“Investigating the Relationship Between Gamers’ Personality Traits and their Preferred Video Game Genres”

A dissertation submitted in partial fulfilment of the requirements for the degree of Bachelor of Science (Honours) in {Business Information Systems} by Abdullah M. Allam

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Abstract

of

INVESTIGATING THE RELATIONSHIP BETWEEN GAMERS’ PERSONALITY TRAITS AND THEIR PREFERRED VIDEO GAME GENRES

by

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Computer games today are a highly popular form of entertainment that are enjoyed by millions of individuals around the world with all different ages. The aim of the presented study is to investigate the relationship between the personality traits of gamers, and whether they affect their preference for games. Moreover, there have been several previous studies that examined the personality traits of regular video game players and the different game types that they prefer, in order to find whether there is a relationship between game preference and personality. Some of these studies, including Chory and Goodboys’ (2011), Zammitto’s (2010) and Borders’ (2012) were looked at and analysed in order to compare them with the results and findings of this present research. The presented study examined the Big-Five Personality Traits which was created and modified by a group of personality researchers (Goldberg, 1993) (Buss, 1996). In addition, the present study conducted an online questionnaire assessing the Five-Factor Model of Personality of regular gamers as well as some of the gaming patterns, such as favourite game genre, number of hours spent playing and preferred methods of playing. Results showed that players select certain game genres as their favourite based on their personality trait scores. For example, participants who preferred action games have high neuroticism and low agreeableness. Horror/survival players have high neuroticism and low openness to experience. The study results also suggest that the majority of players, regardless of preferred genre, have high neuroticism, which means that gamers are naturally short-tempered and emotionally unstable. Furthermore, most of the results of the present study are congruent with previous studies, which further supports the fact that personality affects video game selection.
DECLARATION

I hereby declare that this dissertation entitled ‘Investigating the Relationship Between Gamers’ Personality Traits and their Preferred Video Game Genres’

is entirely my own work, and it has never been submitted nor is it currently being submitted for any other degree.

Candidate: Abdullah M. Allam

Signature:

Date: 21/04/2017

Supervisor: Dr. Hilary Berger

Signature:

Date:
ACKNOWLEDGEMENTS

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1.0 Background/Introduction

The industry of computer games is growing rapidly nowadays and it is becoming an important form of entertainment for millions of individuals across the world. It was reported in 2014 that the number of individuals who play video games on a regular basis reached around 1.5 million, which amounts to approximately 25\% of the population of the world (Burke, 2014). This significant number clearly shows that the gaming industry is one of the most popular and important nowadays, and that it has an impact on the lives and behaviours of many individuals. Furthermore, the continuous development and improvement of video games throughout the years has resulted in the existence of many different types, usually referred to as ‘genres’, of games, including sports, action, puzzle, role playing and many other genres which are discussed in detail in the following chapters. The wide range of genres available today indicates that players have their own different ways of selecting and enjoying a computer game, which is how the concept of this study was originated. The present study examined the reasons and rationale behind selecting certain types of games, and in order to achieve this, it was important to examine the personalities of different players, in addition to studying the game genres.

2.0 Aim & Objectives

2.1 Research question

The games industry is a large topic, and can be examined from a number of different perspectives. For the purposes of the present study, the topics are narrowed down into specific areas. The present study investigates the video games available today, and the impact of these video games on players. In addition, the present study examines the personality traits of gamers, and whether they affect their preference for video games. Thus, the main title of the present study is “investigating the relationship between the personality traits of gamers and their preferred video game types (genres)”.

2.2 Aim

The present research aims to study the different types of video games available today, such as sports games and action games, as well as the different personality traits of gamers who choose to play these games. In addition, the present study investigates whether there are any correlations between individuals preferring certain types of games, and their personality traits.

2.3 Objectives

The first objective of this study is to conduct a primary research by sending out a questionnaire to a specific group of individuals and collect data regarding their preferred game genres, including the number of hours they spend playing video games, their most favourite game genres and their preferred methods of playing. In addition, respondents are required to undertake the Big-Five Personality tests which contains 50 questions.

The second objective is to perform the necessary analysis on the collected data and attempt to find correlations between participants’ gaming patterns and their determined personality types. This will be achieved through comparing the results to the previous studies conducted by Borders (2012), Chory and Goodboy (2011) and Zammitto (2010).
3.0 Literature Review

The industry of computer games has been present since the 1950s, nearly a decade after the introduction of the first digital computers in 1940 (Smith, 2014). Computers at that time were highly expensive and scarce, which led many individuals to think that developing games on computers for the sake of entertainment was difficult and not necessary, thus creating computer games was heavily discouraged (Wolf, 2008). However, many computer programmers and digital games enthusiasts back then believed that there were several other reasons to create computer games than just entertainment, and that they could have a variety of benefits for players, including testing the power of computers and to what extent they can withstand heavy processing, using them as educational tools for students, children, military officers and managers, and understanding human thought process, and finally simulating various environments with different conditions (Wolf, 2008).

