the study:

Mean. It was used to determine the respondents' mean in the hours they spent in playing computer games and to classify which rating they belong to.

Standard Deviation (SD). It was used to determine the homogeneity and heterogeneity of the scores obtained by the respondents.

Pearson's R correlation coefficient. Set at 0.05 level of significance, it was used to determine the relationship between computer games addiction and the class performance of the Senior High School students when taken as a whole and when grouped according to gender.

4. Results

This chapter represents the data gathered with respect to the study, "Computer Games Addiction and Class Performance of Selected Philippine Senior High School Students".

4.1 Descriptive Data Analysis

Table 2 presents the level of computer games addiction of the SHS students in online classes of Adventist Academy Iloilo enrolled in School Year 2022-2023. The results show that when taken as a whole (M=3.06, SD=0.8125), it is described as "average". When grouped according to gender, males have "high" computer games addiction level while females have "low" addiction level to computer games.

This implies that males spend more time playing than the females and that there is a significant difference in the level of computer game addiction when grouped according to gender.

Table 2. Descriptive Results of Level of Computer Games Addiction

	Mean	Standard Deviation	Descriptive Rating
MALE	3.875	1.35	High
FEMALE	2.25	1.089	Low
TOTAL	3.0625	0.8125	Average

Note: 4.21 – 5.00 Very High; 3.41 – 4.20 High; 2.61 – 3.40 Average; 1.81 – 2.60 Low; 1.00 – 1.80 Very Low

Table 3 shows the level of class performance of the SHS students in online classes of Adventist Academy Iloilo enrolled in School Year 2022-2023. The result shows that when taken as a whole, the level of performance of the students is described as "average" with the mean of 3.4. When grouped according to gender, males have "average" level of class performance, while females have "high" level of class performance. This implies that gender affects the level of class performance of the students and females perform better than males.

Table 3. Level of Class Performance

	Mean	Standard Deviation	Descriptive Rating
MALE	3.15	0.427	Average
FEMALE	3.65	.5454	High
TOTAL	3.4	0.25	Average

Note: 4.21 – 5.00 Very High; 3.41 – 4.20 High; 2.61 – 3.40 Average; 1.81 – 2.60 Low; 1.00 – 1.80 Very Low

3.2 Inferential Data Analysis

Table 4-5 show the correlation of computer games addiction and class performance of the Senior High School students in online classes of Adventist Academy Iloilo enrolled in School Year 2022-2023 when taken as a whole and grouped according to the respondents' gender. The result in Table 4 explains that there is a significant relationship between the level of computer games addiction and class performance at the p-value of .01 and .05 of the Senior High School students when taken as a whole with table r value of .6226, $p<0.01$ and .4973, $p<0.05$. Thus, the null hypothesis is rejected. The result is a negative correlation which implies that if one variable goes higher, the other goes lower.

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Table 4. Correlation between Computer Games Addiction and Class Performance when Taken as a Whole

	r	Table r	Level	Interpretation
Level of computer games addiction and Level of class performance	-1.0665	.4973**	.05	Significant
		.6226*	.01	Significant

*Correlation is significant at the 0.01 level (2-tailed).

**Correlation is significant at the 0.05 level (2-tailed).

Table 5 shows the correlation between the level of computer games addiction and class performance when grouped according to gender. The results show that in male group the value of r=-.8179, table r at a significant level of .05=.7067. It implies that there is a negative correlation in the variables and there is a significant relationship at .05. The result shows that in male group the value of r=-.7151, table r at a significant level of .05=.7067. It implies that there is a negative correlation in the variables and there is a significant relationship at .05.

Table. 5. Correlation between Computer Games Addiction and Class Performance when grouped according to Gender

	r	Table r	Level	Interpretation
Level of computer game addiction and Level of class performance in male	-.8179	.7067**	.05	Significant
Level of computer game addiction and Level of class performance in female.	-.7151	.7067**	.05	Significant

**. Correlation is significant at the 0.05 level (2-tailed).

5. Discussion

5.1 The Levels of Students' Computer Games Addiction

The level of computer games addiction of the SHS students in online classes of Adventist Academy Iloilo enrolled in School Year 2021-2022when taken as a whole is "average" and when grouped according to gender, males have "high" computer games addiction level while females have "low" addiction level to computer games.

The results support the survey of Harris Interactive in the year 2007 stated from the study of Reiss (2008) saying that females are less likely to feel addicted to video games than young males who are two to three times more inclined to play video games. Because according to Reiss (2008), males have that neural circuitry that makes them more accountable than women to feel rewarded by playing a computer game with a territorial component and then more motivated to continue the game-playing behavior. That's why based on this, he said that it makes more sense that males are more likely to get hooked on video games than their female counterparts.

Also, in the research done by Jeoung and Kim in the year 2011 on a 600-subject scope from secondary and high school students (aging 12-18) in South Korea, these high school students were found to be more addicted to computer games than the secondary school students and boys are more addicted than girls.

