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Does gaming Addiction Affect Academic Performance in Students and Young Adults

An academic research paper for possible submission to Addictive Behaviours Reports

Submitted in partial requirements for the degree of MSc Computing

Date: 3rd September 2019

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Word Count: 8908

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Acknowledgement

I would like to thank the University of Teesside for expanding my academic knowledge on various key topics from the Undergraduate course of Information Technology to this current Masters course of Computing. I would also like to thank all of my tutors from the last 4 years of education at Teesside University especially Dave Eagle as my first reader of this research paper for the help he has provided and the laughs throughout the progress, I would also like to sincerely thank Jing Tang for being my second reader for this project and hope to get along during the Viva.

Abstract

This research paper is about carefully researching to correctly see if there is a correlation link between gaming addiction and academic performance, good or bad. Through this paper, there will be academic papers and news articles to explore the negative and positive sides of this issue. And to see if gaming addiction typically does or doesn't affect performance. All the progress that was done on this paper was produced with a hybrid methodology of Waterfall and Agile which allowed the author to make sure each section was done correctly and could go back to tweak the sections and paper once it has been completed. The end of the report shows that there is a correlation between game addiction and academic performance, and it has negative effects on students' performance on their results from exams based marking and or poor behaviour.

Key Words: Game Addiction, Gaming Addiction, Health, Academic Performance, School Performance, Addictive Behaviours, Students

1 Introduction

In this research paper there will be six sections which include the introduction which will have sub-sections, Literature Review which will also have sub-sections, Critical analysis and Design which also will have sub-sections, Conclusion and Recommendations, Future Work which will talk about the future of the topic, then finally references this is where all the information, data and quotes that were used throughout the journal paper will be organised in Harvard reference style. Each section will include sub-sections to better organise the necessary information for better reading experience and helps the reader instantly find the academic text they are looking for more easily.

In this section it will include three sub-sections which include the research question, aims for the project and project product and deliverables which mention what the final stages of this research paper will be. This section will set up the scope of the paper for the critical reader, which will allow them to understand the research paper just by reading the sub-sections.

1.1 Research Question

The research question from this research paper will be about gaming addiction and its effects on students and young adults, the title of the paper is called "Does Gaming Addiction affect students and young adults."

Since the recent declaration from the World Health Organisation (WHO) that gaming addiction is currently classified as a "gaming disorder" in September 2018. On the world health organisation, it says for gaming disorder to be diagnosed, the behaviour pattern must be sufficient enough to result in impaired personally, family, social, educational, occupational and other very important aspects of functionality, (World Health Organization, 2018). Because of this it has gotten me interested in Gaming Addiction and how easy children and young adults can be addicted by gaming and most likely don't even realise their addicted until it is too late and very difficult to remedy the situation

because of this, gaming addiction has effected peoples and their families lives from kids emptying their parents banks accounts to buy micro-transactions, students getting suspended and even expelled from schools, colleges, etc. and even in some cases where people have died from days to weeks of no stop gaming. These issues are the main reason for choosing this research question for this journal project; is to show the negative and some positive aspects of gaming addiction.

1.2 Aims for the Project

The main aim of this project is to investigate if Gaming Addiction causes negative effects on academic performance in students and young adults as their brains are still developing and not fully developed until the mid-20s and possibly until the 30s typically depending on which research you want to carefully follow.

There will be smaller aims to help achieve the main aim of this paper:

- To gather the necessary academic research papers on this topic and paper which have the topic in their scope
- To gather internet news articles for further information that might not be in academic papers
- To identify negative and some possible positive effects on performance from Gaming Addiction
- To critically evaluate the end outcome of the research paper
- To end the paper with a conclusion which can help future work on this topic

1.3 Project Product and Deliverables

At the end of the research period for this paper, there should be a well-structured and academically sound research paper that looks like it could be able to be published with tweaks and longer based studies to support the evidence gathered from other academic papers and credible news articles. They will, in addition, be a critical reflection report which will be sufficiently completed after the research paper has been completed and show the specific timeline (Gantt chart) of the research, the design and implementation of the specific research question will additionally include a critique of the paper and process it will show if the paper can be improved upon if the author started afresh.

The research will be typically collected from credible databases like IEEE Xplore, ACM Digital Library and Teesside University Library Discovery. It will also likely be collected from online news sites which will be from credible news sites and gaming news sites. By using academic papers and online news sites it will help discover a more extensive field of data that can be used.

2 Literature Review

2.1 Introduction

In this section of the paper, there will be a literature review and will include the following sub-section. "Gaming addiction effects on academic performance" which will present evidence from research papers and online news sites to show the effects of gaming addiction in this area. The sub-section will use the data gathered from these papers and articles and properly cite them in the sub-section below and then be fleshed out and investigated in section 3 Critical Analysis and Design.

2.2 Gaming Addiction Effects on Academic Performance

In this section it will show the data, quotes and statements used and where they were from and then be analysed and discussed in section 3.2 and 3.3. This will use the negative and positive aspects

of Gaming Addiction. Through this literature, the data gathered there have been contradicting viewpoints depending on who or what organisations or even governments the readers look at. All of the academic papers used in section 2 have been gathered by retaining the papers on Mendeley which help organise which papers have positive or negative associations to gaming addiction, this program also allows the author to highlight the text they want to quote on this paper which helps the author to find the information they are looking for instead of reading the paper again. All papers and news articles will be cited when talked about at all times and will undoubtedly have a full Harvard reference citation at the end of the paper in section 5.

