The Role of Video Games in College Life in China

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The Role of Video Games in College Life in China

An Interactive Qualifying Project

Submitted to the Faculty of

WORCESTER POLYTECHNIC INSTITUTE

In partial fulfilment of the requirements for the

Degree of Bachelor of Science

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Date:

July 1st, 2022

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Abstract

Video games have become an increasingly integral part of Chinese society. Together with Beijing University of Chemical Technology, we utilized surveys and interviews from both students and professors to understand the impacts of video games on a college campus in China. Despite the perceived generational gap both groups showed positive views on video games. This work suggests that the use of video games in the classroom and events can be used to improve the social and academic lives of students.

Acknowledgements

We would like to start off by thanking our advisors Professor Jianyu Liang and Professor Zuili Zheng for providing us this amazing opportunity. Without their insight through the entire project, we would not have been able to complete this project. In addition, we would like to thank our ID2050 instructor, Professor Zoe Eddy who taught all the skills we need to collect and analyze our data. We would also like to thank our sponsor, Professor Jianghong Feng of Beijing University of Chemical Technology for providing us an incredible project topic. In addition, their advice on how to properly conduct research in China and the resources she provides was critical for our project. We also would like to the students at Beijing University of Chemical Technology that collaborating with us, Zisheng Huang, Jingyun Peng, Lingkan Wang, and Zijia Wang, for their invaluable support with distributing the surveys and conducting the interviews. In addition, their insights on the video game culture in Chinese students allowed us to collect much more meaningful data. With all their hard work, we were able to succeed.

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Introduction

The video game industry in China has rapidly expanded for the past decade and has now become the leading gaming market in the world. Nearly 50% of China's population partake in video games in some manner. With this rapid growth, many issues and concerns have also emerged. The core of these issues is related to the addictive qualities of video games and whether they have a negative impact in people's lives. To address the addiction of video games, the Chinese government decided to regulate the amount of time and money minors are allowed to spend on video games. As for whether video games are inherently harmful, it is still up for debate. Research on video games is a relatively new and complex area. Most of the research studies have been focused on excessive gaming. Excessive gaming has been correlated with depression and overall, negatively impacts mental health. Although uncommon, there are some studies that have found that there can also be a positive relationship between video games and improved well-being. The focus of our project was to address this gap in the research space. By focusing on all types of video games communities, not just those that play an excessive amount of video games, we gained a better understanding of the positive and negative impact of video games. With a clearer understanding of the impacts, we advised our sponsor, Beijing University of Chemical Technology, on ways to promote social interaction and improve the social life of their students through video games.

There were multiple objectives that our project achieved. First, we got better understanding of the generational gap between students and professors and how that relates to their views on video games. Second, we gathered insight on the students' views on the impact of video games within their lives. Finally, this project utilized the information that we collected to make recommendations on how to better incorporate video games into university life and showcase the benefits of games to professors.

In this report, we first summarized the vast history and culture of video games in China that has led to the rapid growth of the current leading video game industry with a large focus on mobile gaming. In addition, we explored previous research on the positive and negative impact of video games and explored potential gaps in the research. Next, we discussed our methodology for the project which consists of surveys and interviews from the students and faculty of the Beijing University of Chemical Technology for accomplishing our project goals mentioned in the previous paragraph. In the following section, we analyzed the survey response using Tableau, a data visualization tool, and the interviews using framework analysis of key and recurring themes to draw conclusions on the various impacts of video games. We concluded this report with three main recommendations along with previous research to back up our findings.

Background

Overview

In this chapter, we begin with a brief overview of video games in China and how college students, professors and other stakeholders are affected by video games. Next, we explore the gaps in the research such as the lack of research on the impacts of mobile games. We then provide the current approach to reduce the negative social impact of video games and the current views of their impacts on students. We conclude by introducing our Sponsor, the Beijing University of Chemical Technology, and the goal of the project.

History

In the 1970-80s the United States, Europe and Japan began producing arcade machines and video game consoles. These systems quickly gained popularity, especially with the younger generations across the world. The United States led this market during these early years but in the years 1983-1985 there was a crash in the market. Sales went from an estimated $3 billion in 1982 to only $100 million in 1985 (*The Times-News - Google News Archive Search*, 1989). Around this time Japan became dominant in the creation of new video game content. For several reasons Japanese companies struggled to get into the Chinese market. High tariff rates made it too costly to pursue for all but a few companies. This was then made worse by new regulations on video games and their import in China. Because of these reasons people in China started reverse engineering these devices. These clones were quickly produced in large quantities creating a black market of systems and games (Liao, 2016).

In 2000 the Chinese government began banning the import and sale of video game consoles and arcade machines. These bans did not include PC or mobile games which caused China to have a unique gaming market compared to the rest of the world. The ban on arcades was lifted in 2009 leading to an increase in arcades around China. Another popular venue for gaming in China is internet cafés. Internet cafés and arcades were huge successes in China before the rise of mobile and online gaming and are still popular today with there being around 125,000 in China in 2019 (Entbrains, 2020).

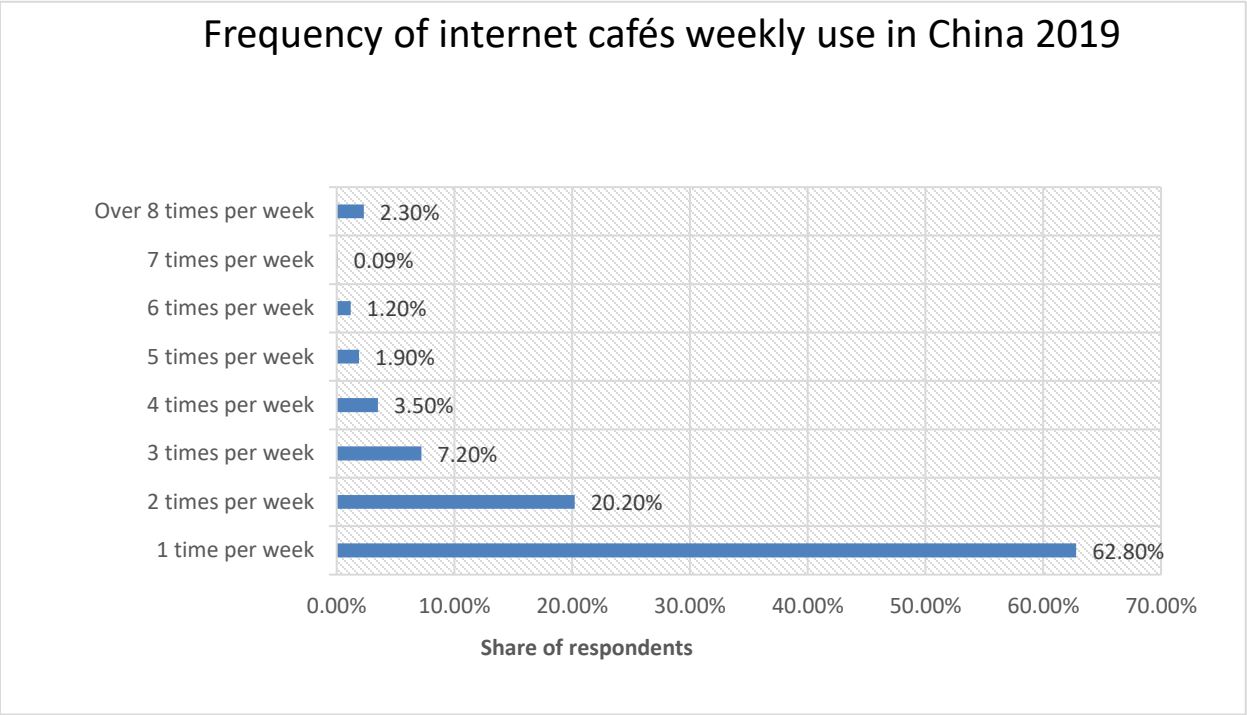


Figure 1: Frequency of internet cafés weekly use in China 2019 ***(Entbrains & Hangzhou Shunwang tech, 2020)***

In Figure 1, we can see those that used internet cafés typically used them once or twice a week comparing this with Figure 2 users tend to use them for four hours or less with a third of users spending longer.

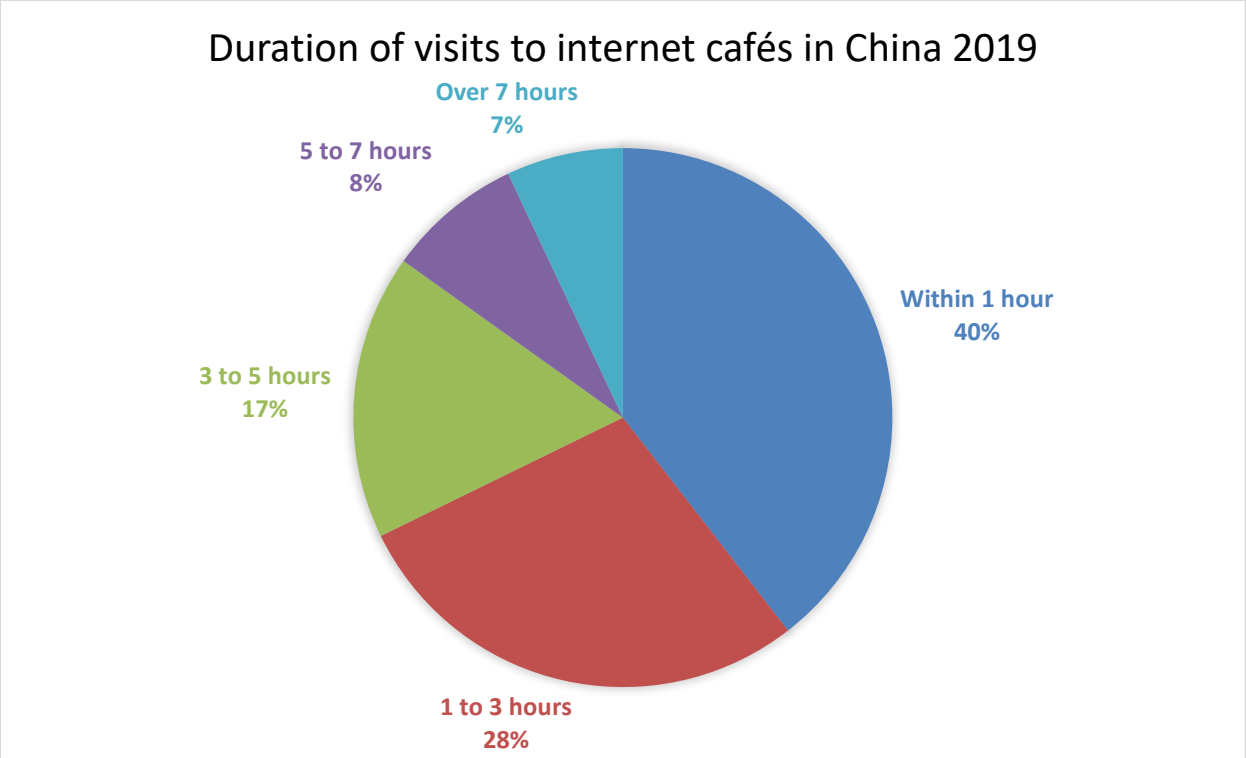


Figure 2: Duration of visits to internet cafés in China 2019 (Entbrains & Hubei Century Network Tech, 2020)