Moreover, many computer scientists in the 1950s began to think of creating popular board games in the form of computer games, such as chess. Therefore, the first computer game developed that was based on a board game was chess, in 1956, which was created by a number of scientists, including Paul Stein, James Kister and William Walden (Wolf, 2008). Furthermore, two years later, another improvement was made to video games when Willy Higinbotham created the first computer game that allowed not one, but two players to control the game, which was called Tennis for Two (Wolf, 2008).

After that, computer games had been slowly improving, until a whole new industry of games emerged in the 1970s. The first hit video game, called PONG, was introduced by Atari in 1972. The game’s success was one of the main reasons a video game industry exists today (Wolf, 2008), and made many computer scientists and developers realise the importance of creating computer games, thus the industry was born.
3.1 Game genre definitions

Throughout the years, developers started to create different types of games, called genres, thanks to the technological improvements and enhancements that computer scientists had achieved. In addition, video games today are categorised under several genres, including action/adventure, sports, role playing, strategy, perspective (first-person and third-person shooters), horror/survival. Stealth action, educational, puzzle solving and many more. Each genre defines a game’s style of playing:

- **Action/adventure:** An ‘action’ game usually contains specific mechanics require players to perform movement, accuracy, reflexes, timing and quick decisions (Genre Definitions, 2017). Moreover, an adventure game is part of the action genre but has more specific play styles and objectives. Adventure games focus on telling a story and includes dialogues. Moreover, players usually require solving puzzles or interacting with different items in the game in order to advance the story. In other words, adventure games can also be considered as visual novels or interactive films (Genre Definitions, 2017). The following titles are examples of action/adventure video games: Assassin’s Creed, Grand Theft Auto and Batman Arkham (Klappenbach, 2016).

- **Sports:** This genre involves computer games that simulate real life different sports, including football, basketball, American football, rugby, cricket, golf etc. (Klappenbach, 2016). Some of the sports game titles include, NHL 17, Football Manager 2017, FIFA 17 and NBA 2K17 (Martin, 2016).

- **Horror/survival:** The horror genre is the types of games that mainly consist of supernatural beings that are meant to scare players and force them to use the limited supplies that they could find throughout the game in order to escape frightening situations and survive (Genre Definitions, 2017). Some survival horror games include Resident Evil, Alan Wake, Silent Hill, Dead Space and Eternal Darkness (Cheong, 2014).

- **Strategy:** Strategy video games stem from the popular board games, such as chess, Dungeons and Dragons and Risk, that require players to use different tactics and careful planning in order to achieve the objectives of the game. In addition, strategy video games require players to have high decision-making skills in order to determine the outcome of the game (Rollings and Adams, 2009). The following titles are examples of strategy video games:

- **Role Playing**: The role-playing games are often listed under the acronym RPG. There are other types of RPGs known as Action RPG and MMO RPG (Massively Multiplayer Online Role Playing Game). An RPG is a video game which involve a significantly large imaginary world, generally in a science fiction or fantasy setting, designed for players to roam and interact with the vast amount of tasks and activities found throughout. Moreover, in an RPG game, a player is usually required to assume the role of a character, level up, find gear and equipment in order to progress in the game. MMO RPGs are similar to RPGs with the addition that the game’s world is shared with other players connected to the Internet; players can meet and interact with each other in the game world (Rouse, 2017). Some of the most popular RPG games include The Legend of Zelda: Breath of the Wild, The Elder Scrolls V: Skyrim, The Witcher 3: Wild Hunt and Fallout 4 (Miller, 2017). The following titles are examples of MMO RPGs: World of Warcraft, Guild Wars 2, The Elder Scrolls Online and Star Wars: The Old Republic (Olivetti, 2015).

- **FPS (First-Person Shooter)**: The first-person shooter games, also known as FPS, is a sub-category of the action genre. FPS emphasises heavily on combat involving different types of weapons and firearms. It is characterised by a first-person viewpoint; meaning that only the weapon/firearm is visible on the screen rather than the whole character the player is controlling (Hitchens, 2011). The most popular FPS games include Overwatch, Counter-Strike: Global Offensive, Left 4 Dead 2, Team Fortress 2, Battlefield 1 and Call of Duty (PCGamesN, 2017).

The existence of the wide range of genres nowadays indicates that video games are more complex and advanced than the games in the early days several decades ago; an adventure video game, such as Assassin’s Creed, is fundamentally different than a sports game, such as FIFA, in terms of game play, style, mechanics and skill. In addition, a person who regularly plays strategy games probably has different ways of thinking and planning than a person who prefers a role playing game. This research was conducted in order to determine whether this is true, and whether players with different planning and strategy skills prefer certain types of games.
Furthermore, this can be achieved through testing those players using one of the many available personality models. One of the most popular personality tests is called the Big-Five Personality Model, which is discussed in the next section 3.2 the Big-Five Personality Model.