2.2.1 Academic Papers

Let's start with the academic research papers, most of these if not all will have a sample of participants that will have been used to find the outcomes which will be found in the discussion and conclusion of the papers. The first paper that will be used is "Electronic Device Games: An Implication on Academic Performance of Students in CST" this paper was by two academics called Tshering Choden and Karma Wangchuk. This paper involves three variables in the study from non-gamer, casual gamer and hard-core gamer, this will show the difference between the three different variables, and the conclusion on this papers will use the exam results of each variable and use the mean result of these to come there conclusion on their research question (Choden and Wangchuk, 2018). The next paper is one of the best academic research papers because it uses 20 separate academic papers studies from all over the world and analysing each results to find the conclusion in their research, the paper is called "Internet gaming disorder in Lebanon: Relationships with age, sleep habits, and academic achievement" was written by Nazir S. Hawi, Maya Samaha and Mark Griffiths and published in Journal of Behavioral Addictions (Hawi, Samaha and Griffiths, 2018). The next paper is published in the same journal as the last and is written by Geir Scott Brunborg, Rune Aune Mentzoni and Lars Roar Frøyland. The title of the paper is called "Is video gaming or video game addiction, associated with depressions, academic achievement, heavy episodic drinking or conduct problems". The data gathered from this paper will not be including the heavy drinking and conduct problems but will have a quote from the authors on the depressions link to gaming addiction (Brunborg, Mentzoni and Frøyland, 2014). The next paper will be "Is video game addiction really and addiction?" written by Mark Zastrow, there will be a very little quote taken out of this paper about gaming effects on the brain (Zastrow, 2017). The next paper is written by Rommel L. Verecio and the paper is called "Online Gaming Addiction among BSIT Students of Leyte Normal University Philippines its Implication towards Academic Performance". This paper has a very well structured study which goes in more depths on the genre of games compared to other academic papers (Verecio, 2017). The next paper is "Problematic smartphone use associated with greater alcohol consumption mental health issues, poorer academic performance and impulsivity", written by Jon E. Grant, Katherine Lust and Samuel R. Chamberlain. This paper will be used to cite a couple of sentences about gaming addiction with mobile phones as there is small quantity of research in gaming addiction on mobile phones in the academic space, (Grant, Lust and Chamberlain, 2019). Compared to the news media world which will see a couple more news articles in the next section. The last paper which will be used is called "The associations between internet use time and school performance among Korean adolescents differ according to the purpose of internet use" it was written by So Young Kim, Min-Su Kim, Bumjung Park, Jin-Hwan Kim and Hyo Geun Choi. The reason for choosing this paper is the very in-depth study which includes the income, internet use for study, the internet for general use and performance at school, which gives interesting results typically depending on how you look at the study, (Kim et al., 2017).

All of the academic papers above were discovered by conducting a refined search on IEEE Xplore, ACM Digital Library and Teesside University Library Discovery and collected by using key words to put in a table of importance to see if the paper can be used for this research paper, if the paper incorporated some of the key words it would be saved in a table and ready for the journal if interested the key words used can be found at the end of the abstract of this research paper, this example can be found in section 3.5 Data Collection.

2.2.2 News Articles

This sub-section will be the same as the academic papers section but with news articles which have not been verified like the research papers so all articles should be taken with a grain of salt, just like the peer reviewed papers but more likely the papers will be more trusting because of the procedure of getting a paper published unlike news articles in this current age, where anyone can start a news website within a week end. The articles picked were chosen because of the topics they were talking about and made sure to have someone of authority that is being quoted in the article to give the data or information some validity. Some of these news articles are from across the world to show that gaming addiction can affect all people no matter where they are. The news articles used will have positive and negative affect just like the academic papers but most likely have more positive in the news articles compared to the academic papers because they are more widely available, easier and faster to produce and narrative driven.

Let's start with an article from the Gulf News Asia written by Karuna Madan and called "Addiction to PUBG more dangerous than drug abuse". The reason for choosing this article is because of the wide popularity on the new mobile gaming boom in India mostly on the mobile game called "PUBG", this article has some impactful quotes from a JKSA deputy chairman, (Madan, 2019). The next article is from The Washington Post and written by Simon and Min Joo Kim, the article is called "In South Korea's hypercompetitive academia, esports gamers carve out larger niche". The reason for choosing this one shows a way to turn game addiction into a positive and overcome the WHO diagnose of gaming addiction as a disorder, (Denyer and Joo Kim, 2019). The next article is from a research news site called Science Daily and was written by Alberto Posso. The title is called "Online gaming can boost school scores: Video games sharpen math, science and reading skills among 150-year-olds, but social media reduces test results", the news article is a little different as the data used in this article is from a research paper after looking in to it further, this sub-section will be the same as the academic papers section but with news articles which have not been unverified like the research papers so all articles should be taken with a grain of salt, just like the peer reviewed papers but more likely the papers will be more trusting because of the procedure of getting a paper published unlike news articles in this current age, where anyone can start a news website within a week end. The articles picked were chosen because of the topics they were talking about and made sure to have someone of authority that is being quoted in the article to give the data or information some validity. Some of these news articles are from across the world to show that gaming addiction can affect all people no matter where they are. The news articles used will have positive and negative affect just like the academic papers but most likely have more positive in the news articles compared to the academic papers because they are more universally available, easier and faster to produce and narrative driven.