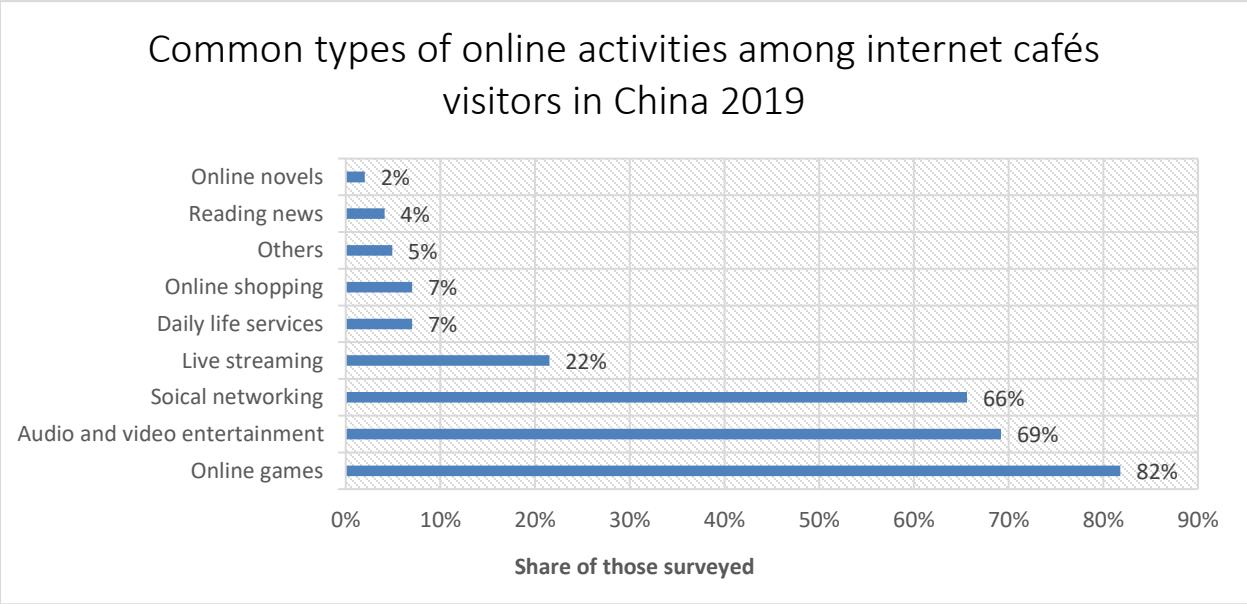
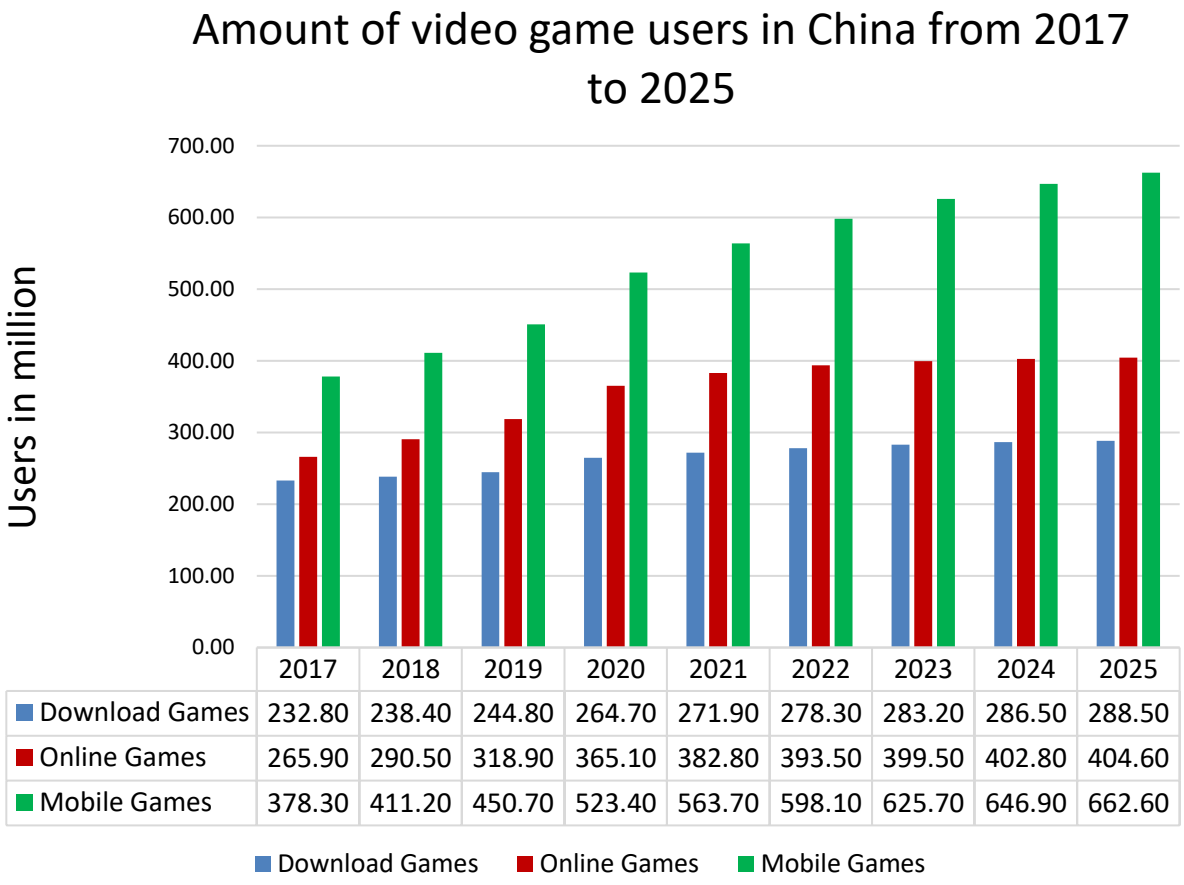


Figure 3: Common types of online activities among internet cafés visitors in China 2019 (Entbrains et al., 2020)

By using the information gained about time and frequency and comparing that with activities we can see that the most common activity is playing online games. As we can see in Figure 3, internet café users also delve into the other activities as well. Many people played with friends, listened to music, watched live streamers when they played video games. Internet cafés, personal computer games and arcades were popular and still are widely used in China. However mobile games were where the biggest leap began in the video game industry in China. In Figure 4 we see in recent years how the mobile game market has exploded in popularity. Online and downloadable games are expected to taper off in future years but mobile games are expected to keep growing.



	2017	2018	2019	2020	2021	2022	2023	2024	2025
Download Games	232.80	238.40	244.80	264.70	271.90	278.30	283.20	286.50	288.50
Online Games	265.90	290.50	318.90	365.10	382.80	393.50	399.50	402.80	404.60
Mobile Games	378.30	411.20	450.70	523.40	563.70	598.10	625.70	646.90	662.60

Figure 4: Amount of video game users in China from 2017 to 2025 (Statista, 2021)

The rise of online gaming in China was slow at first since the black market enabled many users to buy or illegally download those games on a third-party site. So, what the Chinese publishers did was create

free-to-play games with a range of microtransactions to still make a profit. This was excellent for getting new players, but it did cause some issues. One was that since these games were now free, many users would play them for an obscene amount of time. Microtransactions did fulfill the needs of businesses but could become addictive for users. This led to the Chinese government to put more regulations on video games. These regulations had mixed success which will be discussed later on. Mobile gaming was the biggest market for video games in the world. This was solely due to the unique development of China's gaming market in the 1990-2000s. When mobile games started to gain popularity in the early 2000s the Chinese market was one of the first to adapt. At this time consoles were still largely banned within the country. This resulted in the mobile game market not having to compete with consoles like the rest of the world. In 2017, the ban on consoles was lifted, however mobile games remained the most widespread platform for gaming. Mobile games also still remained the largest video game market in China.

Current Demographics

China has overtaken the United States for the largest video game market with a revenue of about 46.6 billion U.S. dollars as of 2021. About 665 million people played online games in 2021, roughly half of the population of China (Thomala, 2022). In addition, about 655 million of them played mobile games with the most popular mobile game being a competitive massive online battle arena (MOBA) game developed by Tencent called *Honor of Kings* (AppMagic, 2022).

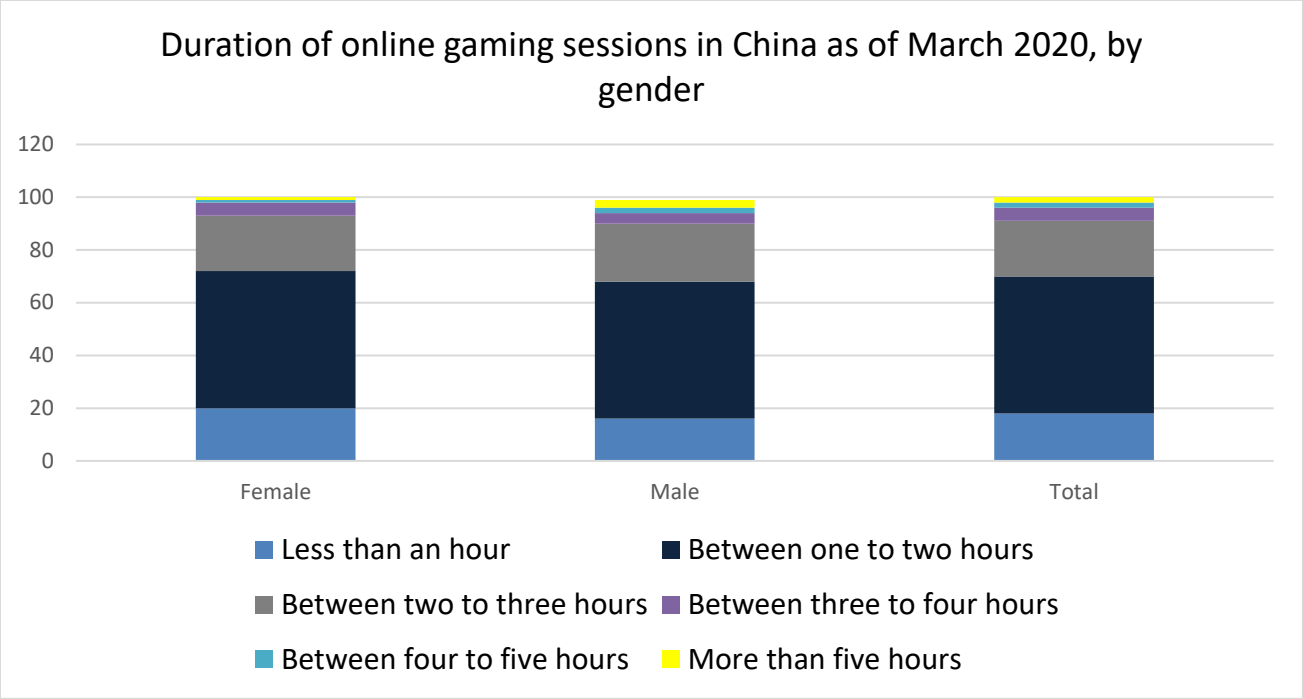


Figure 5: Duration of online gaming sessions in China as of March 2020, by gender (Rakuten Insight, 2020a)

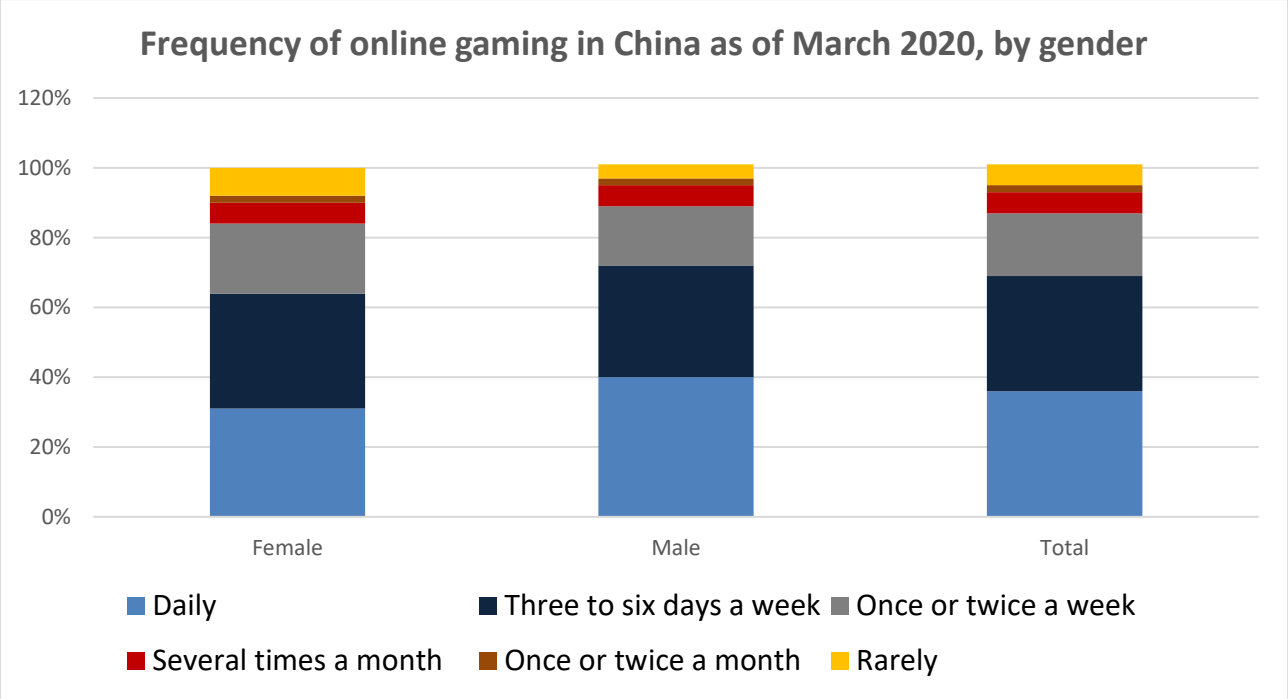


Figure 6: Frequency of online gaming in China as of March 2020, by gender (Rakuten Insight, 2021)

In Figure 5 and Figure 6, the frequency and duration of time spent playing video games from a sample of online game users is shown. Most users played at least once a week, but many played more than that. Most users played for 3 hours or less and we can also see that there was not a large difference between genders for the average user. However, males tended to be on the more extreme side for how long they spent playing games. The one thing that linked many of these genres together is online play. There were many popular single player games, but the most popular games usually tended to be online games. One such game was *Honor of Kings* where you played in five versus five matches. Online competitive games tended to be the most popular but there are other games that focus on individual play in an online environment. But even in these individual gaming communities, they still develop online forums where they discuss different strategies and meet new people.

It is clear many people in China played video games. The majority played several times a week if not daily. However, this is not the only way people engaged with video games. Current trends in the gaming industry also involved a discussion of live streaming and esports. In Figure 7 we can see how often users tuned into a live stream throughout the week. Often those who watched livestreams usually watched at least once per day.