3.2 The Big-Five Personality Model

This model was created by a group of personality researchers who believe that in order to measure an individual’s personality, there are five main personality attributes that require to be tested (Buss, 1996). These attributes include The five factors have been defined as agreeableness, conscientiousness, extraversion, emotional stability (neuroticism) and openness to experience, and they are often listed under the acronyms OCEAN or CANOE (Goldberg, 1993). Moreover, a study performed by O’Connor (2002) where he tested the popular 28 personality traits, and this examination led O’Connor to conclude that these attributes can be narrowed down to the five main factors mentioned above.

One of the five personality traits is extraversion, which indicates the extent to which an individual is energetic, assertive, talkative or enthusiastic (Zhao and Seibert, 2006). In addition, extraversion can also be interpreted as the level of sociability of an individual, which means that individuals with high extraversion scores often display ambition, energy, affiliation and positive emotions. Individuals with middle extraversion scores also tend to be energetic and display the attributes that high scorers have, but they also tend to be lethargic and aloof (McCrae and John, 1992). Low extraversion scorers, however, are usually withdrawn, quiet, do not have a desire to engage in social activities and often shy. Moreover, one’s extraversion score can be determined by providing them with some of the extraversion-related statements, and whether they agree or disagree to those statements, such as: ‘I am the life of the party’, ‘I talk a lot’ and ‘I keep in the background’.

The second Big-Five factor is agreeableness, which is the attribute that defines the level of and interpersonal orientation of an individual (Zhao and Seibert, 2006). It also defines as the measure of a person being antisocial, or prosocial. High scores indicate that the person is generally friendly, caring, cooperative, trusting and gullible. On the other hand, low agreeableness scorers are self-centred, hostile, cold and suspicious (Zhao and Seibert, 2006). The following statements can be used to determine an individual’s agreeableness score: ‘I worry about things’, ‘I take time out for others’ and ‘I am interested in people’. 

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Conscientiousness is the third Big-Five trait that indicate the extent to which an individual is self-disciplined, dutiful, orderly and competent. It also shows the degree of hard work, persistence and motivation (Zhao and Seibert, 2006). A person with a high conscientiousness score is often motivated to achieve goals and objectives, whereas a low scorer displays impulsiveness, discouragement and often find it difficult to tolerate deferred gratification (McCrae and John, 1992). Conscientiousness statements include ‘I am always prepared’, ‘I am exciting in my work’ and ‘I pay attention to details’.

The fourth attribute is neuroticism, which indicates how an individual feels and how they adjust to different emotional situations. It measures one’s tendency to experience distress and the behaviours that follow this tendency. (McCrae and John, 1992). High neuroticism scorers tend to suffer from constant feeling of guilt, self-consciousness, depression and other negative emotional impacts. Individuals with low neuroticism scores, on the other hand, are usually more calm, even-tempered and generally emotionally stable. Some statements to determine neuroticism include ‘I am relaxed most of the time’, ‘I seldom feel blue’ and ‘I have frequent mood swings’.

The last Big-Five factor, openness to experience, refers to intellectual curiosity and individuals with a habit of seeking new experiences and exploring fresh ideas. High openness to experience scorers are usually seen as being innovative, imaginative and creative. They are also adventurous, tend to think unconventionally and usually have interests in different areas and topics (McCrae and John, 1992). Although high scorers tend to be characterised as intelligent and smart, it does not necessarily mean that low scorers are the opposite. Individuals with low openness to experience scores think more conventionally and do not appreciate different perspectives and aesthetics as much as high scorers do (McCrae and John, 1992). The following statements are used to determine openness to experience scores: ‘I have difficulties understanding abstract ideas’, ‘I do not have a good imagination’ and ‘I spend time reflecting on things’.
3.3 Previous research and findings

There are several studies that tested gamer’s personality traits to determine whether they have an impact on their video game preference. A study by Braun, Stopfer, Muller, and Egloff (2016) suggests that players who are interested in action games have the lowest neuroticism scores. Another study conducted by Chory and Goodboy (2011) suggested that players who select violent video games have high extraversion and openness to experience scores, whereas high emotional stability and agreeableness scorers do not have the tendency to prefer violent video games. Moreover, a study by Markey and Markey (2010) suggests that individuals with higher neuroticism scorers tend to behave aggressively after being exposed to violent video games, but this behaviour often occurs when high neuroticism scorers also have low scores in the agreeableness and conscientiousness traits. Their findings further indicate that individuals with high neuroticism scores do not prefer violent games but when exposed to them, they are more likely to behave aggressively. On the other hand, low neuroticism scorers are the exact opposite; they tend to play violent video games regularly but are less likely to have aggressive behaviours (Markey and Markey, 2010).

