

DBC211 Introduction to Academic Research

**Impact of PC games on young adults'  
mental health**

Prepared for:

Darren John Angking

Prepared by:

Athil Fikree bin Firdaus (101234499)

Ivan Clarence Thian Hao Yeo (101234046)

Kayla Zahra (102762519)

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## **Executive summary**

The purpose of this report was to investigate the impact of young adults' mental health when it comes to playing PC games. To gather the data for this investigation, the group utilised questionnaires and distributed them to students at Swinburne University Kuching Campus. Throughout the period of gathering of data, there were some limitations that was the group faced. They were time constraints, type of questionnaire used and number of participants of the questionnaire. From the data extracted, PC gaming can create negative psychological symptoms as a result from uncooperative teammates and late-night gaming sessions. Despite that, evidence also suggests that positive psychological symptoms can also be acquired from PC gaming via winning a match or by getting rewarded by the game. Also, the recorded data shows that PC games can improve young adults' cognitive abilities namely spatial awareness, multi-tasking abilities and reaction times. Next, PC gaming can affect the sociability of young adults. The findings suggest that unlimited PC gaming time can be detrimental to young adults' mental health. Despite this, the findings also suggest that PC gaming can improve social skills via communicating via Voice over Internet Protocol (VOIP) software. Lastly, the findings suggests that young adults could control themselves despite loosing games consecutively for long periods. The conclusion was that most students are facing positive and negative psychological symptoms. Not only that, but PC games also affect their cognitive abilities when playing Pc games. Besides that, most students played PC games for at least 2 to 4hours per day. In addition, most students also agree that their real-life communication skills do improve when communicating with players in multiplayer games. Lastly, as for long gaming sessions (3hours and above per day), most students are sensitive to consecutive losses after hours of playing PC games. It was recommended that young adults are to prioritise real-life obligations and to time it wisely and the parents of the should occasionally calling or visit the students.

## Table of contents

Acknowledgement .....	i
Executive summary .....	ii
Table of contents.....	iii
Table of figure(s) .....	iv
List of tables.....	v
<b>Chapter 1: Introduction .....</b>	<b>1</b>
<b>1.1 Background Information.....</b>	<b>1</b>
<b>1.2 Definitions.....</b>	<b>2</b>
<b>1.3 Problem Statement.....</b>	<b>3</b>
<b>1.4 Research Objective .....</b>	<b>3</b>
<b>1.5 Significance.....</b>	<b>3</b>
<b>1.6 Scope .....</b>	<b>4</b>
1.6.1 Truthful response .....	4
1.6.2 Limited viewpoint.....	4
1.6.3 Not everyone is a PC gamer .....	4
<b>1.7 Summary.....</b>	<b>4</b>
<b>Chapter 2: Literature Review .....</b>	<b>6</b>
<b>2.0 Findings from Secondary Resources .....</b>	<b>6</b>
<b>2.1 How PC games affect the psychology of young adults’ mental health .....</b>	<b>6</b>
2.1.1 PC games can increase negative psychological symptoms.....	6
<b>2.2 How PC games have an influence on young adults’ mental health when it comes to their cognitive abilities.....</b>	<b>6</b>
2.2.1 Cognitive abilities of young adults .....	6
<b>2.3 How do PC games have an impact on young adults' mental health when it comes to sociability. ....</b>	<b>7</b>
2.3.1 PC games could interfere with daily life .....	7
2.3.2 PC games addiction can increase social dysfunction .....	7
2.3.3 Difficulty from withdrawing the game can affect the mental health of young adults’ .....	7
2.3.4 Pc games allow player to communicate with the others.....	8
<b>2.4 Long gaming sessions (3hours and above per day) can alter young adults’ mental behaviour. ....</b>	<b>8</b>
2.4.1 Disappointment from underperformance can lead to raging .....	8

<b>Chapter 3: Methodology</b> .....	9
<b>Chapter 4: Findings</b> .....	11
<b>4.1 Demographic Questions</b> .....	11
<b>4.2 Effect of PC games on the psychology of young adults' mental health</b> .....	11
<b>4.3 PC games and its effect on the cognitive abilities of young adults</b> .....	12
<b>4.4 PC games and its effects on sociability of young adults</b> .....	13
<b>4.5 Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behaviour</b> .....	15
<b>Chapter 5: Discussion</b> .....	16
<b>5.1 Effect of PC games on the psychology of young adults' mental health</b> .....	16
<b>5.2 PC games and its effect on the cognitive abilities on young adults</b> .....	16
<b>5.3 PC games and its effects on sociability of young adults</b> .....	17
<b>5.4 Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behaviour</b> .....	17
<b>Chapter 6: Conclusion</b> .....	18
<b>6.1 Summary</b> .....	18
<b>6.2 Recommendations</b> .....	18
<b>6.3 Limitations</b> .....	18
6.3.1 Time .....	18
6.3.2 Type of Questionnaires .....	19
6.3.3 Number of respondents.....	19
<b>Reference list</b> .....	20

### **Table of figure(s)**

Figure 1: Most popular game platforms for game developers.....	1
Figure 2 Respondents' Preference Towards the Negative Psychological Symptoms When Playing PC Games .....	11
Figure 3 Respondents' Preference Towards the Positive Psychological Symptoms When Playing PC Games .....	12
Figure 4 Percentage of addicted and towards addicted respondents on hours they play PC games per day.....	13
Figure 5 Percentage of respondents finding it hard to withdraw from PC games after 4 hours playing .....	14
Figure 6 Percentage of respondents agree if communicating in multiplayer games can improve real-life communication skills.....	14
Figure 7 Number of respondents who scaled their sensitivity towards consecutive losses after hours of playing PC games. ....	15

## List of tables

Table 1 Respondents' rating on their cognitive abilities when playing PC Games .....	13
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## Chapter 1: Introduction

### 1.1 Background Information

Gaming in itself is not new as according to Chikhani (2015), it has existed since 1940 with the unveiling of Dr. Edward Uhler Condon's game machine that plays a game based on the ancient mathematical game of Nim. It was in the 80's where PC gaming was rising as game consoles were getting scrutinized. The computers were also cheaper than the consoles (Chikhani 2015). Fast forward to 2020, the PC platform continues to be the most popular platform for game developers, with 56 percent of games produced are for the PC (WePC nd). As PC games continue to grow, so does its users. These users might be unaware of the impacts that PC games could pose to their mental health, especially among young adults. This report hopes to show what those impacts are.

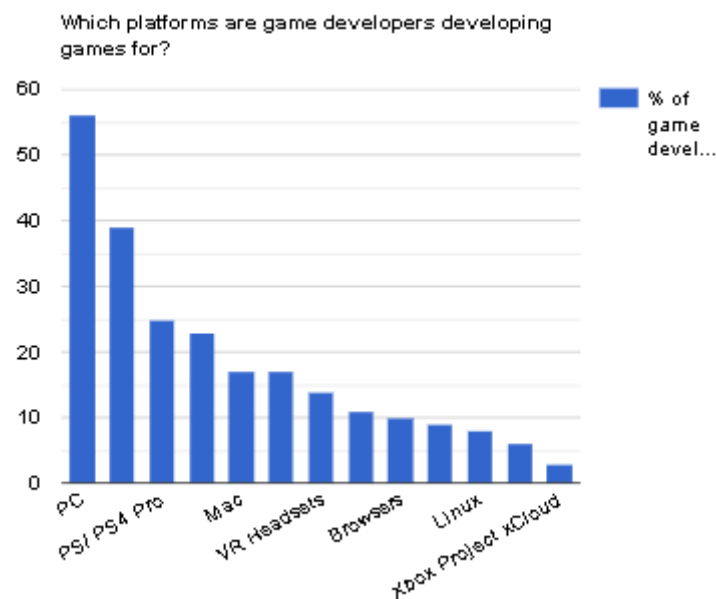


Figure 1: Most popular game platforms for game developers

## **1.2 Definitions**

Within this report are a few terms that the reader might need some clarification. Firstly, the definition of mental health. Mental health is a condition of well-being in which an accepts his or her own talents, is able to cope with routine challenges, functions properly, and contributes to his or her community (Mental health: strengthening our response 2018). Galderisi et al (2015) however suggests that mental health should be defined as a dynamic condition of internal equilibrium that allows individuals to use their skills in accordance with society's universal ideals.