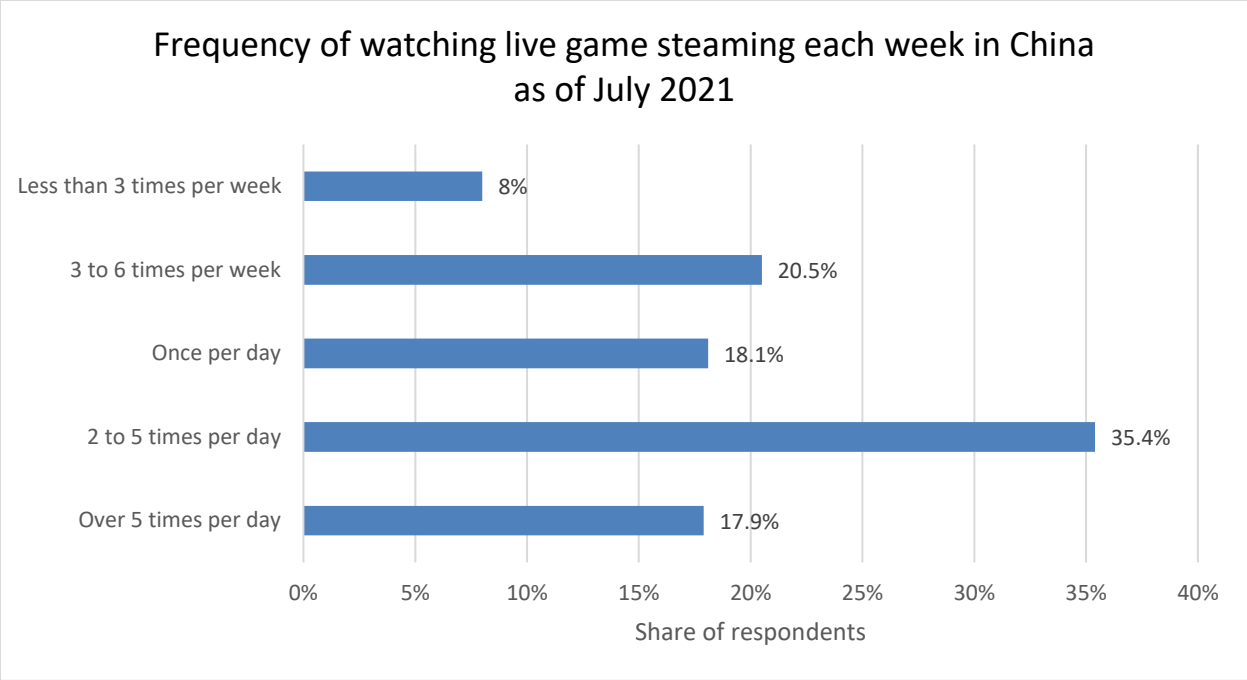


Figure 7: Frequency of watching live game steaming each week in China as of July 2021 (iResearch, 2021a)

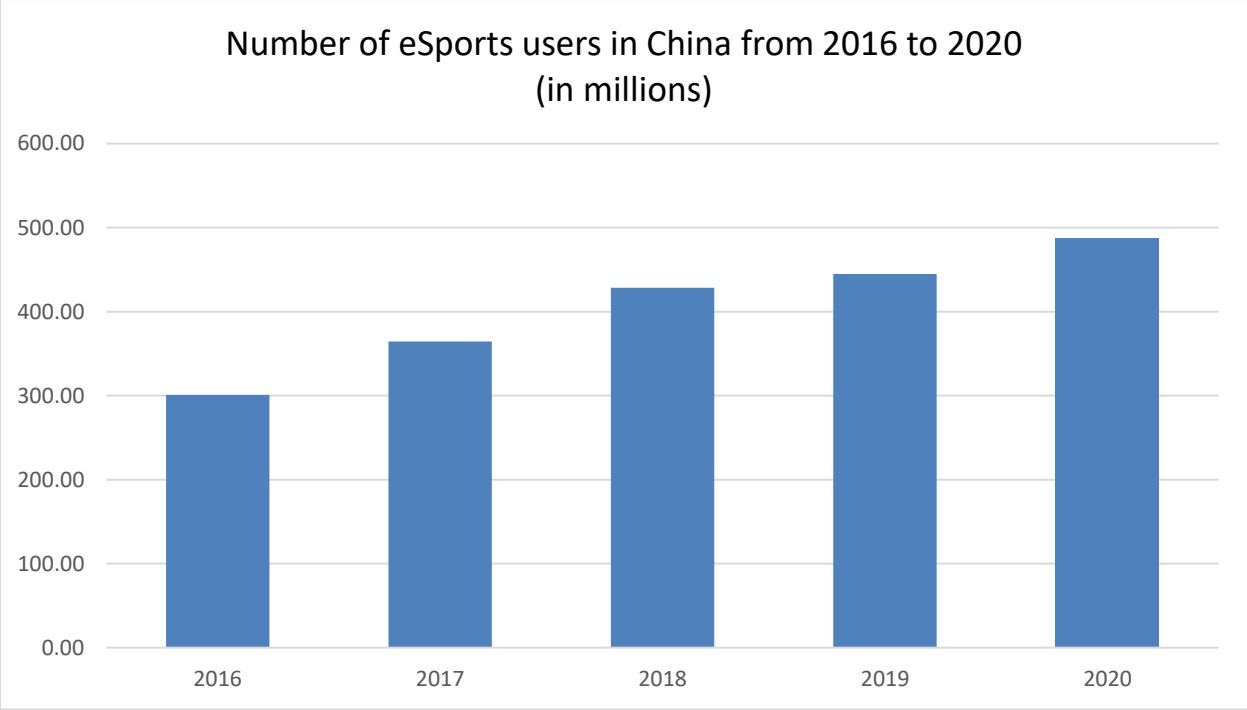


Figure 8: Number of eSports users in China from 2016 to 2020 (iResearch, 2020b)

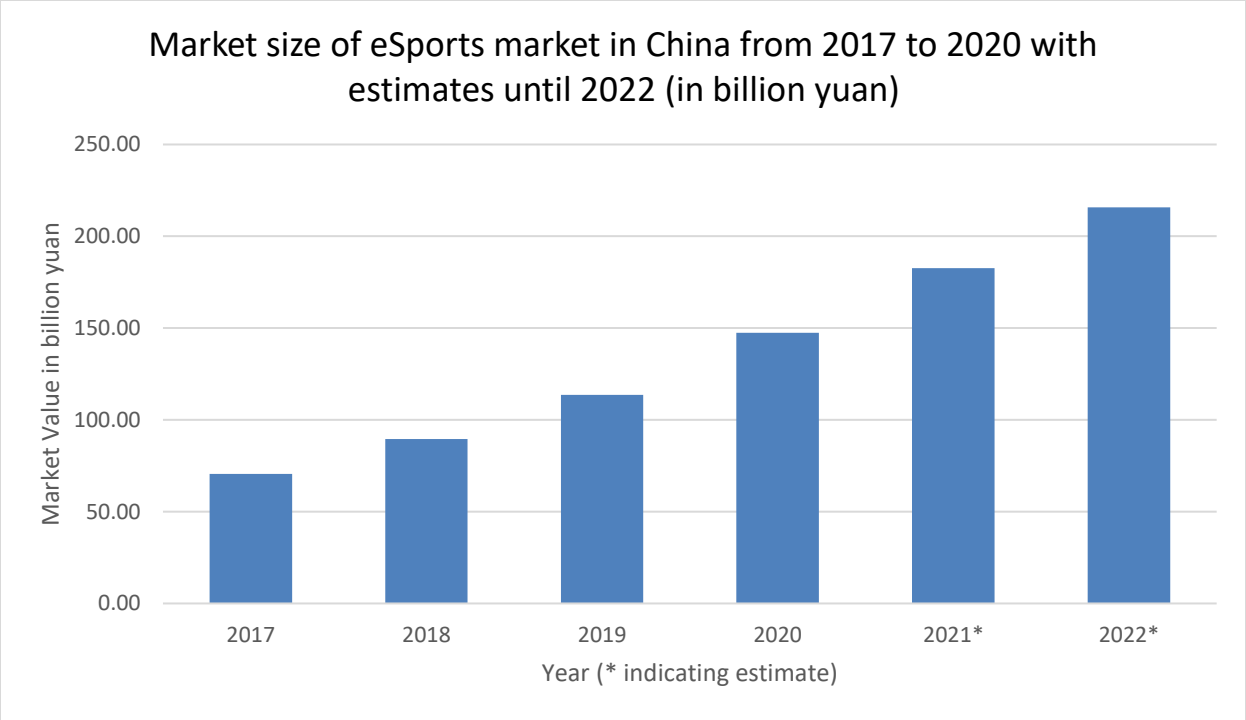


Figure 9: Market size of eSports market in China from 2017 to 2020 with estimates until 2022 (iResearch, 2021b)

Following that, esports as an industry has exploded in popularity in the past few years. In Figure 9, we can see that in 2017 the market value of esports in China was estimated to be at 70.61 billion yuan whereas in 2020 it was 147.4 billion yuan with some estimates of 2022 placing it at 215.7 billion yuan. Specifically, we can see that in Figure 8 how esports has been steadily growing in China in recent years. In 2020 there were a total of 487.89 million esports users in China. In Figure 10, we can see how much time people who watched esports spent each month. During the League of Legends World Final in 2021 Riot Games registered 73.86 million peak concurrent viewers and the stream had an average of 30.6 million viewers a minute, totaling 1.08 billion hours watched (Riot Games, 2021). The majority of those viewers were Chinese, with English speaking streams and twitch streams totaling a peak viewership of 4,018,728 (escharts.com, 2021). It is obvious that esports played a large part in the growth of online competitive games. Even with the restrictions placed on younger age groups targeting time spent playing video games, esports still grew more popular.

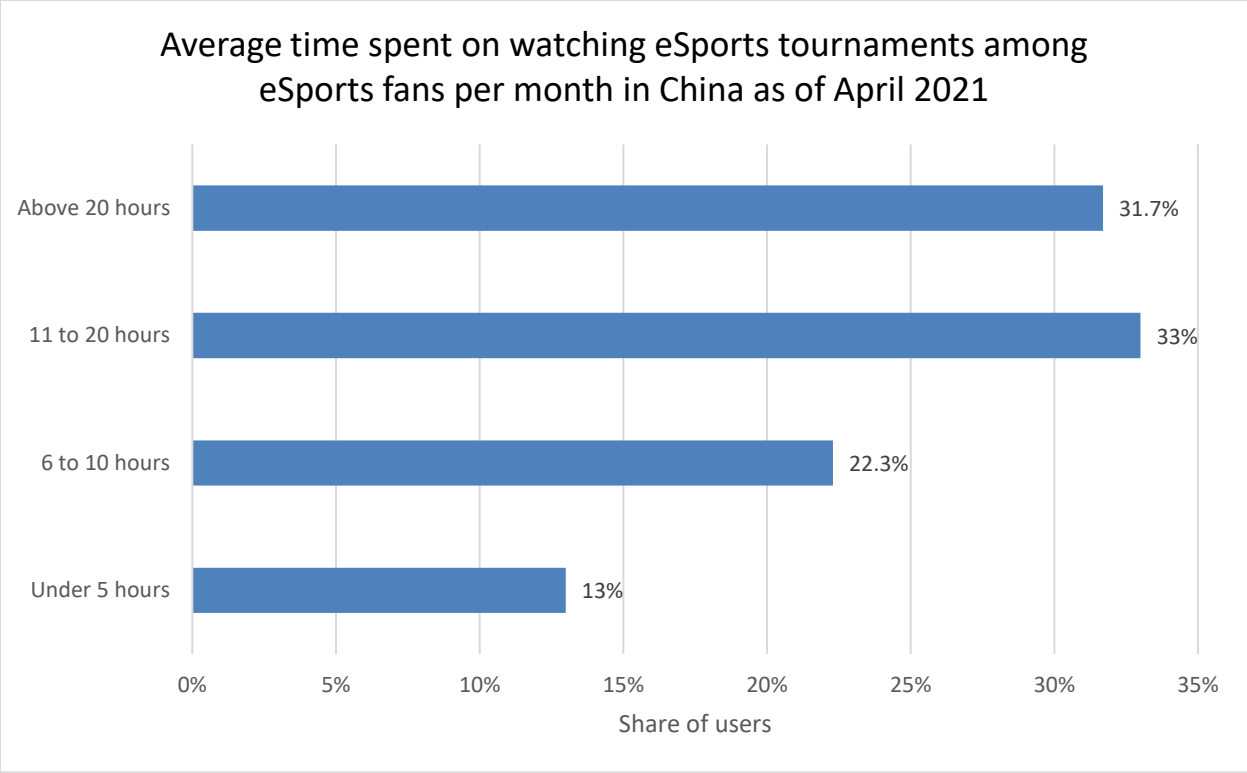


Figure 10: Average time spent on watching eSports tournaments among eSports fans per month in China as of April 2021 (2021c, August)

It is acknowledged that China has a huge market for PC and mobile games. In 2021, the approximate number of mobile game players in China was 655.8 million and the number of Chinese video game players was around 666 million(Statista, 2021). Among these players, the portion of underage players was not small. According to Reuters, 62.5% of Chinese minors (<18 years old) played games online, and 13.2% of underage mobile game users spent more than two hours playing games on workdays. (China Briefing, 2021). As a result, video games have become regarded as “spiritual opium” (South China Morning Post, 2021). As a result, the Chinese government enacted regulations on games to curb excessive usage. On August 30, 2021, the Chinese government introduced a new law restricting players under the age of 18. These young gamers were only allowed to play video games during public holidays, Fridays, Saturdays,

and Sunday evenings from 8pm to 9pm (China Briefing, 2021). These regulations have loosened , but these kids still attempted to find ways of avoiding the remaining restrictions on gaming. Some kids used their parents' IDs or passports to create accounts that they used to avoid these restrictions. Some of them instead prioritized playing short games. This allowed them to circumvent the restrictions (South China Morning Post, 2021) Also, President Xi Jinping stated that games and other “dirty things online” could negatively affect minors because they are not psychologically mature (South China Morning Post, 2021). Besides the restriction on play time, China also restricted the amount of money spent on video games. Starting in 2019, players between the ages of 8 and 16 were only allowed to spend up to 200 yuan per month on games and those between 16 and 18 years old were only allowed to spend 400 yuan per month (South China Morning Post, 2021).

Previous Research

There were many viewpoints on the gaming culture in China, and there were many sides to the argument of being for or against video games. The first stakeholder for video games in China was the government. As stated previously, there were many policies on video games enforced by the Chinese government which were covered in the previous section. One of the main reasons why the government wanted to have a large part in the control of video games, was due to the belief that the negative effects of video games will not only affect the individual, but the Chinese society. When looking at games that questioned many social norms, the Chinese media believed, “that such games contribute to the erosion of traditional morality” (Wallis, 2011). Other stakeholders included the Chinese youth and many Esports teams who competed for a livelihood. The Esports scene has grown so big that there were 3rd-party companies that looked to train and develop kids in order to seamlessly transition them into the

competitive scene (Yue et al., 2020). It is important to understand that any change that occurs to the usage of video games affects a number of different groups, and that this topic is a multi-dimensional issue.