Another research conducted by Zammitto (2010) found that the first-person shooter and third-person shooter genres positively correlate with the extraversion and neuroticism traits, indicating that players who have scored high in these two traits have also said that they prefer the ‘shooter’ to other genres. In addition, one of the respondents in Zammitto’s study listed shooter games, including Call of Duty, Mafia and Battletoads as their most preferred video games, and that person has also scored high extraversion and neuroticism scores.

Zammitto’s research results also yielded that sports players tend to score high extraversion and neuroticism, as well as low agreeableness and openness to experience. Moreover, Zammitto’s research results generally found that neuroticism is a highly significant factor that predicts preference of genres including first-person and third-person shooters, action, sports and fighting games, whereas high extraversion scores indicate players who prefer these same genres, as well as games that have online-multiplayer features.

Furthermore, Zammitto found that players who scored low in openness to experience have no interest in playing shooters, online play and sports games, and prefer playing games which are categorised under the adventure, puzzle, simulation and educational genres. High
conscientiousness scorers are found to have a preference for puzzle games, and have less interest in games involving simulating or driving vehicles. As for the agreeableness trait, high scorers are less likely to select shooters, sports, online/multiplayer and fighting games and more likely to select to select action/adventure games.

A further study was conducted by Borders (2012), in which he found that participants with low extraversion scores are more likely to select games that involve cognitive processing and are not interested in action games. Borders also concluded that individuals with high scores of agreeableness, self-control and openness to experience are more likely to choose action games and have low preference for cognitive processing games. Moreover, many of Borders’ study findings are congruent with Zammitto’s (2010) conclusions, as the latter found that sports games and shooter games have a negative correlation with openness to experience, and that puzzle/cognitive processing games have a positive relation with that trait. However, some of Borders’ results are different from Zammitto’s. The latter concluded that individuals who have high openness to experience and agreeableness scores often have a preference for action/adventure games, whereas the former’s findings suggest the opposite. Lastly, Borders’ (2012) findings are in agreement with Zammitto’s (2010) conclusion that high conscientiousness scorers prefer puzzle games to other types of games.

Furthermore, Borders’ (2012) findings yielded that participants who chose RPG (role-playing game) as their most favourite genre had significantly higher scores in the openness to experience trait than the persons who selected shooter or sports as their most favourite genre. These findings are partially congruent with Zammitto’s (2010), as he suggested that high openness to experience have little preference for sports and first-person/third-person shooter games.

Lastly, Borders’ (2012) study found that the players who spend a large number of hours per week playing video games are those who have a preference for action/adventure, strategy and role playing genres. The study also concluded that players who do not spend many hours a week playing video games are those who favour cognitive processing games, puzzle games and educational games. These results can be easily justified because action/adventure, as mentioned in section 3.1 game genre definitions, is a genre that involves video games that focus on story telling and exploring worlds and locations. Naturally, these types of games require players to spend a significant amount of time in order to complete the objectives and finish the story. Puzzle and
cognitive processing games, on the other hand, contain a set of objectives that require players to spend short amounts of time to complete, unlike action/adventure and role playing games.

3.4 The present research

The structure and some of the content in this research was based on the studies conducted by Cherry and Goodboy (2004), Zammitto (2010) and Borders (2012). This research examined and compared the results of the previous studies in order to determine whether the findings of this research are in agreement with them. In addition, the present research explored specific types of video games ‘genres’, such as action/adventure, role-playing, sports, first-person/third-person shooters and puzzle, in order to produce more accurate findings that are comparable to the previous studies. Thus, there are several other video game genres that could be examined and studied, but instead it was decided, for the purpose of this study, to select the genres that were explored in the previous studies.

Furthermore, this research investigated the study of personalities and behaviour of regular video game players. There are several types of personality models and tests that aim to determine the personality of an individual. The Big-Five Factor of Personality model was selected for this research because it is arguably the most popular personality test, and does not contain a significantly large number of questions, according to Cattell, Eber and Tatsuoka (1970). In addition to being popular and relatively short, the Big-Five personality model is simplified, as it only contains the five most important personality factors. Other personality models contain as much as 16 factors, such as the Italian 16 Factors of Personality (Cattell, Eber and Tatsuoka, 1970), thus another reason for selecting the Big-Five model. Lastly, the previous studies explored in this research also used the Big-Five model, so in order to present accurate, comparable results, the Big-Five is the most applicable personality model for the present research.

Moreover, the present research used a questionnaire that is somewhat similar to Borders’ (2010) Zammitto’s (2010) questionnaires used to collect the data. It included questions asking participants to provide information regarding their video game preferences. It also included a section regarding the Big-Five Model of personality which contains a 50-question test that determined the personality trait scores of participants.
4.0 Research Methodology

This section details the research methods selected for this study, as well as how the data was collected and analysed. In addition, the chapter explains the selection of participants and how they were reached.