Second, what is meant by PC games. PC games, or computer games, are a type of video game that is played on a personal computer.

Next, the meaning of psychology within the context of this report. Psychology can mean two things, the study of a person's mind and/or attitude or a person's/group's mental or behavioural traits.

Also, another term that will be used in this report are negative psychotic symptoms. Negative psychotic symptoms, or negative symptoms, are the absence or lack of normal mental functions such as thought, conduct, and perception (D'Arrigo 2020). The symptoms include the inability to express feelings, indifference, difficulty communicating, and withdrawal from social situations.

Besides that, according to Gottfredson (1997 p. 13), cognitive ability is described as a “mental skill that includes the ability to solve issue, reason, think abstractly, grasp complicated ideas and learn from experience.”

Furthermore, what is meant by sociability? Sociability is the ability or quality of being able to interact with others. It is common in sociability in multiplayer games because players like to introduce themselves to other players. Not only that, with communication, players tend to find it easier to win a round or complete a mission.

Moreover, what is the meaning of social support. According to Lin et al (cited in Ozbay et al 2007), social support is support that is derived by an individual via connections to other people, groups and larger community.

Lastly, the definition of a young adult. Young adult refers to those within the ages of 18-30. The young adult stage in life is before the middle-aged stage (mid 30s – late 40s).

### **1.3 Problem Statement**

This purpose of this report is to investigate the impact of PC games and how it affects young adults' mental health. Nowadays, PC games are trendy among young adults it helps them to relieve stress and anxiety. Not only that, but certain PC games also have the disadvantages of young adults being furious or even aggressive when it comes to playing PC games. According to techievp (2017), playing computer games is highly addicting, and young adults might spend hours playing it. However, it is disputed if playing computer games is beneficial to young adults' mental health (techievp 2017). Therefore, the outcome of this report is providing awareness for the young adults between age 18 to 25 to understand more about the impacts of PC games on their mental health so that they can control their emotions when it comes to playing PC games. In addition, this report is critical since the findings will provide valuable information on the delivery of impact of PC games on young adults' mental health.

This report seeks to investigate the impact of PC games on young adults' mental health. The following are the possible research questions:

1. How PC games affect the psychology of young adults' mental health.
2. How PC games have an influence on young adults' mental health when it comes to their cognitive abilities.
3. How do PC games have an impact on young adults' mental health when it comes to sociability.
4. Long gaming sessions can alter young adults' mental behaviour.

### **1.4 Research Objective**

The purpose of this research topic is to investigate the impact of young adults' mental health when it comes to playing PC games. With the research questions, young adults can identify how PC games can affect their psychology. Besides that, young adults can also identify if PC games influence their cognitive abilities and whether young adults' sociability impacts when playing PC games. Finally, young adults can also identify if long gaming session will alter their behavior.

### **1.5 Significance**

This research will provide new insights into the impact of PC gaming to young adults' mental health. Through this research, society will further realize the changes of mental health on young adults, aged 18 to 30, from the effect of games, particularly PC games. The direct recipients of the output of this research are the young adults dependent on PC games in such a way that their

mental health has developed desirably or undesirably. Young adults will identify the importance of restricting their time spent on playing PC games. Furthermore, middle-aged adults will be able to demonstrate the significance of PC gaming on their children's mental health.

Moreover, the analysis presented in this study will convey valuable information for both present researchers and future research that will investigate the varied impacts of young adults' mental health, both advantages and drawbacks. This research could serve as one of the basis for the development of a new learning theory.

## **1.6 Scope**

### **1.6.1 Truthful response**

Few respondents may not feel compelled to provide accurate, truthful responses in using online-based survey. It is not possible to tell if the respondent answering the questions understood and have read the question carefully before responding. The respondents may have no idea or be unlikely to know the answer to the inquiry and answers in any case or to look it up on the internet. Respondents guess and speculate, instead of providing accurate responds.

### **1.6.2 Limited viewpoint**

Questionnaires is limited to Swinburne's diploma students and are not to students from other universities. Therefore, the point of view to the questionnaire's answers are bounded. Although the feedbacks from Swinburne students may be sufficient to carry out this research, individual students may have various responses, resulting in a more diverse point of view that reflects the goal of the group's research.

### **1.6.3 Not everyone is a PC gamer**

Not all Swinburne's students enjoy playing PC games. Hence, as respondents prefer playing smartphone games, the respondent's knowledge about PC games may be constrained. There is no way of confirming whether their responses to the questionnaires are based on their past knowledge and expertise in PC gaming or are simply guesses.

## **1.7 Summary**

To summarize, this report touches on the impact of pc games on young adults' mental health. The purpose for this report is to how pc games could affect their psychology, cognitive abilities, their sociability as well as how long gaming sessions can change their behaviour. Pc games are games that are played on a personal computer and nothing else. Though gaming itself has been

around for some time, it was the 80s where it took off. Since then, it has grown in popularity. Also, mental health, in short, is a state of mind of a person in which they can function properly in society as well as able to cope healthily with everyday life. From this report, new insights will be presented for the community to realize the effect of pc games on young adults. There are two known limitations that were identified. Those are inaccurate survey results and limited group respondents.

## **Chapter 2: Literature Review**

### **2.0 Findings from Secondary Resources**

Several studies have been conducted on the impact of PC games on young adults' mental health. This chapter will serve as the outcome of reading from all the research findings.

Playing PC games will always be a concern for young adults. According to Grinspoon (2020), while gaming may be a pleasant distraction or pastime (many campuses even have their competitive Esports), there are health concerns associated with excessive gaming. What are these risks, and what can be done to prevent them?

### **2.1 How PC games affect the psychology of young adults' mental health**

#### **2.1.1 PC games can increase negative psychological symptoms**

Too much time playing PC games can have adverse effects on an individual. According to Longman, O'Connor and Obst (2009 p. 563), World of Warcraft (WoW) players that played 44 to 82 hours per week were found to have high levels of negative psychological symptoms. Also, numerous case studies have revealed mental issues because of computer gaming, such as irritability, depression, and increased aggressiveness (Gunter 2005 p. 145).

Also, one of the psychological symptoms derived from PC games to the player is anxiety. Zamani et al. (2009, p. 99) identified that long-term involvement with these games results in the players experiencing long-term stress, restlessness, and anxiety before, during, and after the game. Sympathetic nervous system stimulation generates anxiety feelings in the player by progressively making this system sensitive and ready for reaction to restricted stimuli. "Studies showed that computer games increase players' heart beats to a level more than their body request. A direct significant relationship between addiction to computer games and anxiety" (Zamani et al. 2009, p. 102). Other symptoms include sleeping problems, depression, suicidal ideations, obsessions, and irregular eating patterns.

### **2.2 How PC games have an influence on young adults' mental health when it comes to their cognitive abilities.**

#### **2.2.1 Cognitive abilities of young adults**

Educational computer games are universally acknowledged as a great learning resource. Action computer games, on the other hand, are sometimes considered mindless entertainment. But the new study suggests that they might provide additional benefits, such as improving peripheral vision (University of Rochester 2003). Puzzle games like Tetris have

long been proven to improve a player's cognitive ability. According to Okagaki and Frensch (cited in Kearney 2005 pg.2), they used Tetris in their research. After six hours of playing, they discovered that young adults' spatial visualization abilities had increased. Besides that, Block Out, a game, helped young adults strengthen their rotational mental abilities (De Lisa and Cammarano 1996 pg.355). Cognitive rotational abilities are the capacity to rotate mental representations of two-dimensional and three-dimensional objects with the visual representation of such rotation within the human mind.