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Korea's hypercompetitive academia, esports gamers carve out larger niche". The reason for choosing this one shows a way to turn game addiction into a positive and overcome the WHO diagnose of gaming addiction as a disorder, (Denyer and Joo Kim, 2019). The next article is from a research news site called Science Daily and was written by Alberto Posso. The title is called "Online gaming can boost school scores: Video games sharpen math, science and reading skills among 150-year-olds, but social media reduces test results", the news article is a little different as the data used in this article is from a research paper after looking in to it further, but this article has a very large study of 12,000 Australian 15-year-olds in maths, reading, science and has very interesting results, (Posso, 2016). The next article is from the Independent and written by Jef Feeley and Christopher Palmeri and the title is called "Parents losing battle with Fortnite as children forced into rehab for video game addiction" as this title says the article is about some children getting so addicted to current addictive games like Fortnite they have to be sent to rehab for game addiction, it also has some specialist opinion about the current state of gaming addiction and these issues, (Feeley and Palmeri, 2018). The next article is from inside higher ED and was written anonymous to keep the identity of his son anonymous for privacy reasons, the article is titled "Students and Video Game Addiction". The reason for picking this article is to show that gaming addiction is hard to discover in other people as the written a college administrator talks about in the article and cites some studies to back the theory of the article up, (Insidehighered.com, 2012). Finally the last article is from learning English and in their health and lifestyle section of the website, the article is called "Study links Video Games Use to Problems in School" it was written by Zlatica Hoke and talks about a study that was released that warns that too much time spent playing computer games could affect the child's performance in school. The main reason of choosing this article is that the British National Children's Bureau Northern Ireland reported the results of the study, (Hoke, 2015).

All of the news article above where collected by using Google to search key words like the ones in the Abstract of the paper, all articles where read through to make sure they match the points the paper will be talking about and made sure to find positive and negative features of gaming and the gaming addiction disorder. All articles where saved as a PDF on the hard drive and had all the important data and information highlighted ready for section 3.

3 Critical Analysis and Design

3.1 Introduction

In this section, it will include two other sub-sections for a more polished structured look to the report and these sub-sections are called "3.2 Analysis of research findings" which talk about the finds what has been discovered and gathered from section 2.2. Next is the "3.3 Discussion of research findings" which will discuss the findings and linking the correlations to the research question. The next sub-section will be "research design" this will talk about the way the research topic was undertaken to find the data which was gathered and how these where structured into the research paper, in this sub-section includes another section just for the "research methodologies" which was used before during and after the paper was completed. Then there is "data collection" which will explain how these research papers, articles, quotes were collected for the research paper. Then finally is the "ethics" section which will talk about the ethics of the paper, what ethics procedures were used and other substantial factors that went into the planning to sufficiently complete the data gathering, explanations, references and other points.

3.2 Analysis of research findings

Let's start with the academic research papers that were peer-reviewed and will be going in order just like they were in section 2.2.1. The first paper will be "Electronic Devices Games: An Implication on Academic Performance of Students in CST" which was from Tshering and Karma, this paper is about the lack of academic research done in Bhutan about academic performance and wants to expand on this knowledge. The paper wants to expand and explore the connection of college students between gaming density. After reading through this paper it comes to the discussion and the conclusion section on page 4 and begins to discuss the findings they have found through their study of having three control groups ranging from non-gamers, casual gamers and hard-core gamers and check their performance through exam results which can be found on page 3 of their paper. They talk about the results that casual gamers have higher levels of performance in academia, they then go on to say that it can be derived that students who play the games casual will be to manage their time playing in moderation. They then go on and say students who are hard-core gamers are unable to perform as well in studies compared to both other study groups because they are addicted to much that it begins to worsen their exam results as they cannot leave their games alone during the busy period of exams, which leads them to spend most of their time and resources by playing games and will eventually have a negative effect on their exam results in academia. They then go on in the conclusion section and state that the results from the study had shown that the college students who play games on the casual can perform well in academia than the hard-core and non-gamer study groups, (Choden and Wangchuk, 2018). From this research paper, it shows that gaming has benefits to academic performance but too much and even no gaming can hinder and students' academic performance.

The next research paper is the "Internet gaming disorder in Lebanon: Relationships with age, sleep, habits, and academic achievement" which was written by Nazir, Maya and Mark. This paper is very in-depth with lots of citations from other works because of the size of the study they used. They used 20 study groups from other academic papers from 2005 to 2016. This paper measures and analyses all the results of the studies and forms the conclusion on what all these studies say and because of how many studies were used it probably one of the most credible papers that can be used. After reading through this paper it is very hard to understand if you do not understand the way academic researcher talk and the way they analysis studies it can be hard to follow this paper. At the end of the paper was the conclusion of the authors and shows the results they ended up with saying that the study identified some key predictors of IGD (internet gaming disorder) including being a younger adolescent, sleeping less, waking up from sleep more during the night to carry on playing games and poor academic achievement. These empirical research findings from this study suggest that might guide early detection and prevention of IGD, (Hawi, Samaha and Griffiths, 2018). This shows that the paper doesn't just link gaming addiction to the bad academic performance they use their conclusion to use it as a guide to help prevent or notice if people have a gaming addiction.

The next paper is "Is video gaming, or video game addiction, associated with depression, academic achievement, heavy episodic drinking, or conduct problems" It was written by Geir, Rune and Lars. The reason for choosing this paper was the high amount of students taking part in the study which was 1,928 Norwegian students from 13 to 17-year-olds. After reading through this paper and getting to the conclusion it shows that they have done their research quite heavily on to the research question and the conclusion is a little different as they accounted for other factors of academic performance like heavy drinking and conduct problems. In conclusion, the authors claimed that the study showed that video game addiction was associated with a higher level of depressions, poorer academic achievement, and more conduct problems, with links with their research question. They

also went on to say that the time spent gaming and negative outcomes was very negligible. Meaning you can spend a lot of time gaming but not be addicted and it affects your life. They then said that researchers need to differentiate between strong engagement with games and gaming addiction, (Brunborg, Mentzoni and Frøyland, 2014).

The next paper was chosen was “News Feature: is video game addiction really an addiction?” and was written by Mark. In the conclusion of the paper, it had a very interesting argument that had to be put in this research paper to show what gaming addiction is doing to people. The author said that although the evidence continues to mount up that gaming affects the brain, and may “rewire” it in some of the ways that other addictive drugs do. This statement shows that academic research has evidence that gaming in of itself affects the brain compared to gaming addiction which would likely be worse. (Zastrow, 2017).