4.1 Selected method

There are two main research methodologies: quantitative and qualitative methods. The quantitative method can be defined as measuring results based on numeric scales; it involves collecting a large number of data from many different participants. Moreover, the quantitative method involves designing questionnaires that can be beneficial for obtaining a large number of responses (Dawson, 2015).

On the other hand, the qualitative method is used when the researcher is more concerned with understanding the details of the problem than producing an explanation for it. The qualitative method involves using interviews, observation or case studies (Dawson, 2015).

The present research question requires the participation of a large number of individuals in order to present accurate results that involve personality analysis, and one of the most popular methods to test personality is through available personality tests which include multiple choice questions. Therefore, the selected research method for the present study is the quantitative method.

4.2 Questionnaire

The research method designed for this study is an online questionnaire (Appendix B and C). There are several websites that allow researchers to create online surveys, such as Survey Monkey, Google Documents and Qualtrics. After testing the websites, Google Documents was selected for this study as it was found to be easier to use.

The questionnaire contains two main sections: The first section (Appendix B) includes questions regarding video games. The questions included were a combination of Borders’ (2012) and Zammitto’s (2010) questionnaires. The present research is similar to the previous research mentioned in most aspects, but in a relatively smaller scale, thus some of the questions were
removed in order to shorten the length of the questionnaire and only the questions that are relevant to this study are selected. In addition, some modifications were made to some of the questions in an attempt to simplify the language of the questionnaire and to minimise confusion. In addition, Borders’ (2012) questionnaire focused on a number of different gaming aspects, such as asking participants their top three favourite games, whether they would spend more time playing and asking about experiencing motion sickness. These questions were removed from this questionnaire as the present study is not focused specifically on game titles, but rather on the genres of those titles. Furthermore, all health-related questions are avoided in this study as it would require researching entirely different areas, such as health concerns, seizures and sicknesses which are resulted from playing video games.

The second section of the questionnaire (Appendix C) contains the Big-Five Personality traits test which includes 50 questions. Each question is associated with one of the five traits and is given a value based on the participant’s response. Participants were asked to select the response (from 1 to 5) which best represented their opinion; 1 being strongly agree and 5 being strongly disagree.

4.3 Participants

As previously mentioned, the present research was designed specifically to target individuals who are recognised as gamers who regularly play video games. Individuals who are not interested in or have not played video games could not take part in this survey. Therefore, the sample group for this study was very specific, and given that there are a large number of websites and online forums dedicated to gaming, it was not difficult to find the group of individuals required for this study. Moreover, the questionnaire was handed out mainly using different social media platforms, including Twitter, Instagram and WhatsApp.

All participants were at least 18 years old, due to ethical regulations. Taking part in the survey was voluntary and participants were allowed to withdraw from completing the questionnaire.
4.4 Data Collection

The questionnaire was handed out to participants and all results were collected from 15 February 2017 to 23 February 2017. Participants were provided with the link to the online questionnaire and completed it from their personal computers and smartphones at their own convenient time. Participants were not given the option to save their progress and instead, they were required to complete all questions of the survey in a single session. Furthermore, participants were provided with the participant information sheet (Appendix B), and they were asked to read it before commencing the questionnaire. The participant information sheet was written in and presented as a Microsoft Word document and attached along with the link to the questionnaire. In addition, in order to ensure that participants have read the participant information sheet, it was also included in the questionnaire page.

After the completion of the questionnaire, participants were thanked for taking part in the study and presented with the contact details of the researcher and the supervisor. Each response is recorded in the Google Documents website, graphs and statistics were automatically generated. The responses stored in Google Documents are password protected and can only be accessed by the researcher. However, in order to conduct further analysis and better understand the outcome of the results, all responses were exported into a Microsoft Excel spreadsheet (Appendix D), which is stored only in the researcher’s personal computer.

4.5 Design & analysis technique

The responses were analysed by using Microsoft Excel. After all responses were collected, the first step into analysing the data was calculating the scores for the personality traits questions. Each question is associated with only one of the five personality traits, as demonstrated in the tables 1 to 5 below:
Table 4.1 – Extroversion questions

<table>
<thead>
<tr>
<th>Q1</th>
<th>“I am the life of the party”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q6</td>
<td>“I Do not talk a lot”</td>
</tr>
<tr>
<td>Q11</td>
<td>“I feel comfortable around people”</td>
</tr>
<tr>
<td>Q16</td>
<td>“I keep in the background”</td>
</tr>
<tr>
<td>Q21</td>
<td>“I start conversations”</td>
</tr>
<tr>
<td>Q26</td>
<td>“I have little to say”</td>
</tr>
<tr>
<td>Q31</td>
<td>“I talk to a lot of people at parties”</td>
</tr>
<tr>
<td>Q36</td>
<td>“I do not like to draw attention to myself”</td>
</tr>
<tr>
<td>Q41</td>
<td>“I do not mind being the centre of attention”</td>
</tr>
<tr>
<td>Q46</td>
<td>“I am quiet around strangers”</td>
</tr>
</tbody>
</table>