Furthermore, young adults nowadays are enthralled by action games, often known as First Person Shooter (FPS) titles such as Counter-Strike and Half-Life. According to Kearney (2005 p.6), in a survey of 25 computer game players, these games "Improved not just their hand-eye coordination, but also their multitasking ability. To complete a level, a typical FPS requires managing the player's movement, aiming and shooting the chosen weapon, avoiding becoming a target to the enemies. Not only that, but they also check their health status, ammo supply and create a seek and destroy the plan. All of this is done simultaneously, under pressure".

### **2.3 How do PC games have an impact on young adults' mental health when it comes to sociability.**

#### **2.3.1 PC games could interfere with daily life**

Based on the results of research conducted by Saputra et al. (2020 p. 118), someone who is dependent on a game is unable to regulate, lessen, or quit the game, disregarding other activities, his or her social connections and interactions with family, and others around the suffer, and they have less and poorer motivation to study.

#### **2.3.2 PC games addiction can increase social dysfunction**

In addition, Zamani et al. (2009 p. 102) as well stated that the research revealed a substantial association between the game type and the presence of others in the gaming site and social abilities. Selecting home as the location of play had a significant negative link with social skills, and those who mostly played at home had worse social abilities. Nonetheless, in the current study, there was an inverse link between computer gaming addiction and social dysfunction. It follows that as computer gaming addiction grows, so will social dysfunction.

#### **2.3.3 Difficulty from withdrawing the game can affect the mental health of young adults'**

Long gaming sessions with no time constraints have an impact on the behaviour of young adults. The difficulty in withdrawing from the desire to play online games and lack of tolerance

for the use of available time is the thing that should be a concern for the mental health conditions of the player (Saputra et al. 2020 p. 119).

#### **2.3.4 Pc games allow player to communicate with the others**

According to Riva et al. (2006 pg.255), multiplayer FPS game players use various communication devices to communicate among their team members or other players. The way players communicate depends on them as well as the game being played. Since the game Doom, PC-based FPS games have included sending text messages to other players. With these text messages, the player can communicate easily with their team players or all players. Because the PC is the most popular platform for multiplayer FPS games, it is safe to assume that text-based chat is still the most often utilized communication tool by the average player (Morris 2004 pg.33). Besides that, according to Riva et al. (2006 pg.255), another language-based communication gadget has grown in popularity in recent years. Voice-over-IP features, such as TeamSpeak, enable players to interact with other players using a headset or a microphone. With such advancement, players can fight against their opponents while talking. Last but not least, in a rapid game like a multiplayer shooter, the time saved by not having to type using text messages on a keyboard can help a player to win with complete focus (Riva et al. 2006 pg.255).

### **2.4 Long gaming sessions (3hours and above per day) can alter young adults' mental behaviour.**

#### **2.4.1 Disappointment from underperformance can lead to raging**

According to Saputra et al. (2020 pp. 119-120), the adverse effects on mental health can be evident in areas of motive integration, conflict regulation, and frustration. This component is associated with feelings of impatience and excessive rage, which causes some things to spiral out of control. The ease with which throwing objects when they are defeated, as well as their use of harsh words and threats, are signs of an unstable mentality. The inability to process emotions as a result of defeat while playing a game.

### **Chapter 3: Methodology**

The methods used to obtain the data for this research is primary sources and secondary sources. The primary sources will be gathered through the distribution of online questionnaires to Swinburne's diploma students. There will be both open-ended and close-ended questions. Random sampling was used as the sampling method. It is beneficial for the research because more information is gathered from a large diverse perspective on the answers to the research questions. The primary resources will be valuable when comparing to secondary resources.

For secondary sources, information will be collected from professional materials such as journals, articles, and websites. All of the references will provide information for the research topic from the viewpoint of academics and professionals, which will be helpful in the research. The gathered information from secondary sources will then be compared with the primary sources, which are the questionnaires.

Based on the survey, the first section will be going to be a warm welcome to the respondents. It will briefly tell the respondents what the objective is and the aim of doing this survey. Not only that, respondents' time and work will be much appreciated.

The second section will be the demographic data where responses can state their current age and what gender they are.

As for the third section of the questionnaire is titled 'How PC games affect the psychology of young adults' mental health.' This section of the questionnaire is designed to obtain responses based on Swinburne Diploma students' perspectives on the research question, 'How PC games affect the psychology of young adults' mental health.' This section will content open-minded, closed-minded, and multiple-choice questions about how playing PC games can affect the psychology of young adults' mental health and negative and positive psychological symptoms.

Besides that, the fourth section of the questionnaire is titled 'PC games and their effect on the cognitive abilities on young adults'. This section of the questionnaire is designed to obtain responses based on Swinburne Diploma students' perspectives on the research question 'PC games and its effect on the cognitive abilities on young adults.' This section will contain the multiple-choice question, scale questions, and open-minded questions about PC games and its effect on the cognitive abilities on young adults and which of their cognitive abilities improve after playing PC games.

The fifth section of the questionnaire is titled 'PC games and its effects on sociability of young adults.' This section of the questionnaire is designed to elicit responses based on Swinburne students' perspectives on the research question, 'How PC games can affect the sociability of young adults.' This section contains close-ended questions, scale questions, rank questions and open-ended questions about how playing PC games in a specific amount of time affects their social lives, both real life and online and how they communicate in multiplayer PC games.

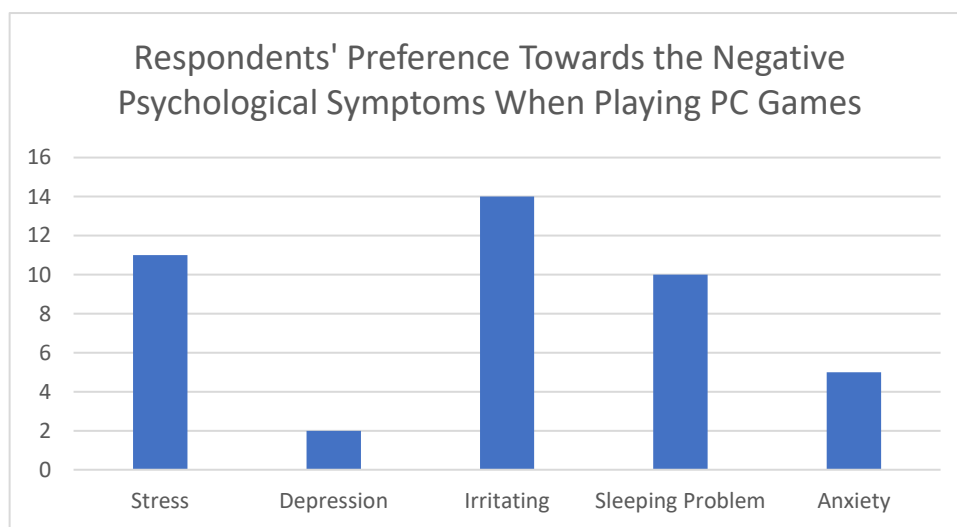
The questionnaire's final section is titled 'Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behavior.' This section of the questionnaire is designed to elicit responses based on Swinburne students' perspectives on the research question, 'How long gaming sessions can alter young adults' behavior.' This section contains close-ended questions, scale questions, and open-ended questions about the changes to behavior of respondents when playing games for long hours, how sensitive they are towards annoying issues in playing multiplayer games, and spending hours online, creating distractions from day-to-day activities and assignments.

## **Chapter 4: Findings**

### **4.1 Demographic Questions.**

22 questionnaires were distributed and was completed by 12 males and 10 females. 21 of the respondents were aged between 19 years old to 21 years old. Whereas there was only one person who aged 22years old and above.