Video games research was generally newer and was a field that still needs to be studied immensely. With that in mind, there were many holes in the subject of video game research and its motives. Most research only focused on the negative effects that video games have on youth, however, it would also be effective to look at potential benefits of video games in the development of younger people. There is much more that can be done with research and trials that can be done, and Granic et al. stated, “The extent to which adaptive emotion-regulation skills are learned through gaming remains speculative at this point, but testing these ideas seems like an exciting new area for future programs of research” (Granic et al., 2014). Given this, it was important to note that any research on the effects of video games in any setting gives us a greater understanding on the topic as a whole. The goal of this project was to help fill the gaps in past research and help bridge an understanding between certain groups on why video games were so popular and what role they played within the lives of university students. One main focus of this project was the generational gap within video games. Often video games were misunderstood within their purpose and the views between generations highlighted that fact. Research within the views and thoughts on video games between certain generations can help build an understanding between these groups. There was not much research into this divide and instead many studies focused only on the youth rather than the divide of understanding.

The majority of research on video games showed that video games can have a detrimental effect on mental health. One such example was a study that surveyed 646 adolescents and young adults who played World of Warcraft and found that those that played between 10 pm and 6 am had an increased risk of depression score (Lemola et al., 2011). Another study tested 9,421 adolescents over the course of 11 years and found that excessive gaming was correlated with increase in depressive symptoms (Mikuška & Vazsonyi, 2018). Similar to this study, there was a study of 1,047 Chinese adolescents that found that

internet gaming disorder can be used to predict depression symptoms (Li et al., 2021). There are many more studies with similar findings but like these studies, the findings targeted special scenarios involving gaming such as addictive levels of gaming or loss of sleep. There are many factors associated with video games, such as the type of game, time spent playing, or social environment, that must be considered before the debate on whether video games negatively impact the mental health of students can be concluded.

In addition to the large number of studies that showed the negative impacts of video games, there were studies that analyzed video gaming in a different setting that showed that there were positive impacts of video games. One study on 300 World of Warcraft players showed that players with a harmonious passion for the game, which was defined by "a balanced and authentic relationship with the beloved activity," was associated with increased bonding capital and improved wellbeing (Mandryk et al., 2020). Another study that surveyed players that played Plants VS Zombies and Animal Crossing found a positive relation between game play and wellbeing (Johannes et al., 2021).

In some extreme cases of video games negatively impacting the mental wellbeing of an individual, they may be diagnosed with internet gaming disorder. Despite some initial controversy over whether video gaming should even qualify as a disorder due to the unique conditions involved when compared to other existing entries, it has been recognized through the Chinese Internet Addiction Inventory (Huang et al., 2007) and the American Diagnostic and Statistical Manual of Mental Disorders (Petry et al., 2014). That being said, not all individuals are affected equally by internet gaming disorder and there are some pre-existing conditions which can make people more susceptible. A recent study surveying 23,533 adults found that "addictive social networking showed moderately high correlations with measures of ADHD (r=.41), anxiety (r=.34), and OCD (r=.33), respectively. Addictive video gaming overall showed the same correlational pattern with the different symptom scales, although the coefficients, except for depression, were somewhat lower" (Andreassen et al., 2016). The findings of the study showed that ADHD, sex, age,

depression, education, OCD, and anxiety can influence video game addiction in order of magnitude. Of the observed factors which may influence an individual's likelihood of being affected by internet gaming disorder, only anxiety and depression were not completely determined by unchangeable pre-existing circumstances. While the study concluded that an increase in anxiety would decrease internet gaming disorder, it seems unlikely that an IRB request to induce anxiety in college students would be approved. This leaves programs aimed at helping students with depression as one of the few steps a university may be able to take to actively prevent internet gaming disorder in students.

Conclusion

With our sponsor, the Beijing University of Chemical Technology, we examined the impacts video games can have on college students and focused on the various gaps in the research mentioned in the chapter. We focused on not only the impacts of extreme cases of video games, but also the larger population of students that casually played mobile games. The goal of our project was to help Chinese universities get a better understanding of video games in their student's lives and find ways to make video games positively contribute to college life in China.

Methods

Overview

The goal of our project was to understand the impact of video games on the social and academic life of college students in China. The results of the analysis of video games were used to advise the Beijing University of Chemical Technology (BUCT) on methods to integrate video games to positively contribute to college life. To achieve these goals, we had three main objectives. The first objective was to get an understanding of the video game environment and the importance of video games in college students' lives. The second objective was to understand the various views on video games from key stakeholders. The final objective was to develop advice on how to integrate video games in a positive manner. This chapter describes the various methods we used to achieve our three objectives.

Impacts

To obtain an understanding of the video game setting and their importance, we mainly utilized surveys and interviews with BUCT students. Our survey consists of three main sections, demographics, current habits, and impacts. The first section allowed us to get essential information such as gender, age, and major from our respondents. The current habits section focused on the interactions with gaming with questions such as " How much time do you spend on video games per week?" or "Which genres of video games do you generally play?" These questions gave us an understanding of the video game environment of our respondents and allowed us to analyze the impact of various specific gaming settings and not just the overall impact of video games. The final section of the survey was where the data on the impacts of video games was gathered. The survey was distributed to BUCT students via WeChat so that it was easily

accessible to the students and formatted using So Jump. We ended up receiving 169 surveys responses and 6 interviews with students. With these results, we analyzed the survey responses with Tableau and found common themes from the student interviews.

Perspectives

Our second objective was to understand the potential generational gap in video games between the students and faculty members. To achieve this goal, we made use of interviews to learn more about the different perspectives on video games by interviewing 6 students and 7 faculties at BUCT. Interviews were conducted in a more casual manner than a formal discussion to allow the interviewee to spend more time on the areas they felt were important. The casual style of interview helped us gain a better understanding of the interviewee's true beliefs on video games, rather than receiving responses limited to our specific questions. Depending on if we were interviewing students or professors, our questions varied slightly to accommodate their perspectives. We acknowledged that opinions between students and faculty on video games may be unaligned at BUCT. As a result, we believe it is worth listening to their initial opinions about video games. We asked questions such as "What's your opinion about video games in general? What about other types of games like mobile games?" at the beginning. And then the interview could be more casual following up on their response. The following questions were based on the conversation between the interviewer and the interviewee. For example, if a student has a negative view of video games, the interviewer can ask questions such as "What makes you think so?" or "Did you get some negative impact from it?". Using the semi-structured interview enabled the interviewees to express their perspective toward video games in a more relaxing, less rigid environment. To prevent the interview from going too far off topic, we created an interview guideline document to help guide the interview to collect information relevant to our objectives.

After collecting our data, we used several methods to analyze and gain insights from the recorded transcripts. Our interview review process was inspired by popular analysis techniques briefly touched upon within the IQP preparation course such as Krueger's widely cited framework analysis. "The five key stages outlined are: familiarization; identifying a thematic framework; indexing; charting; mapping and interpretation. The other distinctive aspect of framework analysis is that although it uses a thematic approach, it allows themes to develop both from the research questions and from the narratives of research participants" (Rabiee, 2004). In this spirit, our analysis was roughly broken up into creating an overview of frequent topics via word clouds, manually breaking each transcript into its core themes, grouping themes into relevant sections, reviewing the thematic overlap between interviews, and reaching conclusions based on our findings. To begin our analysis, we decided to experiment with generating a word cloud for each of the collected transcripts using various online tools. "While preserving the anonymity of the subjects, they show immediately what common themes and phrases appear in the text, providing an excellent starting point for analysis and coding of qualitative data" (DePaolo & Wilkinson, 2014). While not a substitute for detailed thematic analysis, this helped to give us an initial unbiased overview of topics touched on during interviews. This was useful for highlighting recurring topics such as mental health. Since it was free from context, it did not give us a complete view of the interviewee's perspective. We then went through each interview to understand the context behind key topics within each interview. For example, in the case of mental health, we found that it would be brought up as a recurring theme but changing between positive and negative connotations based on the point at hand. We then spent time going through each interview and wrote down a broader list of themes and topics the interviewee focused on or felt were important guided by the insights we had previously gained. Using those lists we were then able to compare themes between interviews to gain a broader understanding of how our interviewees felt. From there we could then begin to reach conclusions on the interviews and

pick out key testimonials and anecdotes which were supported by our thematic analysis to use in the writeup of our analysis.

Integration

Our final objective was to develop advice for BUCT on how to incorporate video games into the student's lives in a positive manner. To accomplish this objective, we utilize all the findings from the other two objectives along with additional interview questions for both students and faculties on their opinions on ways video games are beneficial and how to utilize video games in college life.

Data Analysis

Survey Data

For the survey data, our main goal was to understand the various impacts of video games. With the demographic data, we determined the various key stakeholders that are impacted by video games. By utilizing the gender and major information of the respondents, we can determine whether these factors are correlated with video game usage. In addition to analyzing the impacts based on demographic information, we draw conclusions on the positive and negative impacts of video games based on their gaming habits.

In our survey we gained 169 responses, The gender breakdown can be seen in Figure 12. It contained slightly more male than females. Additionally, in Figure 11 we see the areas of study the survey respondents come from. Over half of respondents were from the School of Economics and Management,

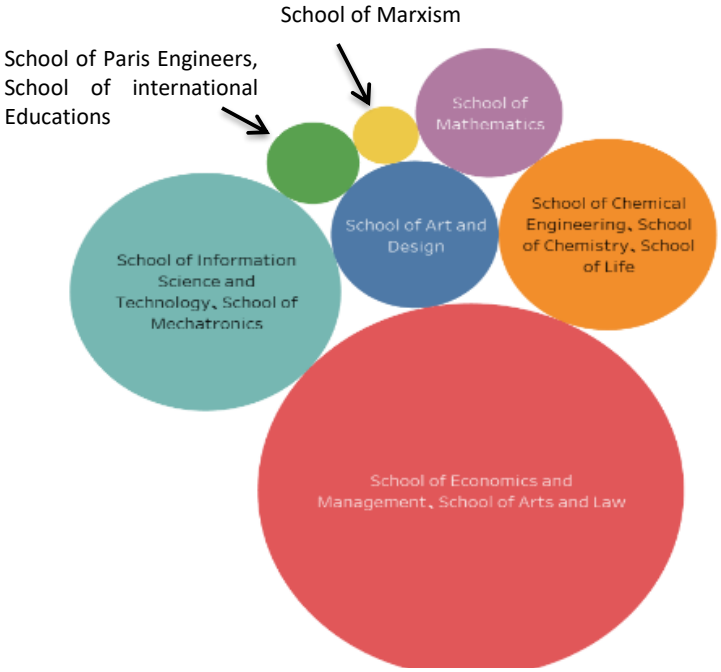


Figure 11: From which area of study

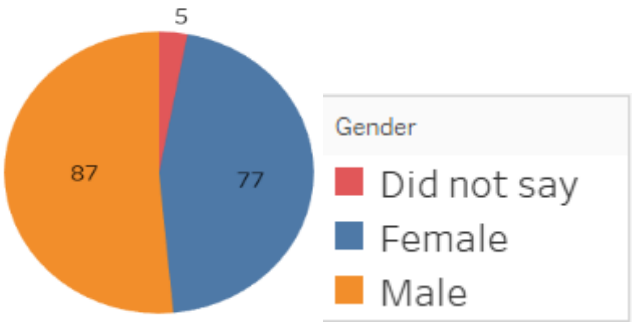


Figure 12: Number of respondents based on gender

School of arts and Law. The last demographic information was age. Of our respondents, 87.6% were between the ages of 18-24.

The first thing we investigated was understanding why college students play video games. As we can see in Figure 13, daily entertainment and relaxation/stress relief were the primary drives behind video game usage. The data also does not show a meaningful difference between the genders for why they played video games. Looking at the types of games played in Figure 15, we see that team-oriented games such as MOBA's and shooters were the two most popular. Like Figure 13, gender does not seem to play a large role in the types of games played.