Table 4.2 – Agreeableness questions

<table>
<thead>
<tr>
<th>Q2</th>
<th>“I feel little concern for people”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7</td>
<td>“I am interested in people”</td>
</tr>
<tr>
<td>Q12</td>
<td>“I insult people”</td>
</tr>
<tr>
<td>Q17</td>
<td>“I sympathise with people’s feelings”</td>
</tr>
<tr>
<td>Q22</td>
<td>“I am not interested in people’s problems”</td>
</tr>
<tr>
<td>Q27</td>
<td>“I have a soft heart”</td>
</tr>
<tr>
<td>Q32</td>
<td>“I am not interested in others”</td>
</tr>
<tr>
<td>Q37</td>
<td>“I take time out for people”</td>
</tr>
<tr>
<td>Q42</td>
<td>“I feel the emotions of others”</td>
</tr>
<tr>
<td>Q47</td>
<td>“I make other feel at ease”</td>
</tr>
</tbody>
</table>

Table 4.3 – Conscientiousness questions

<table>
<thead>
<tr>
<th>Q3</th>
<th>“I am always prepared”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
<td>“I leave my belonging around”</td>
</tr>
<tr>
<td>Q13</td>
<td>“I pay attention to details”</td>
</tr>
<tr>
<td>Q18</td>
<td>“I make a mess of things”</td>
</tr>
<tr>
<td>Q23</td>
<td>“I get chores done right away”</td>
</tr>
<tr>
<td>Q28</td>
<td>“I forget to place things back in their proper place”</td>
</tr>
<tr>
<td>Q33</td>
<td>“I like order”</td>
</tr>
<tr>
<td>Q38</td>
<td>“I shirk my duties”</td>
</tr>
<tr>
<td>Q43</td>
<td>“I follow a schedule”</td>
</tr>
<tr>
<td>Q48</td>
<td>“I am exciting at my work”</td>
</tr>
</tbody>
</table>
Table 4-4 – Neuroticism questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>“I easily get stressed out”</td>
</tr>
<tr>
<td>Q9</td>
<td>“I am relaxed most of the time”</td>
</tr>
<tr>
<td>Q14</td>
<td>“I worry about things”</td>
</tr>
<tr>
<td>Q19</td>
<td>“I seldom feel blue”</td>
</tr>
<tr>
<td>Q24</td>
<td>“I am disturbed easily”</td>
</tr>
<tr>
<td>Q29</td>
<td>“I easily get upset”</td>
</tr>
<tr>
<td>Q34</td>
<td>“I often change my mood”</td>
</tr>
<tr>
<td>Q39</td>
<td>“I have frequent mood swings”</td>
</tr>
<tr>
<td>Q44</td>
<td>“I easily get irritated”</td>
</tr>
<tr>
<td>Q49</td>
<td>“I often feel blue”</td>
</tr>
</tbody>
</table>

Table 4-5 – Openness questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5</td>
<td>“I have a rich vocabulary”</td>
</tr>
<tr>
<td>Q10</td>
<td>“I have difficulty understanding abstract ideas”</td>
</tr>
<tr>
<td>Q15</td>
<td>“I have a vivid imagination”</td>
</tr>
<tr>
<td>Q20</td>
<td>“I am not interested in abstract ideas”</td>
</tr>
<tr>
<td>Q25</td>
<td>“I have excellent ideas”</td>
</tr>
<tr>
<td>Q30</td>
<td>“I do not have a good imagination”</td>
</tr>
<tr>
<td>Q35</td>
<td>“I understand things quickly”</td>
</tr>
<tr>
<td>Q40</td>
<td>“I use difficult words”</td>
</tr>
<tr>
<td>Q45</td>
<td>“I spend time reflecting on things”</td>
</tr>
<tr>
<td>Q50</td>
<td>“I am full of ideas”</td>
</tr>
</tbody>
</table>

The response to each of the questions is formatted as a scale from 1 to 5, as mention in section 4.4 data collection. In order to calculate the answers, five equations were applied (one equation for each trait):
### Table 4-6 – Personality question equations

<table>
<thead>
<tr>
<th>Trait</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extroversion</td>
<td>( = (20) + (Q1) - (Q6) + (Q11) - (Q16) - (Q21) - (Q26) + (Q31) - (Q36) + (Q41) - (Q46) = \text{SCORE} )</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>( = (14) - (Q2) + (Q7) - (Q12) + (Q17) - (Q22) + (Q27) - (Q32) + (Q37) - (Q42) + (Q47) = \text{SCORE} )</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>( = (14) + (Q3) - (Q8) + (Q13) - (Q18) - (Q23) - (Q28) + (Q33) - (Q38) + (Q43) + (Q48) = \text{SCORE} )</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>( = (38) - (Q4) + (Q9) - (Q14) + (Q19) - (Q24) - (Q29) - (Q34) - (Q39) - (Q44) - (Q49) = \text{SCORE} )</td>
</tr>
<tr>
<td>Openness</td>
<td>( = (8) + (Q5) - (Q10) + (Q15) - (Q20) + (Q25) - (Q30) + (Q35) + (Q40) + (Q45) + (Q50) = \text{SCORE} )</td>
</tr>
</tbody>
</table>