### **4.2 Effect of PC games on the psychology of young adults' mental health.**



*Figure 2 Respondents' Preference Towards the Negative Psychological Symptoms When Playing PC Games*

Figure above shows the number of respondents preferences towards negative psychological symptoms when playing PC games. Out of 22 respondents, there a total of 42 responses. 14 out of the 22 respondents agreed that they feel irritating when playing PC games. Follow by 11 respondents agreed that playing PC games cause them stress. Besides that, out of 22 respondents, 10 respondents are facing sleeping problem when comes to playing PC games. Five respondents agreed that they feel anxious when playing PC games and lastly two respondents agreed that they are feeling depressed when playing PC games.

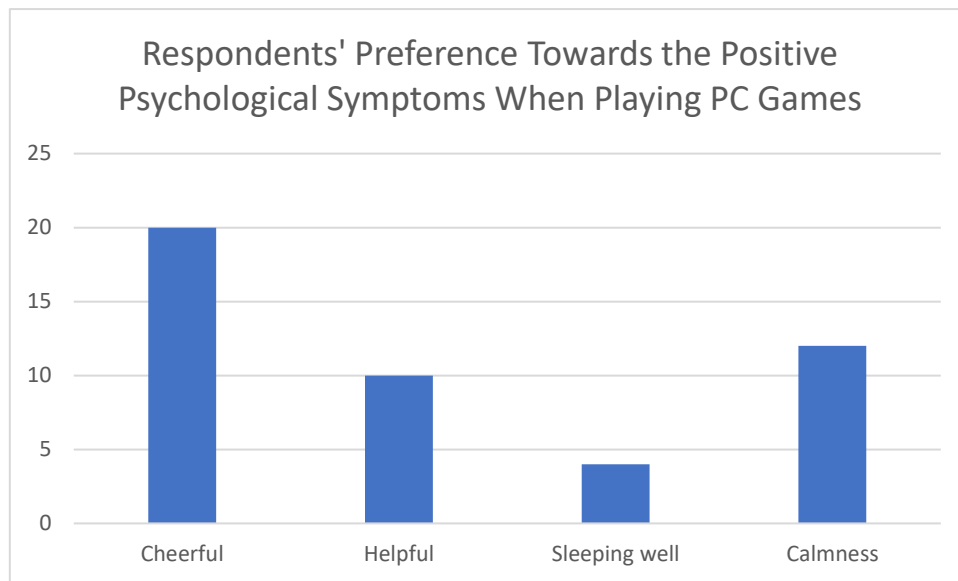


Figure 3 Respondents' Preference Towards the Positive Psychological Symptoms When Playing PC Games

Figure above shows respondents' preference towards positive psychological symptoms when playing PC games. Out of 22 respondents, there is a total of 46 responses. 20 out of the 22 respondents agreed that they are feeling cheerful when playing PC games. Besides that, 12 respondents agreed that playing PC game make them feel calm. Not only that, 10 respondents agreed that playing PC games is helpful. Lastly, out of 22 respondents, only four respondents agreed they can sleep well when playing PC games.

#### 4.3 PC games and its effect on the cognitive abilities of young adults.

	(1) Helped Significantly	(2)	(3)	(4) Does not helped at all	Total responses
Spatial Awareness	5	3	9	5	22
Multi-tasking abilities	5	9	5	3	22
Reaction time	9	7	5	1	22
Critical Thinking	8	4	10	0	22

Table 1 Respondents' rating on their cognitive abilities when playing PC Games

Table above shows respondents' rating on their cognitive abilities when playing PC Games. From the results that have been obtained, many of the respondents agree that play PC games helped them significantly when it comes to reaction time. Besides that, 10 respondents voted (3) when it comes to critical thinking when play PC Games.

#### 4.4 PC games and its effects on sociability of young adults

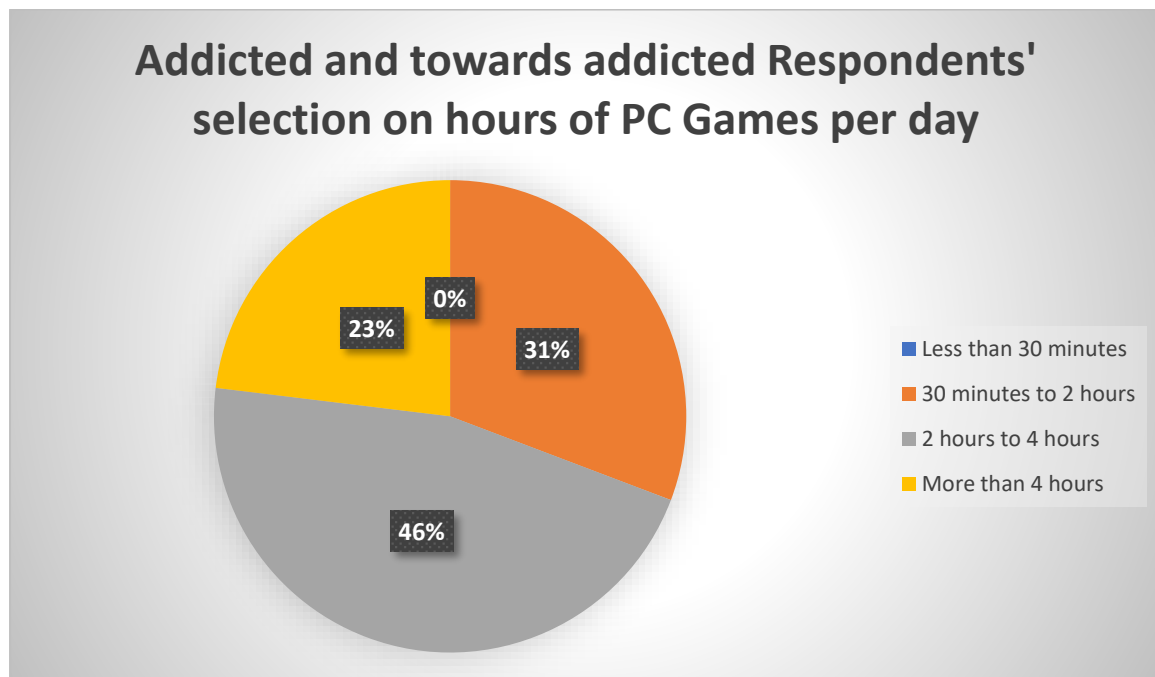


Figure 4 Percentage of addicted and towards addicted respondents on hours they play PC games per day

Figure 4 shows the percentage of addicted and towards addicted respondents on hours they play PC games per day. 46% of the respondents play PC games 2 hours to 4 hours per day while 23% of the respondents spent more than 4 hours on PC games per day. 0% of the respondents have ever played PC games in less than 30 minutes.

### Whether respondents hard to withdraw from PC Games after 4 hours online.

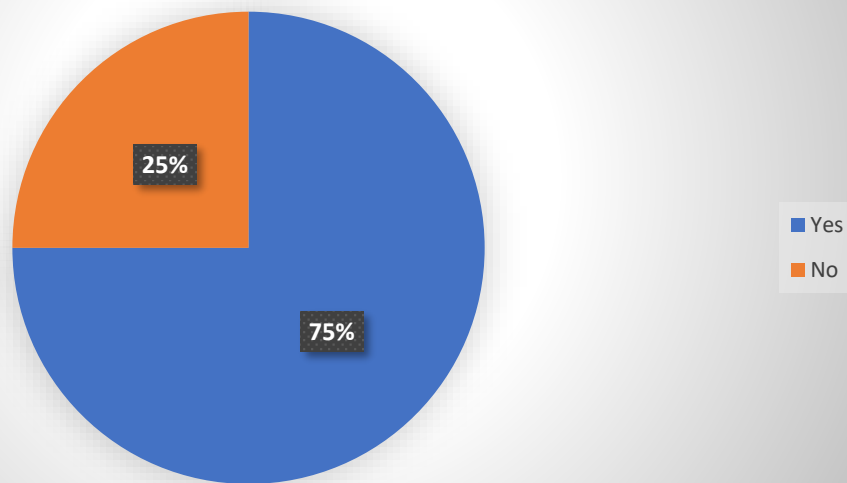


Figure 5 Percentage of respondents finding it hard to withdraw from PC games after 4 hours playing

Figure 5 shows the percentage of respondents finding it hard to withdraw from PC games after 4 hours playing. 75% of the respondents do find it difficult to withdraw, while 25% of them do not have issue with withdrawal from gaming.