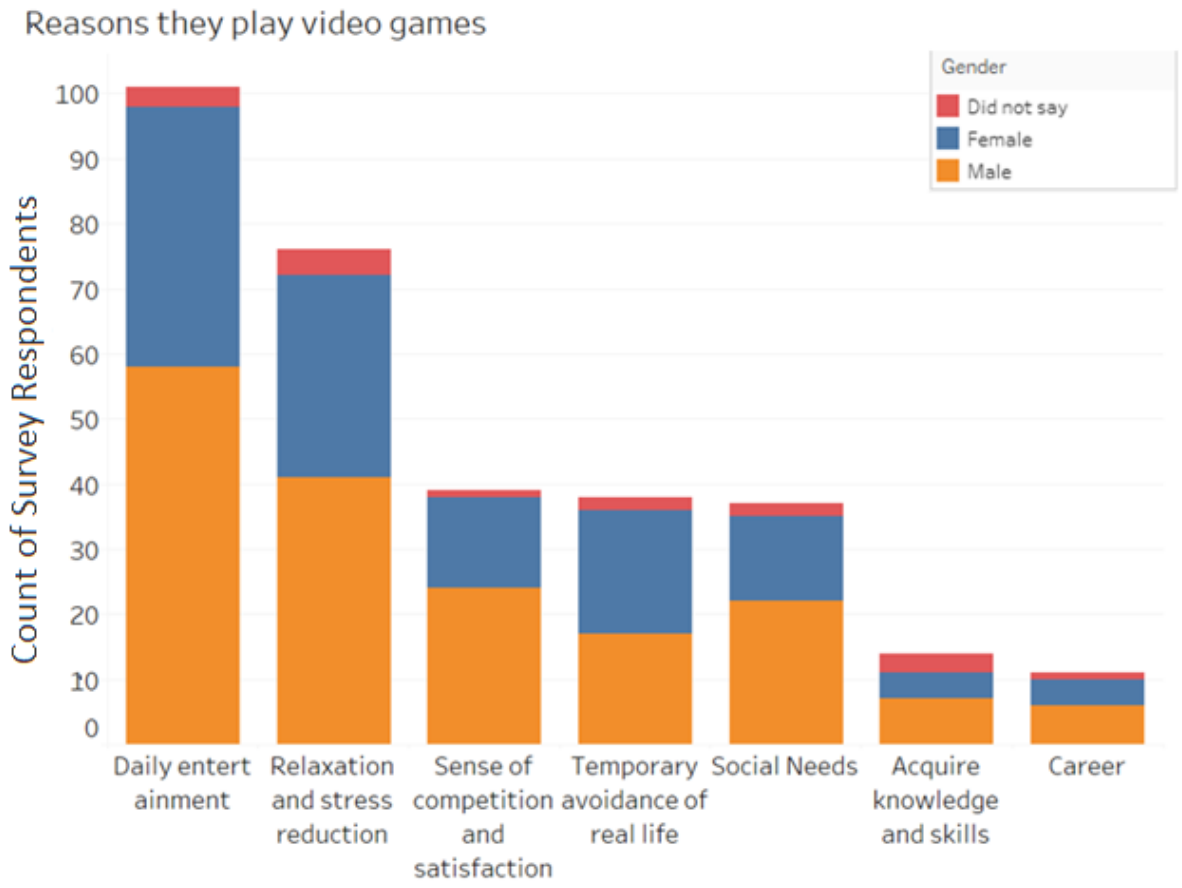


Figure 13: Reasons they play video games

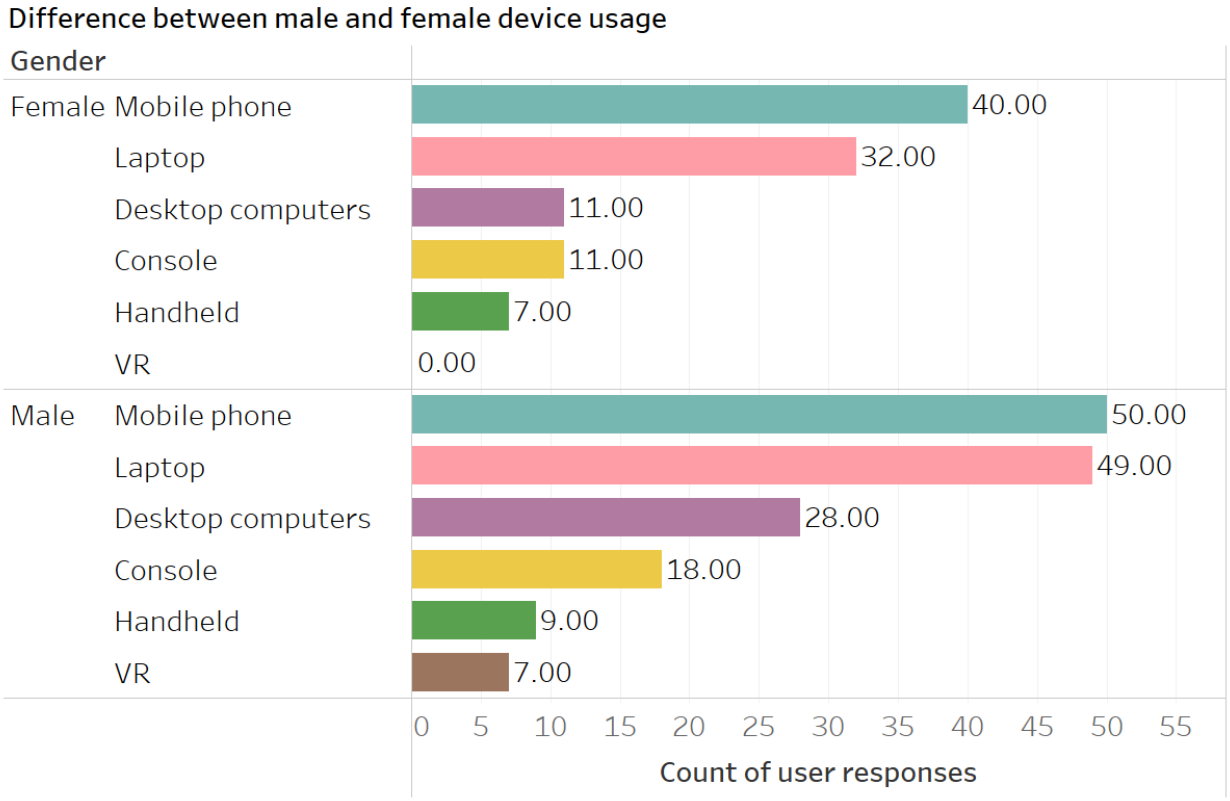


Figure 14: Difference between male and female device usage

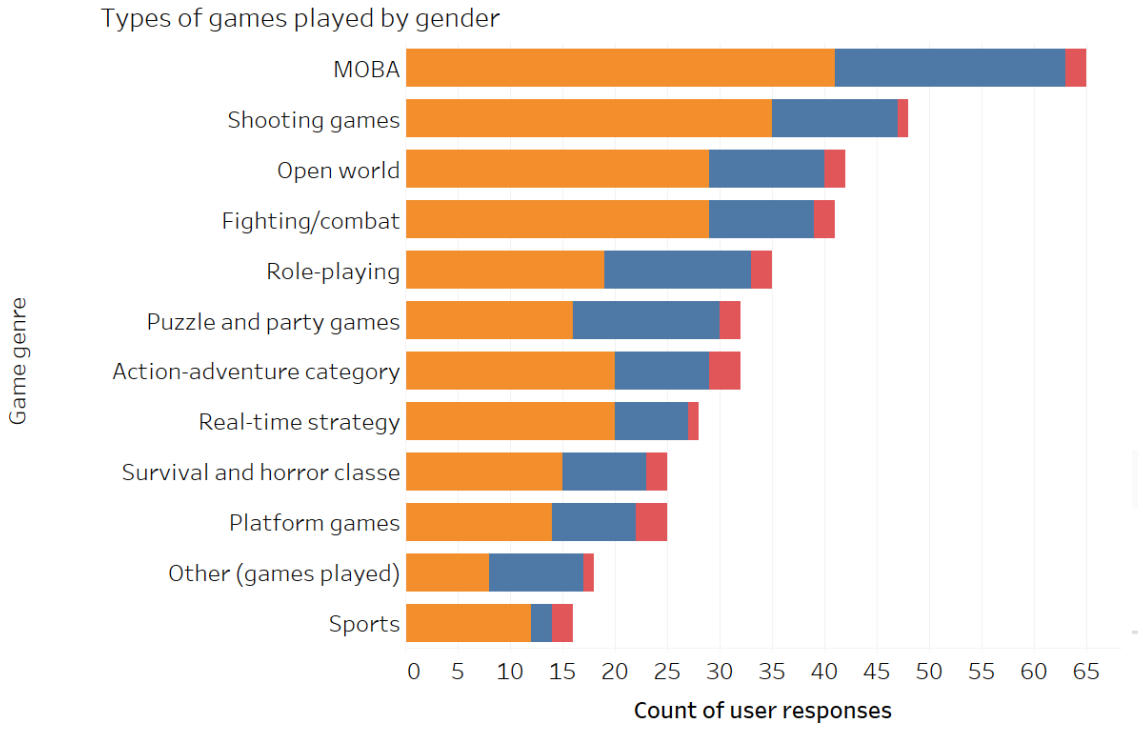


Figure 15: Types of genres students play by gender

Students had quite a few options when it comes to how they play games. In Figure 14, we can see a difference between the genders. Male students were much more likely to use personal computers to play games compared to female students. In addition, we noticed that there were no female respondents that used VR headset to play video games while there were 7 male individuals who reported that they used VR headsets.

Another goal of this project was to investigate generational difference. In the survey, we asked people to indicate if they play video games themselves. In another question we asked for was their perception on how their elders viewed video games. As we see in Figure 16, most said their elders had either a negative or neutral attitude towards video games. However, we can see that those who did not play video games said their elders have a much stronger opposition towards video games than those who did play. Additionally, those who did not play had zero positive position while whose who played have some advocacy.

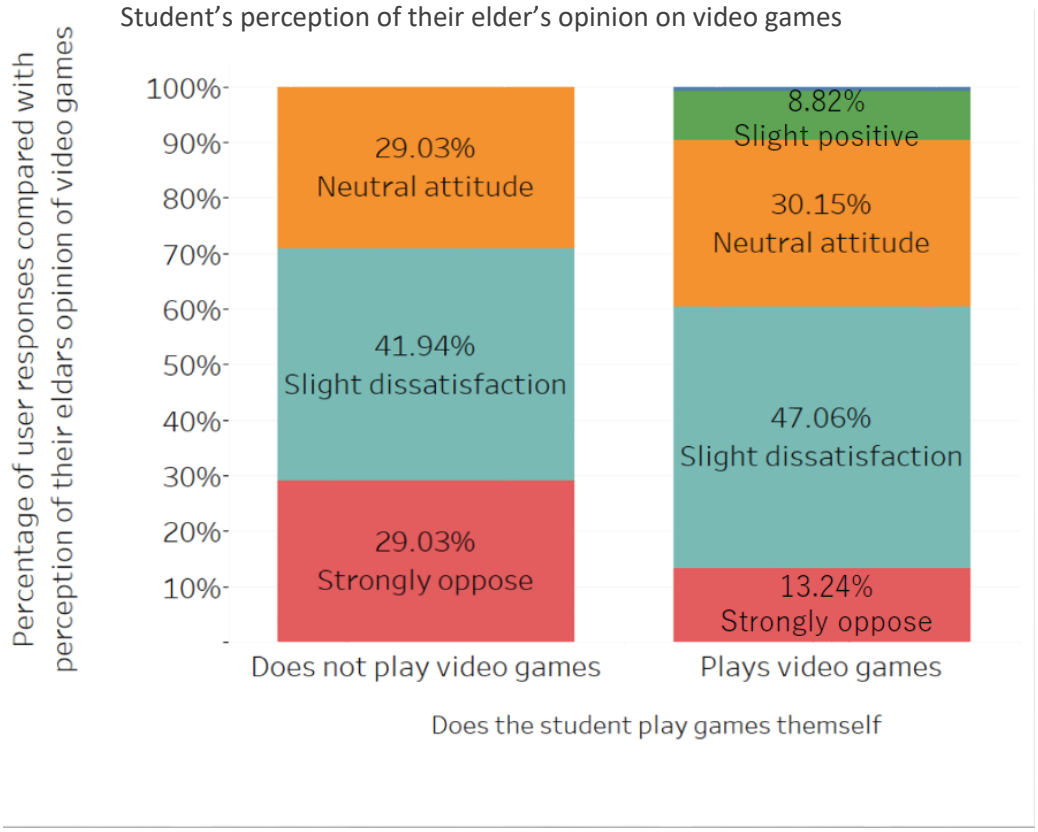


Figure 16: Perceived elders' opinion

Most respondents were between the ages of 18-24 with the rest being between ages 25-31. This age difference is not large, but we can still see big differences in the data. In Figure 17, we can see that the older ages group has a vastly larger negative opinion than that of younger students, with 38.4% of the older generation believing that video games had a negative effect on mental health compared to only 6.78% of the 18-24 age group. Despite this, the most common responses from both age groups still believed that video games have a positive effect on mental health.

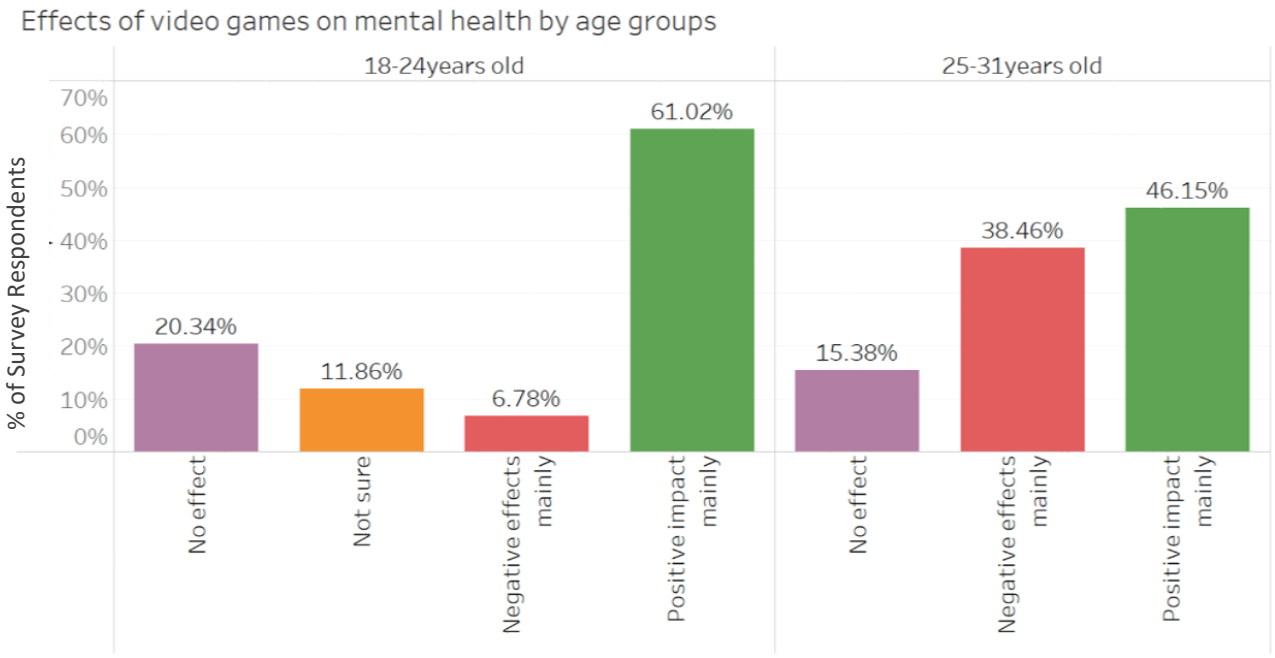


Figure 17: Effects of video games on mental health

When we discussed the most popular types of games, team-oriented ones were the most popular. When we compared that with how often students play with friends and their perception of its effects on mental health, we found some interesting results. In Figure 18, we asked people to describe how often they play with friends. 0% indicates they never played with friends while 100% indicates they only played with friends. We can see that students who only played with friends are much more likely to describe video games as having a positive impact where those who only partly played with friends or never played describe it more evenly.