These equations were applied to each respondent in the spreadsheet, and were written in Microsoft Excel format:

### Table 4-7 – Microsoft Excel Formulae

<table>
<thead>
<tr>
<th>Trait</th>
<th>Excel Formulae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extroversion</td>
<td>=SUM(20)+I3-N3+S3-X3+AC3-AH3+AM3-AR3+AW3-BB3</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>=SUM(14)-J2+O2-T2+Y2-AD2+AI2-AN2+AS2+AX2+BC2</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>=SUM(14)+K2-P2+U2-Z2+AE2-AJ2+AO2-AT2+AY2+BD2</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>=SUM(38)-L2+Q2-V2+AA2-AF2-AK2-AP2-AU2-AZ2-BE2</td>
</tr>
<tr>
<td>Openness</td>
<td>=SUM(8)+M2-R2+W2-AB2+AG2-AL2+AQ2+AV2+BA2+BF2</td>
</tr>
</tbody>
</table>
5.0 Findings

This section details the analysis results of the data collected from the respondents.

5.1 Gender analysis

The total number of responses is 44. 37 of respondents (84%) are males, and 7 (15%) are females. The majority of respondents are males, which indicates that male gamers represent the majority of the industry of games.

5.2 Age group

The age group question contained four different answers:
- 18-22
- 23-27
- 28-35
- Above 35

The majority of respondents were in the ‘18-22’ age group. 68.2% of respondents are aged between 18 and 22, 31% are aged between 23 and 27.

Table 5-1 – Age group of participants

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>30</td>
<td>68.2%</td>
</tr>
<tr>
<td>23-27</td>
<td>14</td>
<td>31%</td>
</tr>
<tr>
<td>28-35</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Above 35</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Results show that none of the respondents was aged above 27.
5.3 Number of hours per week

The following tables show the number of hours played per week:

Table 5-2 – Number of hours per week (Males)

<table>
<thead>
<tr>
<th>No. hours</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 hour a week</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1-3 hours a week</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3-6 hours a week</td>
<td>8</td>
<td>21.6%</td>
</tr>
<tr>
<td>6-10 hours a week</td>
<td>7</td>
<td>18.9%</td>
</tr>
<tr>
<td>10-15 hours a week</td>
<td>10</td>
<td>27%</td>
</tr>
<tr>
<td>15-20 hours a week</td>
<td>5</td>
<td>13.5%</td>
</tr>
<tr>
<td>More than 20 hours a week</td>
<td>7</td>
<td>18.9%</td>
</tr>
</tbody>
</table>

Table 5-3 – Number of hours per week (Females)

<table>
<thead>
<tr>
<th>No. hours</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 hour a week</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1-3 hours a week</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>3-6 hours a week</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>6-10 hours a week</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>10-15 hours a week</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>15-20 hours a week</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>More than 20 hours a week</td>
<td>1</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

The results above indicate that female gamers spend significantly less hours playing video games than male gamers. None of the male gamers selected the (less than an hour & 1-3 hours per week) options and the majority (27%) reported playing 10-15 hours per week, whereas the majority of female gamers (28.6% + 28.6% = 57.2%) play either 1-3 hours per week or 3-6 hours per week.
5.4 Selected preferred genre

Out of 44 participants, 4 (9%) have reported that sports is their preferred game genre, 12 (27.3%) prefer the action/adventure genre, 2 (4.5%) selected horror/survival, 11 (25%) prefer role playing games, which includes ‘action RPG’ and ‘MMO RPG’ (Massively Multiplayer Online Role Playing Game), 4 (9%) participants selected strategy as their most preferred genre, and finally, 10 (22.7%) said that FPS (First-Person Shooter) is their preferred genre.

Table 5-4 – Extraversion Mean & Standard Deviation for each most preferred genre

<table>
<thead>
<tr>
<th>Genre</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports</td>
<td>4</td>
<td>20.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Action/Adventure</td>
<td>12</td>
<td>21.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Horror/Survival</td>
<td>2</td>
<td>21.0</td>
<td>6.4</td>
</tr>
<tr>
<td>Role Playing</td>
<td>11</td>
<td>17.4</td>
<td>7.8</td>
</tr>
<tr>
<td>Strategy</td>
<td>4</td>
<td>23.3</td>
<td>9.0</td>
</tr>
<tr>
<td>FPS (First-Person Shooter)</td>
<td>10</td>
<td>19.5</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Table 5-5 – Agreeableness Mean & Standard Deviation for each most preferred genre