### Whether Respondents' real-life communication skills improve by communicating in multiplayer games

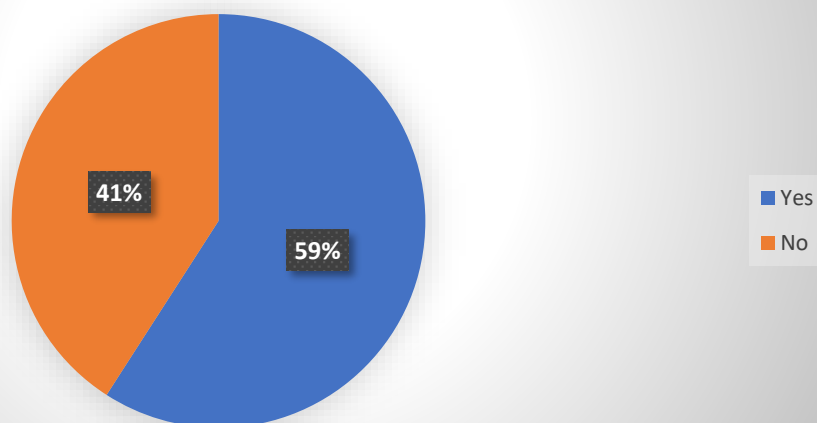


Figure 6 Percentage of respondents agree if communicating in multiplayer games can improve real-life communication skills.

Figure 6 shows the percentage of respondents agree if communicating in multiplayer games can improve real-life communication skills. 59% of the respondents' real-life communication skills do improve, while the rest 41% of respondents do not.

#### 4.5 Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behaviour

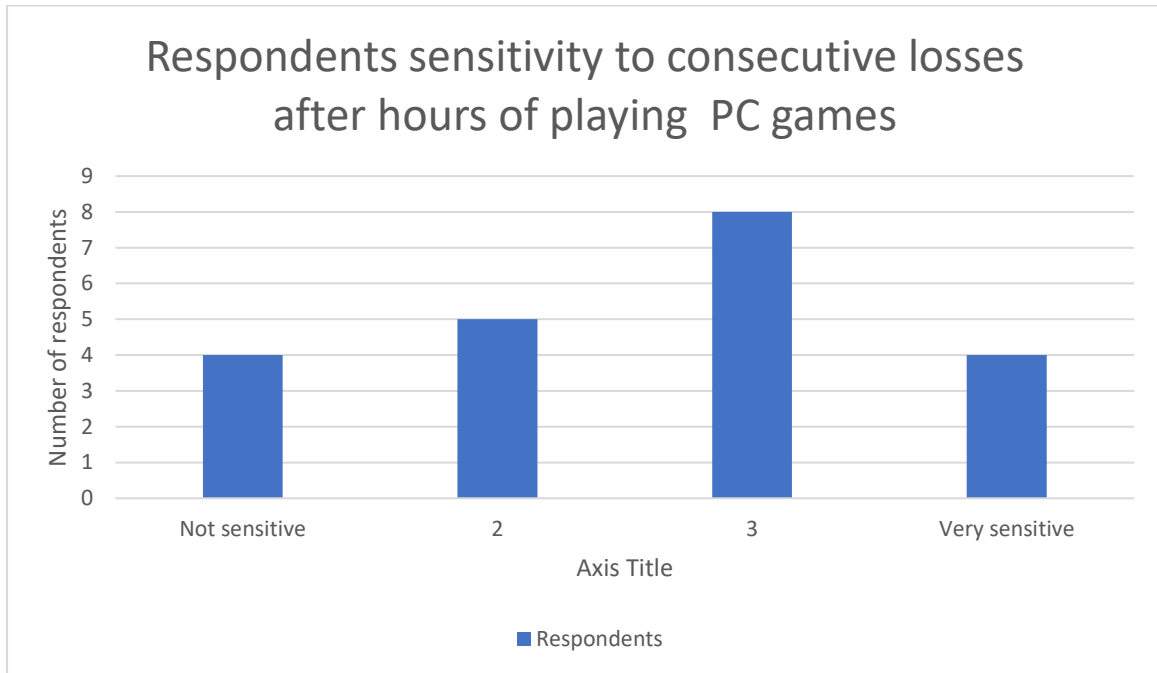


Figure 7 Number of respondents who scaled their sensitivity towards consecutive losses after hours of playing PC games.

Figure 7 shows the number of respondents who scaled their sensitivity towards consecutive losses after hours of playing PC games. 8 respondents claim that they are somewhat sensitive to consecutive losses, followed by 5 respondents that claim they are not too sensitive to it and those who claim not sensitive and very sensitive are both at 4 respondents respectively.

## **Chapter 5: Discussion**

### **5.1 Effect of PC games on the psychology of young adults' mental health.**

The primary sources show 42 responses from 22 respondents for the negative psychological symptoms, and as many as 14 respondents are feeling irritated from playing PC games. However, 11 of the respondents are feeling stressed when playing Pc games. Moreover, ten respondents are experiencing a sleeping problem, and five respondents are anxious. Lastly, only two respondents are feeling depressed. The possible reason young adults are experiencing negative psychological symptoms when it comes to playing PC games is that their teammates cannot cooperate with them when playing PC games. Also, when there is a toxic teammate which lead to stressful match, it will bring the whole team down. Not only that, but young adults are also having sleeping problems because PC games are too addictive that it keeps them awake the entire night.

As for the positive psychological symptoms, there are a total of 46 responses from 22 respondents. A total of 20 respondents feels cheerful when it comes to playing PC games, and 12 respondents feel calm when playing PC games. Not only that, a total of 10 respondents thinks that playing PC games is very helpful, and a total of 4 respondents also says that playing PC games helps them to sleep well. Perhaps PC games do allow students to release stress and create happiness. The results have shown that Swinburne Diploma students feel happy and great when they win a game. Some of them are also happy when not only they win a game but also ranked up in games where there is ranking system in it.

### **5.2 PC games and its effect on the cognitive abilities on young adults.**

Based on the findings, eight respondents agree that playing PC games helps to improve their spatial awareness. The possible reason PC games can improve their spatial awareness is that they can be aware of the things around them. When it comes to PC games with maps, students can tell which direction to go with one glance. Secondly, a total of 14 respondents agrees that playing PC games helps to improve their multi-tasking abilities. A possible explanation for this is that students can communicate with their teammates while focusing on the game when playing PC games. Not only that, but strategy games also help players to read and evaluate situations very quickly. Thirdly, a total of 16 respondents agree that their reaction time improves when playing PC games. The possible reason students' reaction time improves is that when it comes to responding to stimuli and circumstances, having a good response time assists students to be more flexible and efficient. According to Alford (2021), professional esports

players have a quicker response time than the typical gamer, distinguishing them from the average gamer. Professional FPS players have a reaction time of 100-250 milliseconds, whereas regular FPS players have a reaction time of 300-500 milliseconds. Lastly, a total of 12 respondents agrees that playing a PC game does help in critical thinking. A possible explanation for this is that when it comes to puzzle games or strategy games, students require different levels of skills to think and act together.

### **5.3 PC games and its effects on sociability of young adults**

The primary sources shows that as many as 13 out of 22 respondents are addicted or somewhat addicted to PC games. Out of the 13 that responded, 46% of the respondents say that they play PC games for two to four hours a day, 31% said that they play for 30 minutes to two hours a day and 23% say that they play PC games for more than four hours a day. From the 23% that answered 4 or more hours, 75% of them said that it was hard for them to withdraw from playing PC games. This indicates that gaming on the PC without time limitations could be detrimental to the sociability and mental health of young adults. This is in line with the findings made by Saputra et al (2000 p. 119) which states that uncontrolled PC gaming may pose a threat to the mental health of young adults.