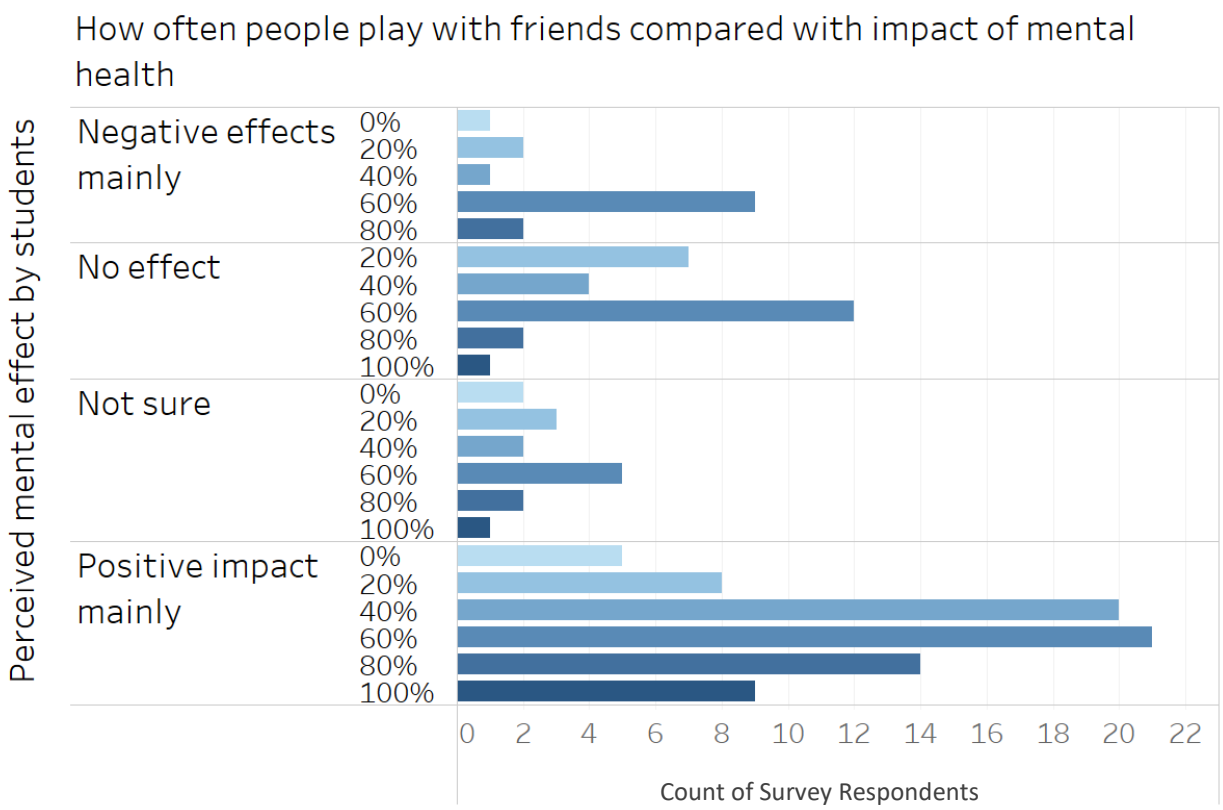


Figure 18: Impact of mental health compared against how often they play with friends

In addition to the impact of video games on mental health, we also explored the impact of video games with social engagement and academic performance. In **Error! Reference source not found.**, we found that most students believed that video games had a positive or neutral effect on their social life. Additionally, the students that tended to play with friends more often were more likely to say there was a positive impact as shown by Figure 20. The number of positive responses for impact of social interaction increased as the percentage of time spent playing video games increased.

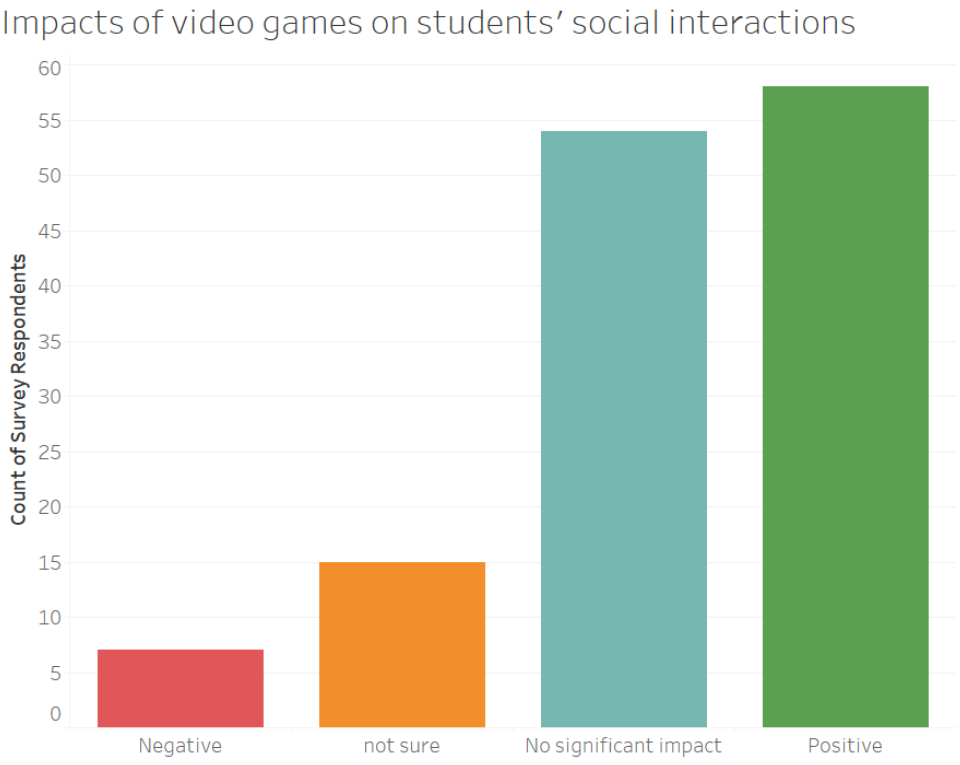


Figure 19: Impacts of video games on students' social interactions

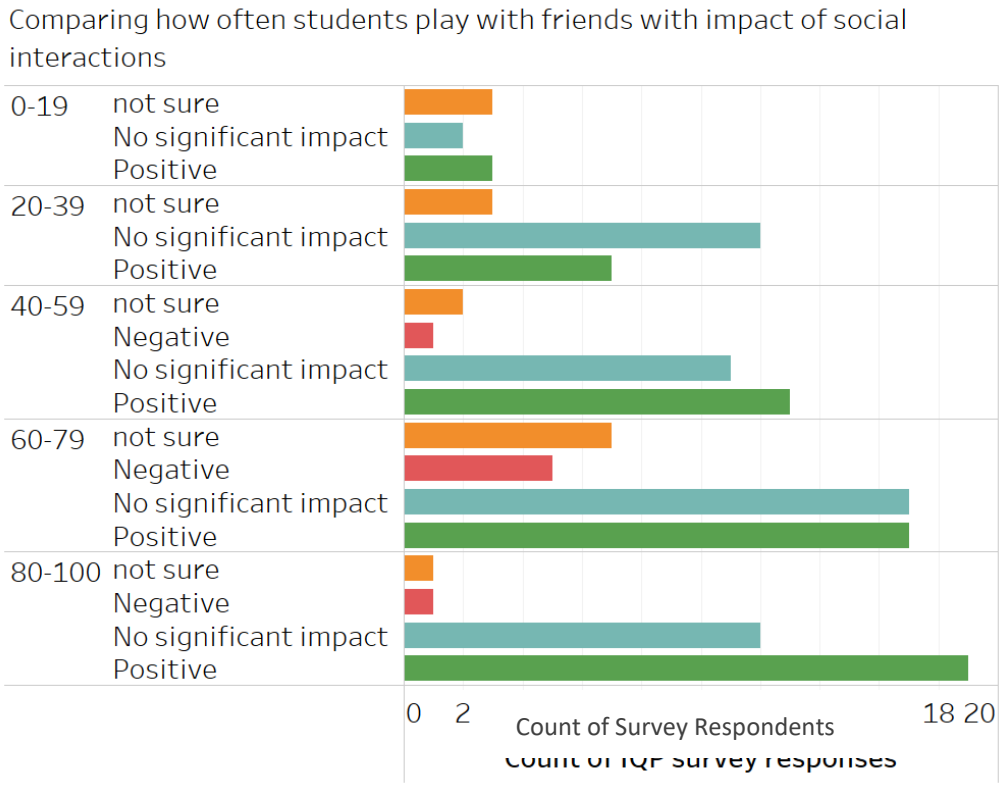


Figure 20: Comparing how often students play with friends impact of social interactions

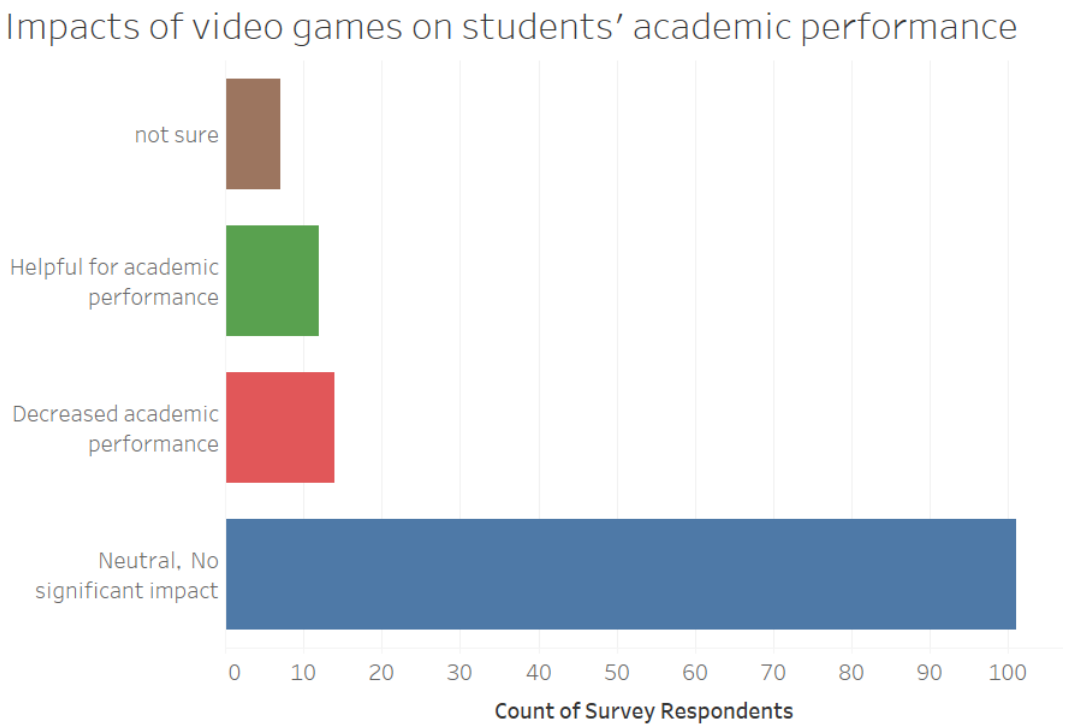


Figure 21: Students' perceived impact on academic performance caused by video games

On the other hand, we found from Figure 21 that most students believed their academic performance was not affected by their video game usage, with only 14 students believing that it had a helpful impact. Upon further analysis, we found that there was a common trend for the students who believed video games improved their school life as you can see in Figure 22 and Figure 23. In Figure 22, 20% of the students who played PC games or console games 2 to 3 times per week responded positively compared to the other columns that had a much lower percentage. Figure 23 also shows a similar conclusion. The students who played mobile games 4-10 times every day were much more likely to believe

that video games are advantageous for academic performance. These two figures highlighted the importance of video games in moderation.