The next paper to analysis is “Online Gaming Addiction among BSIT Students of Leyte Normal University Philippines its Implication towards Academic Performance” and was written by Rommel. The reason for choosing this paper is the interaction with the students in some parts of the paper expressly in section 5 result and discussion page 3 and the details of the genre of games which most other research papers don’t touch on. The author said that in figure 5 which was about the implications of playing online games towards academic performance, the higher answer from the study group was “I cannot focus on my studies” which was 49% of the students then the next is “I cannot do my assignment” at 41% of the students and the lowest answer was “I am absent from class” at 11%. The author then goes on to say that this shows that this is a warning message or indication that the student who was on the study are becoming addicted to gaming. Then says the university must take action to come up with measures to mitigate this problem so it won’t lead students to a mental problem like anxiety and depression. Then in the conclusion section of the paper, he says that gaming is one of the technologies worthy of attention by industry and how parents and the universities can talk about its effects on the academic performance of the students. (Verecio, 2017).

The next paper is a little different than the others as this one talks about smartphone addiction and is called “Problematic smartphone use associated with greater alcohol consumption, mental health issues, poorer academic performance and impulsivity” and is written by Jon, Katherine and Samuel. The reason for choosing this paper is because of the massive study size of 31,425 people. Which will give higher credibility on the results. The paper is a little different as it doesn’t talk about gaming addiction but problematic smartphone use as smartphones gaming is at a record-breaking 2.2 billion people who play games on their smartphones, (Dobrilova, 2019). The authors say in their discussion section that they have not assessed the extent of which individuals engaged in the different forms of problematic smartphone use (e.g. gaming vs. gambling vs. social media), they then go on to say that they found a large sample of university students that problematic smartphone use was very common and associated with worse self-esteem and a vast number of mental health problems. In the abstract of the paper, the authors state that a total of 21,425 participants was included in the analysis of whom 20.1% reported problematic smartphone use, (Grant, Lust and Chamberlain, 2019).

Finally, the last research paper picked was “the associations between internet use time and school performance among Korean adolescents differ according to the purpose of internet use”. The paper was written by So, Min-Su, Bumjung, Jun-Hwan and Hyo. The reason for picking this is the somewhat positive and negative results the authors talked about in the conclusion. They said that higher school performance associated with internet use for study with higher results for 2 hours of internet use for study per day, then say there is a negative correlation with school performance if they used the

internet for general use like gaming etc. They then go into more detail on the positive associations between higher school performance and use for study was the weakest in the higher income house and the strongest in the lower-income house, they then on go to state that internet use for academic purpose is presumed to be a versatile tool that could reduce the economic inequalities in education, (Kim et al., 2017). This shows that internet use in a bad way like longer periods of gaming can affect students' performance in school and doing it the right way for studying will improve performance.

Since the research papers have been finished let's move on to the more likely news articles to be less credible than academic papers, but the news articles that have been chosen most of them have experts and senior positions comments on these issues. The first news article is from the Gulf News Asia and called "Addiction to PUBG more dangerous than drug abuse" and written by Karuna. The main point of this article is the current issues that India is having with gaming addiction on smartphones, mainly the PUBG mobile game. In this article, the author has quotes from the JKSA deputy chairman (J & k Students Association) Raqif Makhdoomi said that the game was responsible for the poor performance of students in the current academic year at school and university examinations in the state. He then went on to say the addiction to this game has become more concerning than addiction to drugs as we get to see young adults being on their mobile phones for 24 hours playing games and doing nothing else. He then says that the administration should immediately ban the mobile game PUBG. The reason for this he says that it's addictive properties and leads to losing mental balance in daily life and the victim finds it difficult to put down the game and deal with other things in life, because of this they neglect there health and other important things in life like family, societal responsibilities, education etc, (Madan, 2019).

The next article chosen was a positive outcome from gaming addiction and how to help students get out of the addiction and use their talents for good. The article is from The Washington Post and was written by Simon and Min and called "Is south Korea's hypercompetitive academia, esports gamers carve out larger niche". The reason for choosing this article is because it shows students that have had gaming addiction and had poorer performance but then turned their talent into a positive job choice. In this article, the author has students quoted saying Maths and science were boring and wasn't very good at them. But now has said that he is studying esports at a pioneering high school in Seoul, and is possibly on the way to a career in the billion-dollar esports industry. It then goes on to talk to the inventor of this course called Bang Seung-ho and is the principal of the school which this course was created in. He was quoted saying he was sick of seeing kids, mostly boys, turning up late and half asleep, resentful and swearing at their teachers, because he claims they have spent much of the night playing video games. He then says that the games themselves should not be blamed unlike the previous news article, He then says that when this course started the students used to get angry when told to turn off the games at the end of each session, but then said with counselling and guidance, the students gradually learned to control the duration of their game time, (Denyer and Joo Kim, 2019).

The next article is from Science Daily and was written by Alberto and titled "Video games sharpen math, science and reading skills among 15-year-olds, but social media reduces test results". This article is a little different as it doesn't talk about gaming addiction just gaming. This shows the positives of gaming when in moderation and a healthy relationship between students. The article has studied 12,000 Australian teenagers in maths, reading and science while collecting data on the student's online activities. The article claims that teenagers who regularly play online video games

tend to improve their school results according to his research, and then goes on to claim that students who visit Facebook (social media sites) or chat sites every day and more likely to fall behind in maths, reading and science. Then states that students who play online games almost every day end up scoring 15 points above the average in maths and 17 points above the average in science. Then he states the teenagers who used Facebook or chat sites every day ended up scoring 20 points worse in maths than students that never used social media. Alberto Posso then says it is important to recognise that they could be other factors that might have impacted on teenagers progress and teachers should consider incorporating popular video games into teaching as long as they are not violent, (Posso, 2016). This article shows again that moderation of gaming can benefit academic performance.