Based on the findings, 13 out of 22 respondents say that their real-life communication skills have improved. This is most likely due to the usage of Voice-over-IP (VOIP) software such as Discord and TeamSpeak as this enables players to communicate with one another using their own headsets without using the in-game communication methods. This saves players time as they do not need to type out their messages or press any specific button to enable voice chat. The findings from Riva et al (2006 p. 225) also supports the notion that VOIP software can help a player achieve victory with better focus.

### **5.4 Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behaviour**

Based on the collected answers, it shows that eight respondents claim to be mildly sensitive to consecutive losses after hours of playing PC games, followed up with five respondents claiming that loosing consecutively does not affect them too badly and both "not sensitive" and "very sensitive" had four respondents each. This suggests that some young adults may be able to control their emotions despite hours of gaming and loosing consistently.

## **Chapter 6: Conclusion**

### **6.1 Summary**

In conclusion, this research is to investigate whether PC games have an impact on the mental health of young adults in Swinburne University Sarawak Campus. Going by the findings, PC games can create negative psychological symptoms. This is most likely caused by uncooperative and toxic teammates as well as addiction to PC games that will cause them to have sleeping problems. However, evidence also suggests that positive psychological symptoms can also be derived from PC gaming when winning a game or rank up in it. Also, from the questionnaire done, PC gaming seems to improve upon one's cognitive abilities. This is due to most of the respondent's agreement on whether their multi-tasking abilities, reaction times and critical thinking skills have improved. Next, evidence suggests that PC games could affect the sociability of young adults. This is due to an unconstrained time boundary for some respondents that allows them to game for long hours. This could affect their mental health and, in turn, their sociability. Despite this, the evidence also shows that it is also possible to improve one's communication skills through VOIP software. Lastly, primary sources suggest that young adults may be able to control their emotions when losing despite playing PC games for more than three hours.

### **6.2 Recommendations**

There are some recommendations that can be given. First, the students who are young adults should prioritise their real-life obligations and to time them appropriately. This is to help ensure that gaming does not become an addiction that may lead to adverse effects on their mental health.

Lastly, parents of young adults should check up on them whether by calling them or visiting them in real life. This could help with young adults' mental health as a means to keep them in check.

### **6.3 Limitations**

#### **6.3.1 Time**

The research team will only have 10weeks to finish a whole research project. As a result, time will be a crucial aspect and restriction in this research project. Furthermore, obtaining adequate data and information to produce an accurate research outcome will take more than 10weeks. The number of questionnaires sent will be limited to 22 due to the time required to interpret, evaluate, and summarize the information gathered.

### **6.3.2 Type of Questionnaires**

Due to this Covid-19 pandemic, face-to-face communication is discouraged for students to keep the spread of the virus under control. The questionnaires will then be done through Google Forms, and the linked will be distributed to the Swinburne Diploma students. So, the students will have to fill the forms digitally. Nevertheless, it can be a drawback with these Google forms as students will not cooperate to fill in the survey forms. Not only that, but students might also not check their canvas inbox or emails where the link for the survey has already been provided, unlike a face-to-face survey, in which survey can be delivered to respondents on the spot to fill in the survey forms.

### **6.3.3 Number of respondents**

Research teams are asked to distribute their survey form to the Swinburne Diploma students. Each group is required to have at least a minimum of 30 questionnaires. Students are given time to distribute their Google Forms to other Swinburne Diploma students to fill in the forms. But unfortunately, the team has distributed a total of 36 questionnaires and only received 22 responses after 3 weeks of waiting. As a result, this issue significantly affects the collection of data and information for the research report.

**Total number of words: 4687**

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## Appendices

### Appendix 1: A copy of an empty questionnaires

#### Investigating the impact of pc games on young adults' mental health

Hi! Thank you for taking the time to complete our survey, responder. The purpose of this questionnaire is to study the influence of computer games on the mental health of young adults at the Swinburne University Sarawak Campus. This is part of our Diploma topic, DBC211 Introduction to Academic Research, assignment. Please spend 10 minutes to complete this little survey. Your time and work are much appreciated. Please be assured that your personal information will be kept strictly secret.

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\* Required

##### Demographic data

1. Please state your age. Select only one answer. \*

*Mark only one oval.*

- 18 years old or younger  
 19 to 21 years old  
 22 years old and above

2. Please state your gender. Select only one answer \*

*Mark only one oval.*

- Male  
 Female

##### Effect of pc games on the psychology of young adults' mental health

3. "PC games can affect player's mental health" do you agree with this statement? \*

Mark only one oval.

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

4. Is it true that playing PC games might help you release tension? \*

Mark only one oval.

- Yes
- No

5. Based on the previous question, specify your answer. \*

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6. Based on your experience when playing PC games, do you ever experience any of these negative psychological symptoms? Select more than one if needed. \*

Check all that apply.

- Stress
- Depression
- Irritating
- Sleeping problem
- Anxiety

7. Based on the previous question, please clarify how it got to that point. \*

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8. Based on your experience when playing PC games, do you ever experience any of these positive psychological symptoms? Select more than one if needed. \*

Check all that apply.

- Cheerful
- Helpful
- Sleeping well
- Calmness

9. Based on the previous question, please clarify how it got to that point. \*

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PC games and its effect on the cognitive abilities on young adults

10. What genre of pc games do you play? State more than one if needed. \*

Check all that apply.

- Multiplayer/ Online games
- Role playing games (RPG)
- First-person shooters
- Simulations
- Puzzle games
- Historical games
- Strategy games

11. Which of these cognitive abilities have improved after playing PC games? \*

Mark only one oval per row.

	1 (Helped significantly)	2	3	4 (Does not help at all)
Spatial awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multi-tasking abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reaction time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. If you answered 1 or 2 for spatial awareness, state instances where to prove your spatial awareness has increased. Those who have answered 3 or 4, please ignore this question.

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13. If you answered 1 or 2 for multi-tasking abilities, state instances where your multi-tasking abilities have increased. Those who have answered 3 or 4, please ignore this question.

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14. If you answered 1 or 2 for reaction time, state instances where your reaction time has improved. Those who have answered 3 or 4, please ignore this question.

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15. If you answered 1 or 2 for critical thinking, state instances where your critical thinking skills has improved. Those who have answered 3 or 4, please ignore this question.

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PC games and its effects on sociability of young adults

16. How addicted are you on playing PC games? \*

Mark only one oval.

	1	2	3	4	
Addicted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not addicted

17. If you have selected 1 or 2, how often do you play PC games per day? Those who have answered 3 or 4, please ignore.

Mark only one oval.

- Less than 30 minutes
- 30 minutes to 2 hours
- 2 hours to 4 hours
- More than 4 hours

18. If you answered more than 4 hours, was it hard to withdraw from it when you are unable to play PC games? Those who have answered otherwise, please ignore this question.

Mark only one oval.

- Yes
- No

19. How far can you relate to this comment 'I often prioritize PC gaming instead of my social life'? \*

Mark only one oval.

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

20. What mode of communication do you use to communicate in multiplayer games? \*

Mark only one oval per row.

	Never	Rarely used	Occasionally used	Often used
Preprogrammed commands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voice chat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Text chat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voice-line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stickers/Spray	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waypoint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. If you have selected others, please state the method. For those who have answered otherwise, please ignore this question.

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22. Has communicating in multiplayer games helped improve your real-life communication skills? \*

Mark only one oval.

- Yes
- No

23. Do you think communication among teammates in online games will create greater teamwork or coordination? \*

Mark only one oval.

- Yes  
 No

24. Based on your experience when playing PC games, do you feel impatient when your team players do not follow your order although you communicate with them? \*

Mark only one oval.

- Yes  
 No

25. Has communicating in-game with other players increased your social circle? \*

Mark only one oval.