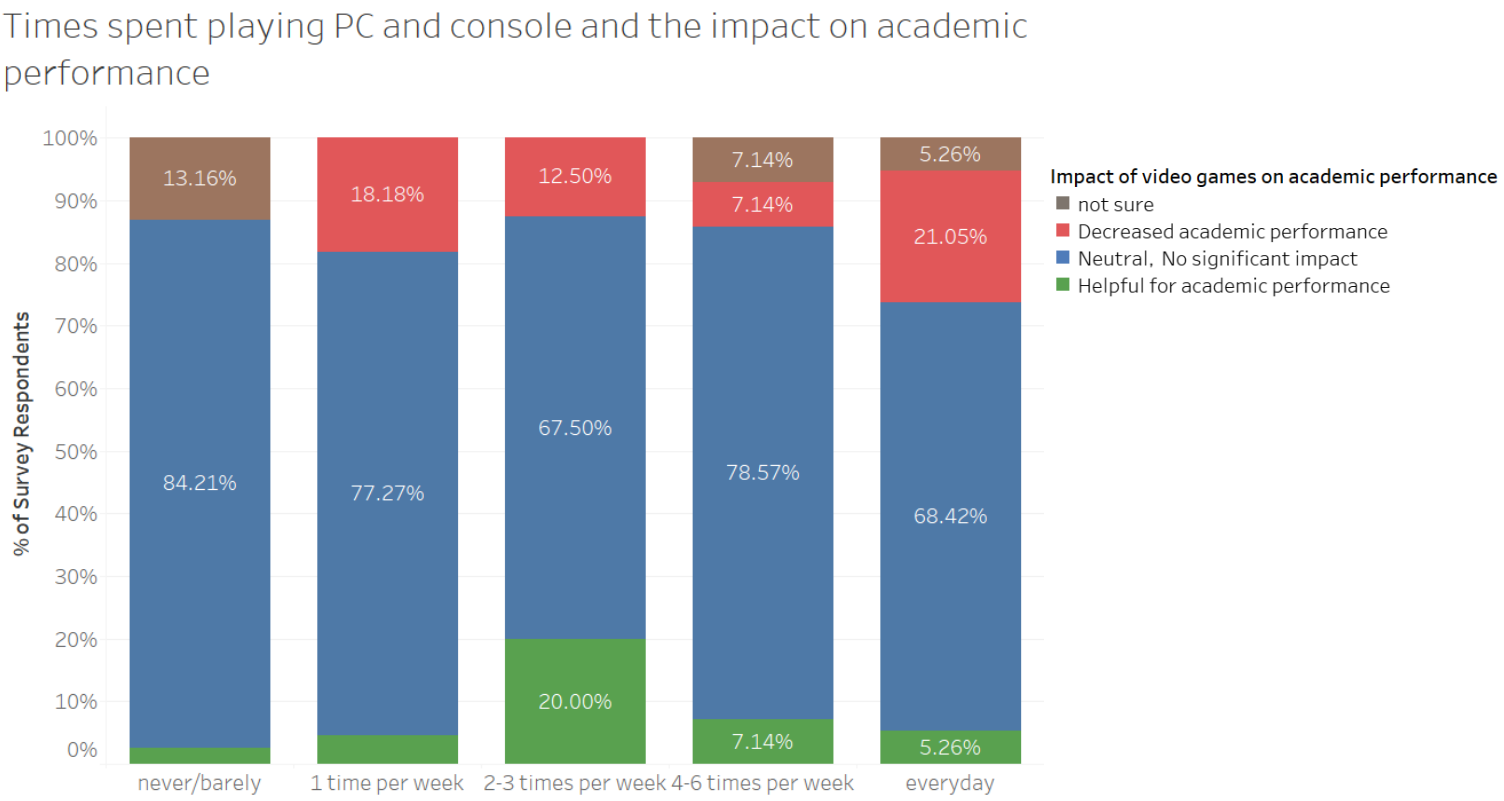


Figure 22: Time spent playing PC and console games and the perceived impact on academics

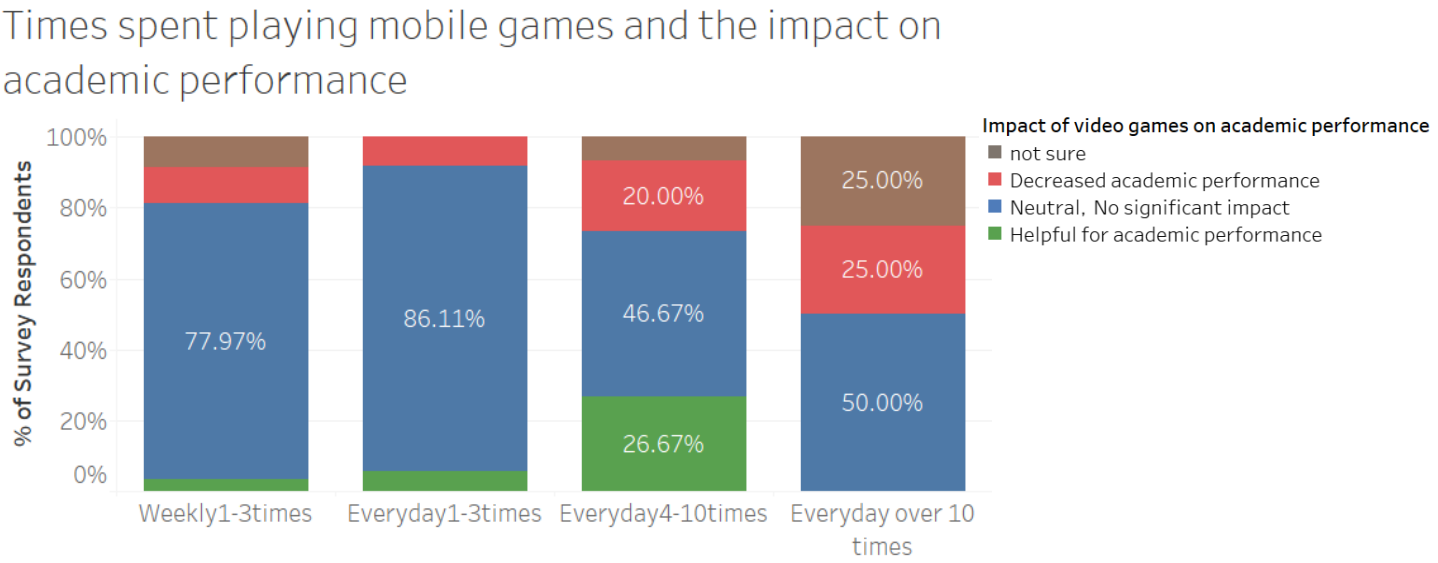


Figure 23: Time spent playing mobile games and the perceived impact on academics

Another goal of this project was how video games could be used on campus as a way to promote social engagement. Since we just saw above that student who played with friends described video games as being beneficial on mental health, this became a more intriguing idea. To gage the interest of students, we asked them for their opinion of events such as e-sports tournaments for college students. Figure 24 shows the results from this survey question. More students thought there were more pros than cons, but the largest portion was made up of students who are unsure if it would be beneficial.

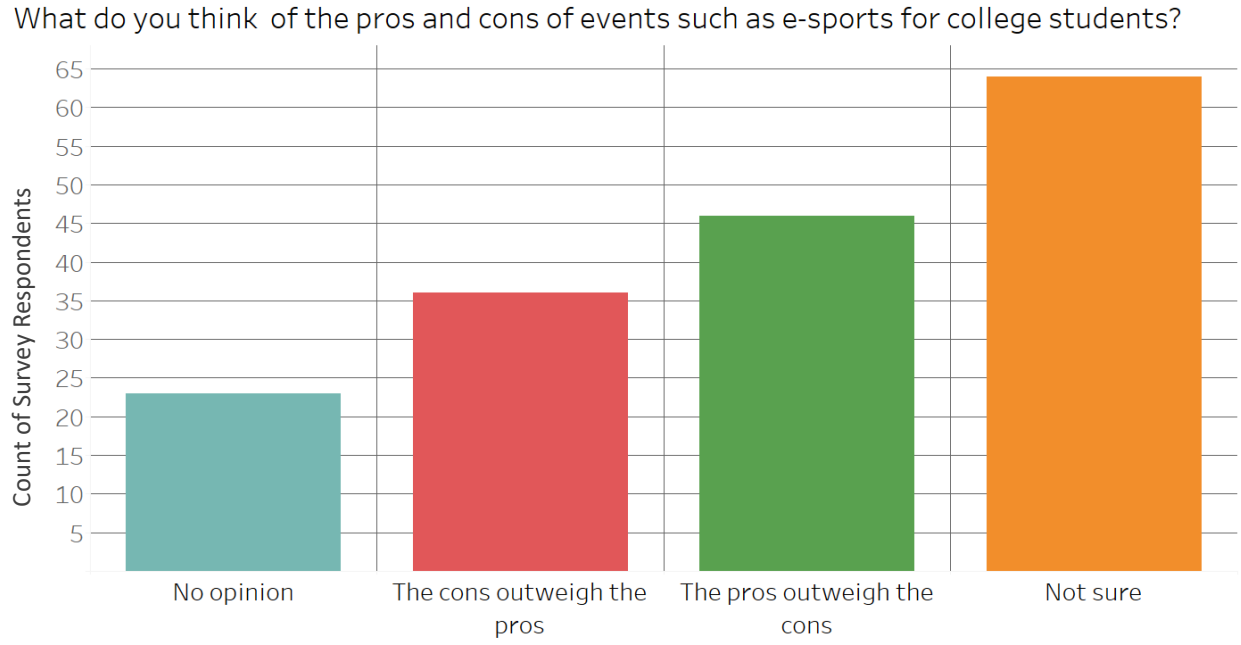


Figure 24: Interest of video game events on campus

With the data collected from our surveys focusing on generational gap has become a clear goal which we can pursue in the future. Using video games as a tool for social engagement is still unclear. There is interest in events but a lot of uncertainty about pros and cons. Holding such events could be a way to gage interest in students as well as gain a more concrete opinion on the outlook of such events.

Interviews

The interviews were collected by interviewing students and faculty separately with different questions. For the student interviews many responses showed a positive response to video games. Most students believed that video games were a great way to relieve stress from their studies, however most also cautioned that they believed that video games can lead to unhealthy habits.

Each student also reported that they generally play video games each day in their free time. This is due to multiple factors ranging from wanting to take their minds off schoolwork to just having nothing else to do. Students reported that they believed playing games in their free time helped relieve stress and was a way to connect with classmates. When asked about students playing video games during instructional time, there were mixed responses. Some reported that they frequently saw people play video games during class time, while other said that they rarely saw it. Another difference that was noted is that most students believe that gender plays a large role in what games and motives students had for playing video games. In general, it was noted that men play more PC and console games that are highly competitive, while women played more casual and relaxing games.

Another interesting point that was conveyed from the interviewees is that each student reported that their elders did not interact with video games in any way. Some even reported that their elders did not support their own video game usage. This contrasts from what the faculty reported.

Many faculty members believed that video games have a role in college students' life and even stated that they supported students playing video games as a way to relief stress. These thoughts fall in line with what many students believed. The main difference between students' and faculty's thoughts on video games was that most faculty reported not playing video games regularly while all students who were interviewed reported playing daily. Many of the faculty said that they played video games while in college and used that to relax from their studies. However, it was quite clear from these professors'

responses that the games they played during their college life were very different from the games that are played today. One professor even stated, “The games we played you may have never heard of, like minesweeper, single card game and Tetris these small games instead of large games with big scenery and people even have to spend money to buy equipment. Those games I played in the past didn’t need a long time to play one round” (Bao, personal communication, June 13, 2022). This leads to believe that the generational gap between students and their elders is not why students play video games, but what types of games are played instead.

Video games have evolved immensely in the past two decades, and with the development of better graphics and gameplay also created the effect of how to get more people to play video games for longer. When many faculty played video games, they were designed for the sole purpose of entertainment. Now the video game market is engineered to try to keep people playing video games for longer periods of time. Another professor made the following statement on video game developers, “[Game Developers] have learned how to design games that will keep you interested, addicted, or make you spend for the game” (Li, personal communication, June 14, 2022). Many professors, like the students, believed that video games can help relieve stress, but video games are also very tempting to lead to addiction.

When asked about seeing students playing video games during instructional time, most professors said that they sometimes saw it and it usually was not a problem. They said that if they did notice any mobile games affecting class then they would communicate with their students in order to stop. Overall, there was a general consensus that playing video games during class is not a big problem within the university.

From these interviews, it is clear that students enjoyed playing video games and they firmly believed it should be a part of their college life. Students believed that playing frequently outside of class

is perfectly fine and helps them relax and connect. However, one concern that was taken from these interviews is that the students believed that their elders do not share the same ideas. Whereas in the faculty interviews it is clear that the professors were fairly positive to video game usage. This could mean that the generational gap for video games is more prevalent in parent and child relationships rather than teacher and student dynamics. Overall, the general conclusion that can be drawn from both the student and faculty interviews is that video game usage is not inherently negative for college students and that it only becomes a problem when it consumes too much time. Professors believe that this happens because video games are being designed to be more addictive and are easy to access while students believed the overuse of video games occurs if there is a lack of time management skills. It is clear that this is a concern from both groups and that there should be more resources to help prevent video game addiction.

Recommendations and Conclusions

Through the surveys and interviews we conducted, we time and time again see generational gap on how people perceive and interact with video games. An overwhelming share of students favorably viewed video games. While we were unable to get a significant sample size of professors to make an accurate comparison, there was a significant belief by students that their elders either had a neutral or negative interpretation on video games. Surprisingly though, this was not completely consistent with what we heard from professors with most having either a neutral or positive overall impression. Since we were unable to achieve a statistically significant portion of the faculty, we are unable to confirm whether this is representative of an underlying trend or a result of a survivor bias when asking for participants. As discussed in previous sections, this misalignment in views is likely a confirmation bias from kids being chastised by elders for excessive video game usage while growing up. However as young adults, excessive usage is less of an issue due to more responsible self-moderation and limited free time due to their studies and work. Before we can address any problems and potential benefits of games, we first need to reach a mutual understanding of the situation by both faculty and students. Luckily, if this issue was simply a difference in generational impression of a new technology, then it should only last for a couple more decades as today's youths who grew up with games continue to enter the workforce. However, if we are correct in thinking that the issue largely stems from a confirmation bias by children, then this may be a continual problem that must be corrected for long after our current generation. It should still somewhat improve as time goes on, but progress may be slowed without additional intervention. To address a difference in view point we can increase the visibility of healthy on-campus video game usage and remove points of friction relating to video games between students and faculty. Figure 25 shows the three objectives that we were most interested in throughout the process of learning how video games play a part in college students' life in China. The second layer

states the problems we researched. The third layer shows the compressed conclusions that we came too. The last layer represents our recommendations on how to address the associated problems. In the remainder of this section, we will go into more detail about each of our recommendations.