The next article is a little like the first article in this section as it talks mainly about a game called Fortnite, it is from the Independent and was written by Jef and Christopher the title is “parents losing battle with Fortnite as children forced into rehab for video game addiction”. This article starts by saying Debbie is losing the battle against Fortnite as her son 17, has been playing 12 hours a day of the video game, and teachers have complained that he falls asleep in class and his grades have plummeted. His mother then continues to say that they made some progress in getting him to cut down on hours, get better sleep but ended up slipping back into his old habits. In the article it shows the impact Fortnite has had on many kids as they write that more than 200 million people have registered to play the video game, they then report that some desperate parents have sent their kids to rehab. It then gets a quote from the British behavioural specialist Lorraine Marer saying this game is like heroin adding once you are hooked it’s hard to get unhooked. In the article, it also includes the effects on adults to as an online UK divorce service says 200 petitions called Fortnite and other video games the reason why they have ended their marriages this year (2018). Then the article involves Randy Kulam a child psychologist which stated the surge in parents taking their kids to counselling because of the rise in video game addiction, (Feeley and Palmeri, 2018). This article shows the dangers of gaming addiction expressly when people are addicted to addictive games Lorraine said.

The next article is a little different as the author is asking to be anonymous to protect his son’s privacy, it was written on inside higher Ed. The anonymous writer claims he is a college administrator and witnessed his son’s gaming-driven academic meltdown. The author thought his son was doing okay and he assured he was getting Bs in his classes, the author then received an academic warning letter from the son’s college. He said his son broke down in tears admitting that he spent most of the last half of the semester playing online computer games and didn’t even attend the final weeks of classes and missed exams. The article then says his son was addicted to gaming and lost control, the author then cites that nearly 2 million other US college students are addicted to gaming too, (Insidehighered.com, 2012). This is another article about the dangers of gaming addiction if the victims let the addiction take over and no one can be any of the wiser. It can damage their performance.

Finally, the last news article contradicts a previous article from Science Daily, because of this it was a good article to put in to talk about the claims. The article is from learning English and in their health and lifestyle section of the website and is written by Zlatica and titled “Study Links video game use to problems in school”, the first line of the article says that there is a new study that claims that spent time playing computer games could affect a child’s performance at school, it then goes on to say that Britain’s National Children’s Bureau Northern Ireland reported the results of this study to show that too many hours spent playing games can reduce the students chances of success at school. The article says the study had 600 individuals between the ages of 14 and 16 and was taken over 2 years

from 2012 to 2014. The article claims that the study says that teenagers who play computer games less than once a week were likely to be more successful in school than those who played them twice a week or more. Then they continue to say that the study found that social media use did not affect school performance. But near the end of the article, they say the study did not look into or explore the addiction aspects of gaming, (Hoke, 2015). This article is completely different from the ScienceDaily article and will be explained more in the next section 3.3 discussion of research findings.

Once the data and information from these academic papers and news articles have been analysed. It shows the type of research and articles that are out in the public eye on this issue on gaming addiction and poorer academic performance. After reading through and talking about each paper and article it shows that there is not much about gaming addiction in the UK but a lot throughout the world, and this shows the lack of knowledge in this area in the UK, considering the UK is the 5th largest games market in the world with 32.4 million people play games and spending \$4.2 billion in the year of 2017, (Ukie.org.uk, 2018). The biggest lack of knowledge about gaming addiction is which genre of games are most addictive to adolescents with still-developing brains.

3.3 Discussion of research findings

This section will talk about the correlations and opposing viewpoints through the research, this discussion will help the author of this paper to conclude the research question from the beginning of the paper. This can be found in section 4 Conclusion and Recommendations.

From all of the academic research papers that were used in this journal, there was a clear academic viewpoint on gaming addiction is that gaming addiction is bad for academic performance being the results from Choden and Wangchuk papers which states that hard-core gamers have worse academic performance than the two other control groups bringing non-gamers and casual gamers, this is also the issue in Hawi, Samaha and Griffiths paper which states that younger adolescents sleep less, waking up from sleep to carry on playing video games and have poorer academic performance which they found in 20 studies they analysed. It is also found in Brunborg, Mentzoni and Frøyland paper which states that their study showed video game addiction is associated with higher levels of depression and poorer academic performance. Maybe a cause for these can be found in Zastrow paper which states that the brain gets rewired when someone is addicted to games just like other addictive drugs. Then the paper from Verecio has charts from questionnaires and shows the higher picked option is that students can't focus on their studies at 49% so they play games and in correlation, it drops the students' performance. Then finally the last negative from the academic papers before we move into the positive of the papers is from Kim's paper which showed that using the internet for general use showed a negative correlation with high school performance.

The positives found in these papers and studies these researcher used are quite good considering how bad gaming addiction is to academic performance. The first paper is from Choden and Wangchuk again which says that casual gamers which game a couple of hours a day get better exam results than both hard-core gamers and non-gamers, which shows that gaming responsibly benefits academic results. From Hawi, Samaha and Griffiths paper, they say that these signs of gaming addiction can be used as a guide to detect and prevent gaming addiction. From Brunborg, Mentzoni and Frøyland again they also say that researchers need to differentiate between strong engagement with games and gaming addiction which also shows that having strong engagement in gaming is not the same as gaming addiction and that can benefit the gamer which we see from Choden and Wangchuk paper and some news article which will be talked about later. In Verecio's paper, it had charts and questionnaires about that type of gaming genre the students like to play, this can show

people which games are a trend and which are addictive and can be on the lookout for people who play these games. Then last positive is from Kim's papers which stated that school performance was significantly associated with internet use for study only this one doesn't link to any other paper but will link to some article talked about next.