- Yes  
 No

26. How close are you to your friends made from playing multiplayer PC games? \*

Mark only one oval.

	1	2	3	4	
Very close	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not close at all

27. How long have you been friends with them? \*

\_\_\_\_\_

28. If you had the chance, would you like to meet your online friends? \*

Mark only one oval.

- Yes  
 No

**Long gaming sessions (3 hours and above per day) and its alteration of young adults' mental behaviour**

29. Do you think that rage stems from playing PC games for extended amounts of time? Please state and explain your answer. \*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

30. How sensitive are you to consecutive losses after hours of playing PC games? \*

Mark only one oval.

	1	2	3	4	
Not sensitive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very sensitive

31. How sensitive are you to constant taunting by your opponents? \*

Mark only one oval.

	1	2	3	4	
Not sensitive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very sensitive

32. How sensitive are you to lag spikes/ high ping? \*

Mark only one oval.

	1	2	3	4	
Not sensitive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very sensitive

33. How sensitive are you to uncooperative teammates? \*

Mark only one oval.

	1	2	3	4	
Not sensitive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very sensitive

34. Do you think playing PC games (3hours and above per day) can cause a distraction to young adults? For example, with the amount of playtime, young adults could have spent their time doing their assignments, hanging out with their friends, or spend time with their families. \*

Mark only one oval.

Yes  
 No

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This content is neither created nor endorsed by Google.

Google Forms

## Appendix 2:

### Group members' names:

1. Athil Fikree bin Firdaus (101234499)
2. Kayla Zahra (102762519)
3. Ivan Clarence Yeo Thian Hao (101234046)

### RECORD OF ACTIVITIES FOR GROUP RESEARCH REPORT

ACTIVITY	DATE	TIME	ATTENDANCE (sign/initials)
Discuss on introduction and literature review.	23/09/2021	12:05pm	Athil Kayla Ivan
Discuss on possible research questions.	24/09/2021	2:25pm	Athil Kayla Ivan
Discuss on possible research questions (accept by lecturer)	27/09/2021	9:45am	Athil Kayla Ivan
Discuss for questionnaires.	11/10/2021	9:35am	Athil Kayla Ivan
Discuss for questionnaires.	12/10/2021	9:40am	Athil Kayla Ivan
Discuss on what to write for methodology, findings, discussions, and conclusion	2/11/2021	3:00pm	Athil Kayla Ivan

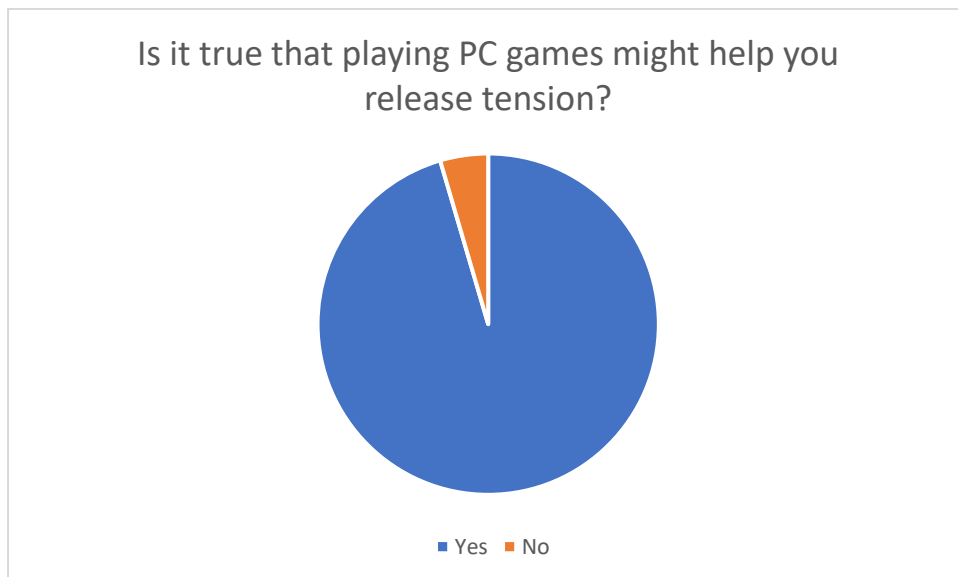
## Appendix 3:

### DBC211 Group Research Report Contribution Form

<b>Contribution to the research report writing [refer to report format]</b> <b>Report sections:</b> <i>[List or indicate specifically what you contributed to...]</i>	<b>Student name (s)</b>	<b>Student signature(s)</b>	<b>Date(s)</b>
0. Executive Summary	Athil Fikree bin Firdaus	Athil	2/12/2021
1. Introduction	Athil Fikree bin Firdaus Kayla Zahra Ivan Clarence Yeo Thian Hao	Athil Kayla Ivan	23/09/2021
2. Literature Review	Athil Fikree bin Firdaus Kayla Zahra Ivan Clarence Yeo Thian Hao	Athil Kayla Ivan	27/09/2021
3. Methodology	Kayla Zahra Ivan Clarence Yeo Thian Hao	Kayla Ivan	3/11/2021
4. Findings	Kayla Zahra Ivan Clarence Yeo Thian Hao	Kayla Ivan	3/11/2021
5. Discussion	Athil Fikree bin Firdaus Ivan Clarence Yeo Thian Hao	Athil Ivan	5/11/2021
6. Conclusion	Athil Fikree bin Firdaus	Athil	15/11/2021
7. Others: <i>[you can add on to the list below]</i> <ul style="list-style-type: none"> <li>○ Table of contents</li> <li>○ Front page</li> <li>○ Bibliography</li> <li>○ Appendices (i.e. Transcripts &amp; etc.)</li> </ul>	Athil Fikree bin Firdaus Kayla Zahra Ivan Clarence Yeo Thian Hao	Athil Kayla Ivan	2/12/2021

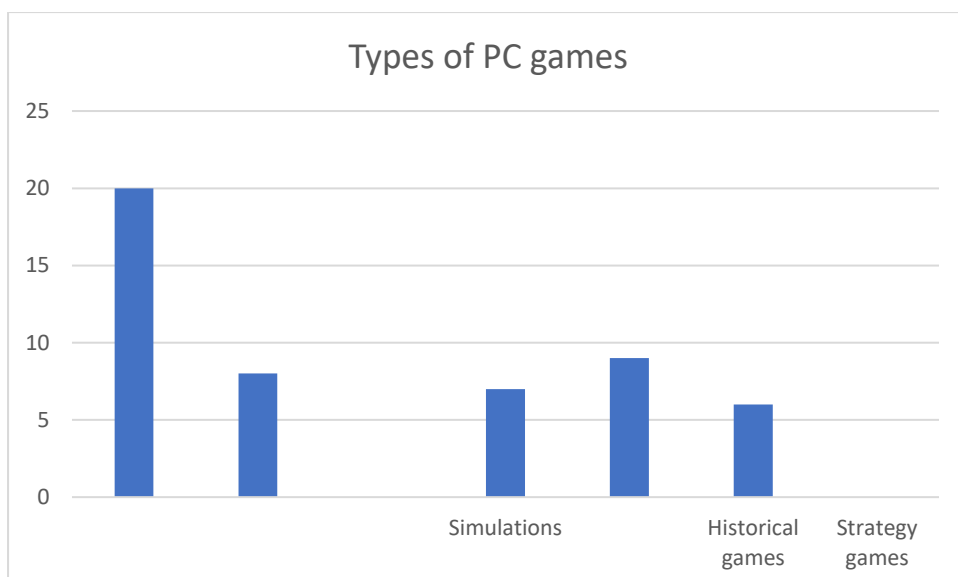
## Appendix 4:

### Effect on PC games on the psychology of young adults' mental health.



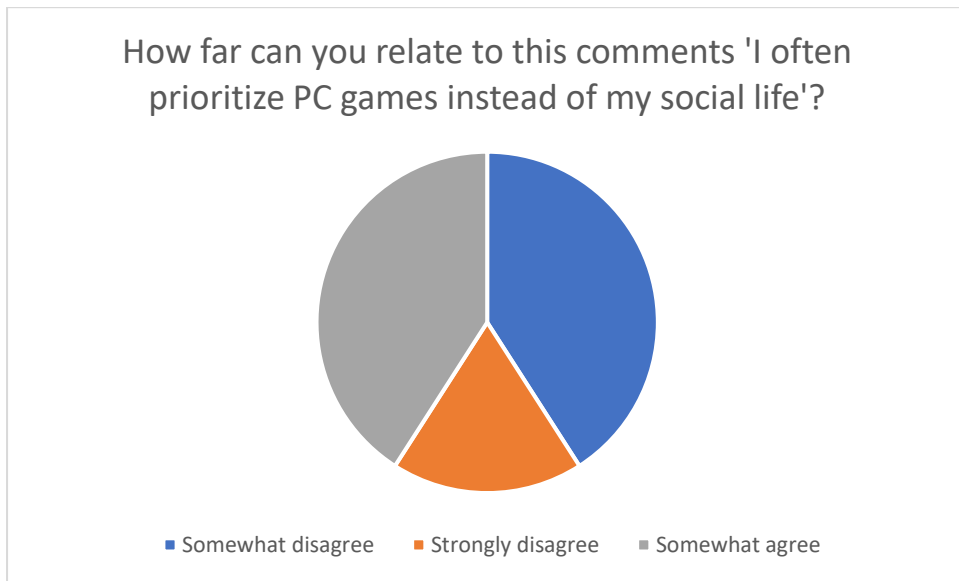
Students' perspective if PC games might help them to release tension.

### PC games and its effect on the cognitive abilities on young adults.

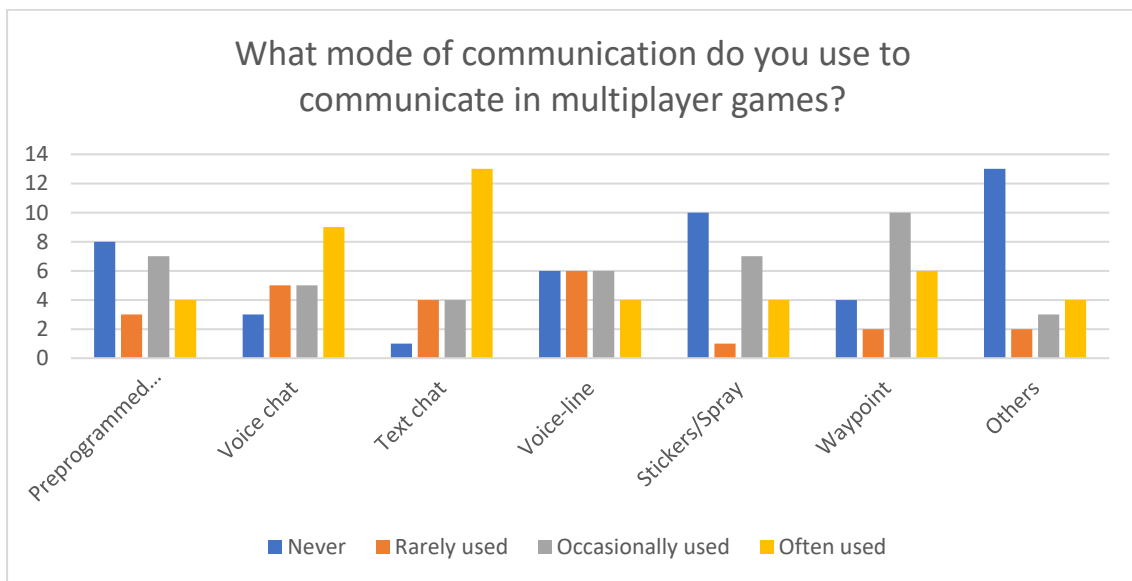


Type of PC games that students played.

**PC games and its effects on sociability of young adults**

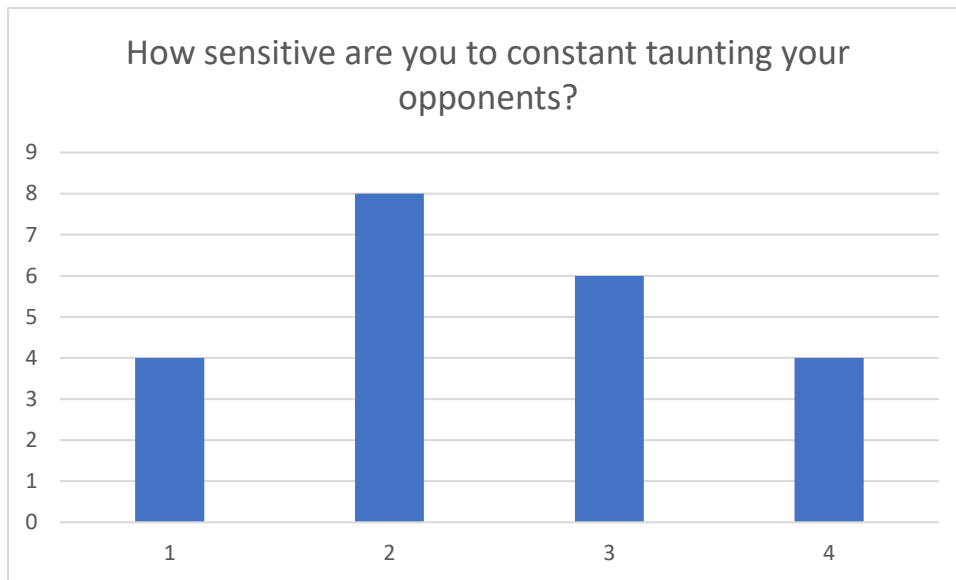


Students’ agreement on whether they often prioritize PC games instead of their social life.

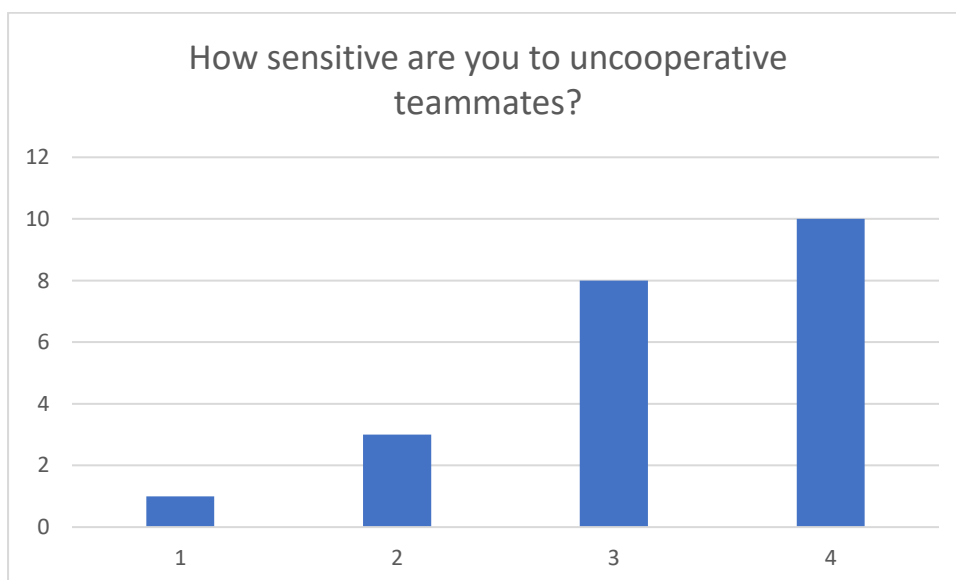


Students’ perspective on which communication mode they use to communicate in multiplayer games.

**Long gaming sessions (3hours and above per day) and its alteration of young adults' mental behaviour**



Students' perspective on how sensitive they are when getting taunt constantly by their opponents.



Students' perspective on how sensitive they are to uncooperative teammates?