Further, the research performed by Festl et al. in 2012 with respondents ranging from adolescents, young people and older ones in Germany, found that men spent more time playing games than women. Also, they discovered that there was a negative correlation from the point of ages—young people mostly like digital games while the respondent adolescents had a higher problem in playing games and addiction levels are higher than the other groups.

The results of the study are also similar to the findings from the blog post of StuDocu (2020) that stated that studies show that 94% of video game addicts are males and only 6% are females. With the males that were surveyed, many of them were unsatisfied with their social lives and had a lower self-esteem than those males who are not computer games addicts.

A certain study was also conducted in the United States that had 3,034 participants. Of the adolescents surveyed, 9% showed signs of computer games addiction. Around 4% played video games at least 50 hours a week.

5.2 The Level of Class performance

The level of class performance of the SHS students in online classes of Adventist Academy Iloilo enrolled in School Year 2021-2022when taken as a whole is "average" and when grouped according to gender, males have "average" class performance level while females have "high" class performance level.

The results of the study support the study by Ghazvini & Khajehpour (2011) that shows the existence of gender difference in the variables that were taken under consideration, with girls showing internal locus of control, motivation, using attitude, anxiety, time management, and self-testing strategies more extensively, and they are getting better marks in Literature. With the boys using information processing, concentration, and selecting main ideas strategies more, and getting better marks in Mathematics. There are no gender differences that were found in study aids and test strategies, in external locus of control, and in academic self-concept. The results suggest that differences exist in the cognitive-motivational functioning of boys and girls in the academic environment, but with the girls having a more adaptive approach to learning tasks than their boy counterparts.

There is some literature that reports that there are gaps in academic achievement based on their gender. Dayioglu& Asik (2007) found a relationship between gender and academic achievement in a study sample of 10,434 graduates in Turkey. Their study findings indicated that there is an academic gap between the male and the female graduates. It is found that female graduates obtained higher CGPA than male graduates during the course although female graduates initially enrolled with lower grades. It shows that the academic gap still can be seen even at the tertiary level. Besides, the female graduates were found to have higher literacy competency than the male graduates. This is also consistent with the findings of Tinklin (2003). He wrote that more female secondary school students left school with better results than the male students do.

Islam, Biswas & Khanam (2020) found in their study the association of internet use, and electronic game-play with academic performance in Australian children. Involving 14 children of 11–17 year olds from young minds matter, they had organized a cross-sectional nationwide survey. One of their notable findings is that addiction tendency to internet and electronic-gaming is found to be adversely associated with academic achievement. Further, their study's results indicated the need for parental monitoring and/or self-regulation to limit the timing and duration of internet use/electronic-gaming to overcome the detrimental effects of internet use and electronic game-play on academic achievement.

The results support the study by Noreen (2013) showing that the excessive use of the Internet can adversely affect one's physical health, family life, and academic performance. Various academic problems have been caused by Internet addiction of which include the following: a decline in study habits, missing classes, significant drop in grades, poor integration in extracurricular activities and increased risk of being placed on academic probation. Other than this, Internet

addicted adolescents often suffer from severe psychological distress, such as depression; compulsivity; anxiety; fear that life without Internet would be boring, empty, and joyless; feeling of self-effacement; as well as feeling of loneliness and social isolation.

5.3 The Relationship between Computer Games Addiction, and Class Performance

There is a significant relationship between computer games addiction, and class performance when taken as a whole and when grouped according to gender. The correlation coefficient is negative meaning that if there is a higher level of computer games addiction, there will be a lower level of class performance.

The results support the study of StuDocu (2020) that demonstrates that video games are having a negative impact on the performance of students. Because of the hours spent in playing video games, those who are addicted exhibit fatigue and they regularly sleep during school hours. They may also not complete their homework and assignments or may not pass them on time. Being a video game addict may lead to a loss of interest in the participation in online classes, and in joining school activities including social clubs and sports festivities. Video game addicts could actually distance themselves from their family members and even friends so that they could continue playing video games. Also, according to Noreen (2013), the excessive use of the Internet or what we now term as Internet addiction can adversely affects one's physical health, family life, and academic performance. The academic problems caused by Internet addiction may include a significant drop in grades, study habits, increased risk of being placed on academic probation, missing classes, and poor integration in extracurricular activities. Other than that, according to their study, adolescent Internet addicts often suffer from severe psychological distress, such as compulsivity; depression; feeling of self-effacement; anxiety; fear that life without Internet would be boring, empty, and joyless; as well as the feeling of loneliness and social isolation.

In a study which Desai et al. (2010) has done on 4028 adolescents who played computer games in high school, the majority have experienced problems due to the computer games in the same year; 50% of the participants stated that they played computer games and boys played computers more than girls. About 5% of the participants are very problematic users of computer games. Also, they found that playing games is generally more common among the boys while playing games is related to more reflexive behaviors and they have less internalization symptoms. The girls who state that they play games don’t experience depression but they cut up rough and display a behavior up to bringing guns to school.