The negatives of the news articles are a little different as they have more of a leeway in the way the writer of the article would like to go, this does show the importance of this topic but can be overdramatised. Let's start with the first news article from Madan the negative points from this article show the JKSA deputy chairman held the game responsible for getting these students addicted which he says is linked to academic performance and this links up with Kim's paper, Verrecio's paper, Brunborg, Mentzoni and Frøyland's paper, Hawi, Samaha and Griffiths paper and Choden and Wangchuk's paper these academic papers say gaming addiction affects academic performance in a negative way. This current article from Madan had no positive aspects of the article. The next article is from Denyer and Joo Kim which mention the creator of a course for esports saying he was sick of his students turning up late, half asleep and begin resentful and swearing at teachers because they said they were playing games at night, this article does not say these students were addicted to gaming. The positive to this article is that people that like to game and or addicted to games can get help with Bang's course which helps them get back on track by helping them become less angry and develop skills like discipline and dedication, this links to the academic paper on how to detect and prevent gaming addiction from Hawi, Samaha and Griffiths paper. The next article is from Posso and states that people who visit social media on the daily are more likely to get worse grades than people who do not visit by 20 points, but the positive from the article is if students game every day they are more likely to improve in school by sharpening their skills which they learn in school by 15 points over the average score. This next article which involves a study just like the last article contradicts what was just said, the negative to this article is that people who spent too much time playing games could affect a child's school performance this was from Britain's National children's bureaus of Northern Ireland, then they went on to say the study did not find that social media use did not affect school performance which was totally different from the article from Posso. The next article is from Feely and Palmeri has experts talking about the number 1 game at this time Fortnite which Lorraine Mare a British behavioural specialist says this game is like heroin, which links certain games to drug addiction the say as the academic paper from Zastrow. It also talks about 200 divorce were cited for the reason of divorce and also links to massive money lost from parents that let their kids buy skins, dances and coins of these games, which some government bodies around the world say it is classed as gambling which then links this article to the paper from Grant, Lust and Chamberlain which talk about student having problematic relationships which their smartphones which might include gaming, gambling and social media. The last article is from insdiehighered.com which show that a college administrator son has missed exams and skipped classes just to carry on playing games, the parents say they didn't know as the son was calm around them and lied about his grades. The positive things about this article are that the parents would have liked to know the signs of game addiction, so they could have helped their son which links this to the paper about detecting and preventing game addiction from Hawi, Samaha and Griffiths.

There were many limitations with finding UK academic research papers on this topic, the reason for this is unknown to me now but might be the UK is a freer society to other countries that were mentioned in this paper, for example, India, South Korea, Philippines etc. that were talked about have more strict society structures, cultural barriers and laws compared to the Western nations, so the countries are more involved in finding these issues to help their people compared to the west which let people do what they want as long it is within the law.

3.4 Research Design

The research design will talk about the methods it took to start all the way to finish the research and implement these ideas into the research paper, it will include the methodologies employed for the process of this data gathering and paper write up.

3.4.1 Research Methodologies

While researching this research paper, several different methodologies could be used depending on what stage of the progress the author was on for example before paper write up, during paper write up and after paper write up.

Before the paper write up the author had to come up with a research question and make sure there is research about this topic and once it has been decided on the topic the first step can begin. Since this is a journal the author believes a hybrid of methodologies would be best for data gathering, and paper write up this was the Waterfall and Agile method which would give the author the most control of designing and structuring the report, writing each section of the paper before moving on to the next section, to grammar checking once it has been finished and proof read the paper and finally gets it ready to be uploaded for the deadline of the paper. The reason for having Agile to be included with Waterfall in the methodologies is the freedom to go back to a previous section which was completed and correct, change, add or remove information that should or should not be there.

Throughout this paper the requirements have changed from using a questionnaire to not having a questionnaire, so that changes the data gathering from quantitative to qualitative because having no questionnaire for the author to analysis the answers of the research question we had to use other academic researchers conclusion and recommunicates from their studies and compare to find the conclusion to the author's specific question in this research paper.

3.5 Data Collection

This sub-section will talk how the academic papers and news articles where gathered, collected and sorted out for use. The first step taken was an off-screen literature review for each of the databases from IEEE Explore Digital Library, ACM Digital Library and Teesside University Library Discovery. Each one of these databases had their table with five headings "Number" to organise the searchers, "search question" which is the key words used on the search bar, "filters" where to reduce the number of papers from the search to find the best for this paper, "results" which show how many papers, books, articles conference etc. where found through the search then "assessment" which gives a brief over look if any on the papers where any good. Table 1 shown below (Appendix A).

(Table 1) IEE Explore Digital Library

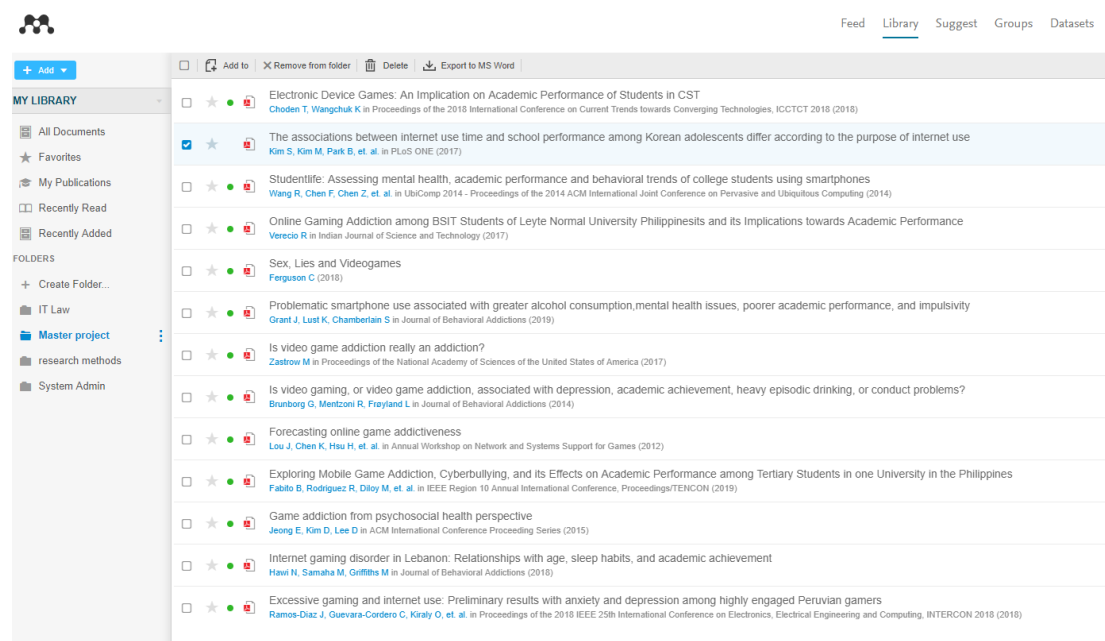
Number	Search Question	Filters	Results	Assessment
1	Game And Addiction	1982 - 2018	67	A small amount to pick though, gives very useful papers.
2	Game And Addiction	2005 – 2018	65	Has the current papers from when online gaming become easy access.
3	Game And Addiction	2005 – 2018, computer games	38	The extra term searchers narrow down the papers to gaming addiction on computer games, which is different to mobile gaming.
4	Game And Addiction	2005 – 2018, mobile computing	7	The term searched was mobile computing which minimises the search to mobile gaming papers about addiction.