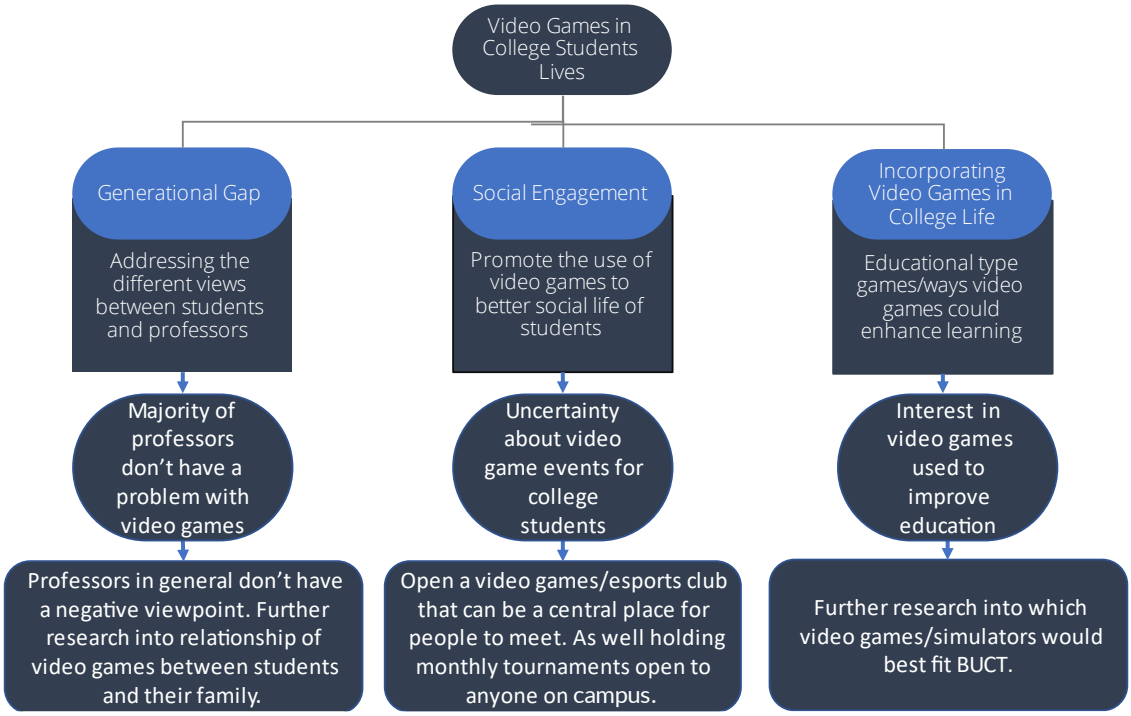


Figure 25: Addressing problem to conclusion to recommendation

One discovery that was found within the study was that most professors did not have a negative view on video game usage in college. In fact, 6 out of the 7 professors that were interviewed stated that they played video games during college or currently play. Within the data collected from students it was assumed that professors would have a negative outlook on video games. Because most students reported that their elders had negative views towards video game usage, this most likely means parents specifically. Our recommendation is to further research upon the dynamic of college students and their parents. This could give better insight to the generational gap, rather than what this study found in professors' views. The current research around parents' views on video games show that "more than 50% of parents

believed that their children's studies were negatively affected by gaming" (Lu, 2016). Studying the views of parents could give more insight on the behaviors of students and their relationships to gaming. Since many professors are only interacting with students for a small portion of the day, it would be interesting to see the views of people who are more likely to be involved in the student's daily life.

Another recommendation is to promote healthy video game usage on campus using clubs and student activities. Creating university driven clubs for specific games or game genres are a great way to help students outside the classroom. This is increasingly helpful since there has been some studies which have found that students are having a harder time making new friends when first entering university. This is increasingly true due to the difficulty of socializing imposed by remote learning during stay-at-home orders due to the ongoing Covid-19 pandemic.

The last recommendation is centered around using video games to improve higher education. Students believed that video games could benefit higher education. This is not a new concept. Educational video games have gained traction for teaching children skills such as math and language. This could also be extended for higher education. For instance, there was a study where they used a card style game to teach computer graphics concepts (González-Campos et al., 2021). This study was still ongoing but is a good insight into how video games could be used for higher education. Another interesting study was using a video game engine unity to create a virtual reality application for students to learn how to use a milling machine during online learning (Pavon Sanchez et al., 2021). Lastly is this study on using video games to improve note taking skills of higher education students (Deniozou et al., 2020). There are many more examples like these that show how video games or video game engines can be used to benefit teaching, especially in an online teaching environment. Simulations of real-world usages such as the milling machine application could be vital for students who need hands-on and visual learning. The development and testing of new games can be time consuming and expensive. Unfortunately, not all games will be equally effective or helpful so we believe it would be better to wait until this industry has

further developed and had a chance to be reviewed by others before buying into any systems. Or to do further research into what kinds of games could be the most beneficial in higher education.

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Appendices

Survey Questions

Demographics

1. What is your gender?
    a. Male
    b. Female
    c. Prefer not to say
2. What age are you?
    a. 18 or under
    b. 18 - 24
    c. 25 – 31
    d. 32 – 38
    e. 44 –50
    f. 50 or above
3. What best describes your situation?
    a. Undergraduate Student
    b. Graduate Student
    c. Professor
    d. Other (please specify)
4. What is your college?
    a. College of Chemical Engineering, School of Chemistry, College of Life Science and Technology, School of Material Science and Engineering
    b. College of Information science and Technology, School of Mechanical and Electrical Engineering
    c. School of Economics and Management, School of Humanities and Law
    d. School of Science
    e. Institute of International Education、Paris Curie Institute of Engineers
    f. Department of Art and Design
    g. College of Marxism

Current Habits

5. Do you usually play console games? (Full range of video games including handheld, PC and console)
    a. Yes
    b. No (*If the respondent selects this option, the questions that follow will not be displayed.)*
6. How do you usually interact with video games online? Select all that apply.
    a. Playing video games (Including devices such as PCs, mainframes and mobile phones)

   b. Talking/reading about games on social media (Including WeChat, QQ, 17371 platform, etc.)
   c. TV/Movies (Watch game promos, film series on Netflix, Tencent Video, iQIYI, YOUKU)
   d. Online Videos (YouTube, Bilibili)
   e. Watching Live Streams (DouYu TV, HuYa TV)
   f. Watching Esports (DouYu TV, HuYa TV)
   g. Reading Online Articles (Including electronic and paper-based ways)
7. How often do you play "short term games"? ("Short play" refers to games that take less than 10 minutes to play at a time)
   a. Never
   b. 1-3 times per week
   c. 1-3 times per day
   d. 4-10 times per day
   e. 10-25 times per day
   f. More than 25 times per day
8. How frequently do you play PC/Console games?
   a. Less/Never
   b. Once a week
   c. 2-3 times a week
   d. 4-6 times a week
   e. Daily
9. How often do you play short-term games? (Short-time games refer to games with a game time of less than 15 minutes, such as mobile games)
   a. Never
   b. 1to 3 times per week
   c. 1 to 3 times per day
   d. 4 to 10 times per day
   e. 10 to 25 times per day
   f. More than 25 times per day
10. What platforms do you play on (Choose all that apply)?
   a. Mobile/Tablet
   b. Desktop Computer
   c. Laptop
   d. Game Console (Ex: Xbox or PlayStation)
   e. Handheld
   f. Virtual Reality
   g. Other (Explain) ___
11. Which genres of video games do you generally play? Select all that apply:
   a. Open World/Sandbox
   b. Real-time strategy (RTS)
   c. Shooters (FPS and TPS)
   d. Fighting/Combat
   e. Multiplayer online battle arena (MOBA)
   f. Role-playing (RPG, ARPG, and More)
   g. Simulation and sports
   h. Puzzlers and party games
   i. Action-adventure
   j. Survival and horror

k. Platformer
l. Other: _____

12. When playing online games, how frequently do you play with friends?
    a. 10%
    b. 20%
    c. 30%
    d. 50%
    e. 75%
    f. 100%
13. How often do you see people playing games during class/instructional time?
    a. Rarely
    b. Once per instructional week
    c. Multiple times per week
    d. Once per instructional day
    e. Once a class period
    f. Multiple times per a class period
14. How much do you spend on games per year?
    a. 0-300 yuan
    b. 300-1000 yuan
    c. 1000-3000 yuan
    d. 3000-5000 yuan
    e. More than 5000 yuan

Impacts

15. Why do you play video games? Check all that apply
    a. Enjoyment
    b. Competition
    c. Socialising
    d. Escape from reality
    e. Education
    f. Career
    g. Relax/Destress
    h. Other (explain):
16. How do you feel video games impact your mental health?
    a. Positively
    b. Negatively
    c. Unaffected
    d. Unsure
17. How has video games affected your grades?
    a. Better
    b. Neutral
    c. Worse
    d. Unsure
18. How has video games affected your social life?
    a. Better
    b. Neutral
    c. Worse

    d. Unsure
19. What do you think of the impact of events such as e-sports on university students?
    a. The advantages outweigh the disadvantages
    b. The disadvantages outweigh the advantages
    c. Unsure
    d. No idea
20. What real life skills do you feel you have learned/improved by playing video games? Select all that applied.
    a. Talking with others
    b. Working with others
    c. Managing time
    d. Sharing responsibility with others
    e. Not giving up easily
    f. Others (please be specific)
21. How do you think video games have influenced your life on university campus?
    a. Tired and lack of sleep
    b. Improving decision-making and action
    c. Making more friends
    d. Spending too much money
    e. Maintaining a good life
    f. Other
22. Any additional feedback or questions for us? (optional)

Interview Questions

Professors

- What is your opinion on video games in general?
- Do you play video games in your free time?
- What impacts do you believe video games have on students?
    - How often do you see phones being used for gaming during instructional time?
        - How do you feel about this?
    - What are your opinions on games affecting coursework?
- What are your opinions of Impact on social interaction most students because of video games?
    - Notice differences between genders?
- Anything else you would like to add?
- Any questions for us?

Students

- What is your perception of video games?
- Do you play video games?
    - How frequently?

    - Why do you play the games you do?
    - Are there any specific games that you like to play? Why?
- How do you think it impacts your social life?
- How does it impact your personal life?
- Have you made any friends while playing video games?
    - Have you met any of these friends in real life?
- Do you think men and women have different preferences for games they play?
- How do your elders interact with video games?
- Do you think the development of the metaverse (video game in future) can help teaching and learning?
- Do you think teachers can improve the quality of teaching through some video games?
- How often do you see phones being used for gaming during instructional time?
- How do you think video games can be utilized to improve college life?
- Anything else you would like to add?
- Any questions for us?

Methodology: Participant Observation

We previously planned on performing participant observation as part of our project to see how games are used at home and in the classroom. Due to covid lockdown and remote learning we were largely unable to achieve the goals we set out in this area. If this project is continued, this is one area we could recommend addressing once the covid lockdown is lifted. For completeness this section has been moved to the appendix so it can be referenced even though it was not employed as a means of data collection in this project.

This method will allow our team to see how university students interact in a virtual setting. By observing how university students play video games, we can identify the positive ways students integrate video games in their lives and develop advice on how BUCT can utilize these methods. Being immersed in the video game groups will collect more subjective qualitative data, however, the team believes that this interaction will let us collect valuable information for this study. This approach will be conducted by asking to allow researchers to participate playing with the BUCT students on video games that they usually play. The games chosen were Arena of Valor and Counter-Strike: Global Offensive (CSGO). Arena of Valor is an extremely popular mobile game in China and CSGO is a common competitive first-person shooter game that is popular worldwide. Both of these games are good candidates to observe how Chinese students interact through video games.

Authorship

Caden Crist

- Paragraphs 1 and 2 of previous research in background chapter
- How to integrate video games section of methods chapter
- Paragraph 2 of introduction section
- Paragraphs 1-7 of interview section
- Paragraph 2 of recommendations and conclusions

Qihan He

- Paragraph 4 of current demographics in background chapter
- Perspectives on video games section of methods chapter
- Paragraph 4 of recommendations and conclusions
- Appendices

Jasper Meggitt

- Paragraph 5 of previous research in background chapter
- Misc grammar/flow revision of methods chapter
- Final revisions to proposal
- Paragraphs 1 and 3 of recommendations and conclusions
- Paragraph 2 of perspectives in methodology chapter
- Updates to appendix since proposal

Denver Blake

- Acknowledgement
- Paragraph 1 and 3 of introduction
- Overview section of background chapter
- Paragraph 1 of current demographics in background chapter
- Paragraphs 3 and 4 of previous research in background chapter
- Conclusion section of background chapter
- Overview section of methods chapter
- Impact of video games section of methods chapter
- Paragraph 1, 8, 9 of the survey section of data analysis chapter

- Creation of figures 19-23
- Edits to other figures
- Revisions

Alex Mitchell

- History section of background chapter
- Paragraphs 2 and 3 of current demographics in background chapter
- Revisions
- Bibliography
- Paragraphs 2, 3 of recommendations
- End of paragraph 1 of recommendations
- Creation of figures 1-18 and 24-25
- Small edits to other figures
- Parts of survey analysis referring/tying into figures