The results, however, are in contrast to what Clark (2018) has written about the different side that computer games have on the students’ academic performance. She stated that in unleashing video games to the classroom one can witness increased motivation, collaboration, and even a boost in their academic performance. She has even cited numerous notable studies to support her claim and enumerated five different impacts that playing video games may have on academic performance. The first is video games can foster cooperation; second, they have cognitive benefits; third, they can increase academic motivation; fourth, they can improve educational mindset; and lastly, they can have positive effects on cognitive and social health.

The results of the study support the study by Ghazvini & Khajehpour (2011) that shows the existence of gender difference in the variables that were taken under consideration, with girls showing internal locus of control, motivation, using attitude, anxiety, time management, and self-testing strategies more extensively, and they are getting better marks in Literature. With the boys using information processing, concentration, and selecting main ideas strategies more, and getting better marks in Mathematics. There are no gender differences that were found in study aids and test strategies, in external locus of control, and in academic self-concept. The results suggest that differences exist in the cognitive-motivational functioning of boys and girls in the academic environment, but with the girls having a more adaptive approach to learning tasks than their boy counterparts.

Labana et al. (2020) found in their study that there is a rise in excessive online gaming that is emerging in the Philippines with a number of 29.9 million gamers recorded in the country. There is also a rise in the depression and poor class performance of the citizens of the country.

Conversely, though, one study by Lin et al. (2013) showed that college students spending too much time on online games every week tend to suffer from worsened learning ability, concentration problems, poor academic performance, and decreased interactions with other people. Also, the study by Rodica and Talania (2020) of 151 respondents from Senior High School students of Mount Carmel School of Maria Aurora (MCSMA) in the Philippines mentioned that online games have negative effect to the academic performance of Senior High School students of MCSMA. Their study revealed that online gaming has a huge impact among the students regarding their academic performance which led them to have poor or low grades and physical distress. Majority of the respondents replied and favoured that online games gave negative outcomes to their study and health. The researchers found out that the students cannot focus on their studies, they cannot do their home works as well as their projects, and they have low grades.

Additionally, the results from the study of Malik and Terry (2018) support the negative correlation of this research study. As Malik and Terry (2018) attempted to investigate the concerns expressed by their high school counsellors over the increases in the problematic effects of recreational video gaming on their students' school attendance and grades, they found that video gaming negatively affected the academic performances of the students as was the results of this research study. Moreover, Malik and Terry (2018) research have the purpose to study the correlations of video gaming between the variety of factors and academic performance of the selected student respondents. They developed a quantitative Likert-scale survey to assess the relationship between recreational video gaming and academic performance (and they defined it as school attendance and final grades) in Grade Nine. Questions about video gaming appeared with other questions about social relations, extra-curricular activities, and leisure-time activities. The complete data sets resulted for 82 of the 96 Grade Nine students in three mid-western Canadian high schools who volunteered for the study with their parents' permission. They were not surprised of the results of the study but were even more intrigued and enamored to conduct further studies as the results of their study showed correlations that warrant further investigation but confirming their school counselors' concerns over the relationship between recreational video gaming and academic performance.

When considered well, the results from different studies cited tell us that the more addicted our students are to computer games, the poorer they will be in their class performances. It should then be taken into account that the students should be advised of the proper use of computer games and employ discipline in their interaction. This will greatly help them in alleviating the negative causes of computer games addiction and make them better students. Therefore, the null hypothesis that states that there is no significant relationship between computer games addiction and class performance of Senior High School online students in Adventist Academy Iloilo is hereby rejected.

6. Conclusion

The respondents as a whole have an average level computer game addiction, this implies that most of them spends 1 hour-2 hours in playing computer games. When grouped according to gender, the male respondents have high addiction while the females have low addiction. This means that males spend 2 hours- 5 hours and females spend 30 minutes to 1 hour playing games. Moreover, it shows that males spend more time playing than females. The level of performance of the learners varies when grouped according to their gender. The result shows that the female has a higher level of class performance than the male. This means that girls are attentive and participative in online classes than the boys. It also tells us that there is a significant difference in the level of class performance of the senior high school students when grouped according to gender. Based on the results, there is a significant relationship between the level of computer games addiction and the level of class performance of the Senior High School students. And regardless of their gender, there is still a significant relationship. The correlation is negative between the level of computer game addiction and the level of class performance of the Senior High School students, meaning that when one variable gets higher, the other gets lower. If there is a high level of computer games addiction, then the level of class performance gets lower.

7. Recommendations

In line with the findings and conclusions of this study, the following recommendations are proposed:

1) Learners are encouraged to control their time spent in playing computer games since it affects their class performance. They are encouraged to participate in their class and give their attention to their teachers.

2) Parents are asked to be more involved in their children's education and to control the time their children spent in playing computer games as it delivers negative outcomes to the students' class performance.

3) Teachers and administrators are motivated to use different strategies to make their students participate in class and form a partnership with the students' parents to help improve the students class performance.

4) Future researchers may conduct similar studies to develop instruments that can measure the relationship of computer games addiction with students' class performance. As the results have shown, this study may be a basis for experiments that test the negative results of computer games addiction to students' class performance.

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