Once all of these tables were being filled in, on every search if any papers caught the author's eye they then put that paper into another table named the final list of literature. This table in only one with all papers from each of the three different databases. There was six headings the first was "number" again which gives the paper a number better for organising, then "articles" which is the academic papers title and in text citation, next was the three key words which were "performance", "addiction" and "health" this gives the author easier understanding of what the paper includes without opening the paper to find out, if the paper include any of these keywords in their research it is marked green, then lastly is "search" this shows where the paper came for example the first article has Table 1 (6) in this column which shows the author to go to table one and search 6 to find what filters was used to find this paper and the assessment of the search. Table 4 shown below (Appendix A)

(Table 4) Final List of Literature Papers

Number	Articles	Performance	Addiction	Health	Search
1	Exploring Mobile Game Addiction, Cyberbullying, and its Effect on Academic Performance among tertiary Students in one University in the Philippines. (Fabito et al., 2018).				Table 1 (6)
2	Excessive gaming and internet use: Preliminary results with anxiety and depression among highly engaged Peruvian gamers. (Ramos-Diaz et al., 2018).				Table 1 (8)

Then these papers are downloaded and highlighted to find the best information needed for the analysis and discussion sections on these papers and are moved to Mendeley for better organising and structure, this also benefits the author as all this papers can be viewed from anywhere off campus and by mobile phone and can upload any current papers that might be found throughout the progress of paper. Example demonstrated below.



3.6 Ethics

There are many different types of ethically issues that can occur when doing a research paper from plagiarism to data infringements from the Data Protection Act (DPA) 1998 and General Data Protection Regulation (GDPR) 2018. This can also include the guide lines from this profession for example British Computer Society (BCS) and Teesside University Research Ethics Principles. These guide lines and legislations help the author gather data and write up a research paper in an ethical way. This can include citing all work, quotes, data etc. that is used in this paper to give the owner of that academic or reporting work the credit they deserve, it also allows the reader of the paper to read up the work from the citation to do peer review if the paper is published and allows others who are researching this topic on where you found the data that was used and allows them to find the rightful owners of the data and read the full paper to see if this paper is on the right track with the analysis of the work. Ethics is very important to any kind of academic or professional work that will be seen by other people, so it is a good idea to make sure your work is ethical as it can be without hindering the papers performance.

4 Conclusion and Recommendations

In this section it will talk about what the author of the paper has concluded through gathering and analysing of the data and recommendations to others that want to take the topic deeper with more time to gather primary data instead of secondary.

After gathering data, analysing and discussing the data is it very obvious that gaming addiction is damaging academic performance, but this determines on the degree of gaming addiction that person is struggling with, most if not all data points say game addiction is affecting academic performance in students and young adults, but also says people who game in a healthy time range have benefits in academic performance, which can be found in both research papers and news articles. Some papers and articles say people who do not game a certain number of hours a day might see drops in their academic performance. So as a researcher for this project on “Does Gaming Addiction Affect Academic Performance in Students and Young Adults.” We can conclude that it does affect the academic performance of students but by how much we do not know as of yet so

further research and studies need to be done, to help and start to combat this problem in the gaming community and educational system. But for this research paper will have found other conclusions which were not looking for but discovered along the way, for example if a student doesn't game at all it is likely they will have a lower academic performance than some students that causal game about 2 hours a day.

Recommendations from this research is that gaming in small quantities is more beneficial than over gaming and no gaming at all. Make sure to track hours spent a day and make sure you do not go over that fresh hold and watch for attitudes changing which will give you, friends and families notice if there are early stages of gaming addiction.

5 Future Work

Future work will talk about what can be done on this topic in the future, with newer hardware, software to improve the gaming sector even more than it has grown in the last couple centuries and maybe if the author plans to do a PhD in the future they might use this topic to build a better academic paper.

The future of this topic is very wide from which games are most addicting to how people become addicted in the first place. It is a very interesting topic for people who like games or how the minds works with addiction. This problem will only get worse if no academic scholar type research is done before the hardware and software gets better to the point that most games will be life like VR (virtual reality) which encourages the victim of game addiction to be immersed into another world and be whoever they want to be without consequences which will make the gaming addiction even worse.

More studies and research needs to be done in the UK as there is a lack of academic papers on this topic even though the UK is the 5th highest country in the world for gaming. The author's plans for future work will be on this topic if he decides to do a PhD in the future as this topic is very interesting and close to him as he is a gamer and would like to help people to stay away from gaming addiction.

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Appendix A

(Table 1) IEE Explore Digital Library

Number	Search Question	Filters	Results	Assessment
1	Game And Addiction	1982 - 2018	67	A small amount to pick though, gives very useful papers.
2	Game And Addiction	2005 – 2018	65	Has the current papers from when online gaming become easy access.
3	Game And Addiction	2005 – 2018, computer games	38	The extra term searchers narrow down the papers to gaming addiction on computer games, which is different to mobile gaming.
4	Game And Addiction	2005 – 2018, mobile computing	7	The term searched was mobile computing which minimises the search to mobile gaming papers about addiction.
5	Game And Addiction	2018	10	These are the most up to date papers from this search, they will most likely have citations from older work. Best to use newer papers than older ones.
6	Game And Addiction	2018, computer games, serious games (computing)	8	Has some papers which can be used.
7	Game And Addiction	2005 – 2018, computer games, internet, behavioural sciences computing	46	Has a bigger selection to find a wide range of papers.
8	Game And Addiction AND Performance	2017 – 2018 (won't let the date be changed)	5	No useful papers expect for one which has been collected.
9	Game And Performance	1960 - 2019	9,654	Papers don't look useful need to filter more.
10	Game And Performance	2005 – 2019, computer games, mobile computing	1,762	Too much to search through but found one paper which can be useful to my arguments
11	Game And Performance	2018 – 2019, computer games, mobile computing, game theory	595	No useful papers.

(Table 2) ACM Digital Library

Number	Search Question	Filters	Results	Assessment
1	Game And Addiction	Since 1951 to present	521,124	Too many results to look through and random papers which do not match up with the search topic
2	Game And Addiction	2006 - 2019	348,957	Too many results to look through again.
3	Game And Addiction	2006 – 2019, performance	99,206	Many of the papers are not relevant to the topic
4	Game And Addiction	2006 – 2019, performance, health	2,589	Decreases the amount of papers and a couple can be used and referenced in the master project.
5	Game And Addiction	2013 – 2019, performance, health	1,761	Similar papers to the last search no new ones.
6	Game And Addiction	2013 – 2019, performance, health, students	41	A couple good papers one will be used most likely are stored in section 1.3.
7	Game And Addiction	2016 – 2019, performance, health, students	32	Similar papers but on different topics maybe be link them together.
8	Game And Addiction	2017 – 2019, performance, health, students, online	3	No useful papers
9	Gamming Addiction	2006 – 2019	16,125	Many papers have similar topics
10	Gamming Addiction	2018, health	1,868	A couple good papers some can be used

(Table 3) Teesside University Library Discovery

Number	Search Question	Filters	Results	Assessment
1	Game, Addiction	2006 - 2019	96,471	Has some decent papers but need to filter more to get more o topic papers.
2	Game, Addiction	2017 - 2019	16,429	Got some good papers to help find evidence on 1 half of the project.
3	Game, Addiction	2017 – 2019, performance	3,852	Has a couple of papers that can be used to prove certain points.
4	Game, Addiction	2017 – 2019, performance, health	2,348	At first glance not, many of the papers will be useful.
5	Game, Addiction	2017 – 2019, academic performance, health	1,320	Some papers can help on some points but not the best for my topic.
6	Gaming, Addiction	2006 – 2019, academic performance	6,218	A couple papers can help argue the point or against it

				depending on the project results.
7	Gaming, Addiction	2006 – 2019, academic performance, addiction, addictive behaviours, college students	1,521	Has some papers which can be used. A couple will be kept.
8	Gaming, Addiction	2018 – 2019, academic performance, addiction, addiction behaviours, college students	210	No useful new papers that can be used.

(Table 4) Final List of Literature Papers

Number	Articles	Performance	Addiction	Health	Search
1	Exploring Mobile Game Addiction, Cyberbullying, and its Effect on Academic Performance among tertiary Students in one University in the Philippines. (Fabito et al., 2018).				Table 1 (6)
2	Excessive gaming and internet use: Preliminary results with anxiety and depression among highly engaged Peruvian gamers. (Ramos-Díaz et al., 2018).				Table 1 (8)
3	Electronic Device Games: AN implication on Academic Performance of Students In CST. (Choden and Wangchuk, 2018).				Table 1 (10)

4	Game Addiction from Psychosocial Health Perspective. (Jeong, Kim and Lee, 2015).				Table 2 (4)
5	Student Life: assessing mental health, academic performance and behavioural trends of college students using smartphones. (Wang et al., 2014).				Table 2 (6)
6	Forecasting online game addictiveness. (Lou et al., 2012).				Table 2 (9)
7	Sex, Lies and Videogames: Why Videogames Still Struggle to Overcome Moral Panic. (Ferguson, 2018).				Table 2 (10)
8	Online game addiction among adolescents: Motivation and prevention factors. (Xu, Turel and Yuan, 2012).				Table 3 (1)
9	News Feature Is Video game addiction really an addiction? (Zastrow, 2017).				Table 3 (2)
10	Internet gaming disorder in Lebanon: Relationships with age, sleep habits and academic achievement. (Hawi, Samaha and Griffiths, 2018).				Table 3 (3)

11	The associations between internet use time and school performance among Korean adolescents differ according to the purpose of internet use. (Kim et al., 2017).				Table 3 (5)
12	Online Gaming Addiction among BSIT Students of Leyte Normal University Philippinesits and its Implications toward Academic Performance. (Verecio, 2017).				Table 3 (6)
13	Is video gaming, or video game addiction, associated with depression, academic achievement, heavy episode drinking, or conduct problems? (Brunborg, Mentzoni and Frøyland, 2014).				Table 3 (7)
14	Cortical Thickness Abnormalities in Late Adolescence with Online Gaming Addiction. (Yuan et al., 2013).				Table 3 (7)