<table>
<thead>
<tr>
<th>Genre</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports</td>
<td>4</td>
<td>17.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Action/Adventure</td>
<td>12</td>
<td>13.0</td>
<td>6.3</td>
</tr>
<tr>
<td>Horror/Survival</td>
<td>2</td>
<td>21.0</td>
<td>4.2</td>
</tr>
<tr>
<td>Role Playing</td>
<td>11</td>
<td>12.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Strategy</td>
<td>4</td>
<td>17.3</td>
<td>6.8</td>
</tr>
<tr>
<td>FPS (First-Person Shooter)</td>
<td>10</td>
<td>15.2</td>
<td>5.7</td>
</tr>
</tbody>
</table>
The results from the tables above suggest the following: The highest Extraversion scorers are players who prefer strategy games, as the average score for strategy gamers is 23.3. In addition to high extraversion scores, gamers who play strategy games are found to have below-average
openness to experience and conscientiousness scores (mean = 15.0) and (mean = 16.8) respectively.

The horror/survival genre players have high average scores in 4 different traits, including agreeableness (mean = 21.0), extraversion (mean = 21.0), conscientiousness (mean = 22.0) and neuroticism (mean = 25.0). However, they have low scores in the openness to experience trait (mean = 11.0).

Action/adventure players have scored high on neuroticism (mean = 21.0), and extraversion (mean = 21.0). They also have significantly lower agreeableness and openness to experience scores (mean = 13.0) and (15.0) respectively.

Players who prefer RPGs (role playing games) have below-average scores in all 5 traits: extraversion (mean = 17.4), agreeableness (mean = 12.8), conscientiousness (mean = 18.2), neuroticism (mean = 19.2) and openness to experience (mean = 12.6).

Finally, the FPS (First-Person Shooter) players scored 19.6 in neuroticism, which is the highest average trait, 19.5 in extraversion, 17.5 in conscientiousness, 17.3 in agreeableness and the lowest average score is openness to experience (mean = 14.3).

5.5 Preferred method of playing

The question ‘Please select the most preferred method of playing’ contained four possible answers:

- Single player (offline mode)
- Single player (helping out/split screen)
- Competitive mode (online playing/competing against other players)
- Co-op mode (online playing/cooperating with other players)

18 (42.8%) respondents selected the first answer, single player. 13 (30.9%) participants selected the third answer, competitive mode, and 11 (26.2%) participants selected the fourth answer, co-op mode.
The following tables show the mean & standard deviation for each personality trait of each most preferred playing method:

**Table 5-9 – Extraversion Mean & Standard Deviation for each most preferred playing method**

<table>
<thead>
<tr>
<th>Playing method</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single player (offline mode)</td>
<td>18</td>
<td>19.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Co-op mode</td>
<td>13</td>
<td>18.5</td>
<td>8.1</td>
</tr>
<tr>
<td>Competitive mode</td>
<td>11</td>
<td>22.8</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**Table 5-10 – Agreeableness Mean & Standard Deviation for each most preferred playing method**

<table>
<thead>
<tr>
<th>Playing method</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single player (offline mode)</td>
<td>18</td>
<td>14.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Co-op mode</td>
<td>13</td>
<td>15.6</td>
<td>7.1</td>
</tr>
<tr>
<td>Competitive mode</td>
<td>11</td>
<td>14.6</td>
<td>4.4</td>
</tr>
</tbody>
</table>

**Table 5-11 – Conscientiousness Mean & Standard Deviation for each most preferred playing method**

<table>
<thead>
<tr>
<th>Playing method</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single player (offline mode)</td>
<td>18</td>
<td>18.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Co-op mode</td>
<td>13</td>
<td>18.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Competitive mode</td>
<td>11</td>
<td>16.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

**Table 5-12 – Neuroticism Mean & Standard Deviation for each most preferred playing method**

<table>
<thead>
<tr>
<th>Playing method</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single player (offline mode)</td>
<td>18</td>
<td>20.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Co-op mode</td>
<td>13</td>
<td>19.8</td>
<td>7.1</td>
</tr>
<tr>
<td>Competitive mode</td>
<td>11</td>
<td>20.1</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Table 5.13 – Openness Mean & Standard Deviation for each most preferred playing method

<table>
<thead>
<tr>
<th>Playing method</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single player (offline mode)</td>
<td>18</td>
<td>13.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Co-op mode</td>
<td>13</td>
<td>15.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Competitive mode</td>
<td>11</td>
<td>14.9</td>
<td>8.0</td>
</tr>
</tbody>
</table>

The result from the above table show that players who prefer the single player mode have significantly low openness to experience average score (mean = 13.0), while they have high neuroticism scores (mean = 20.0).
6.0 Discussions

6.1 Discussion 1 – Gender analysis

The present study’s questionnaire was sent out to various different platforms, and aimed for both genders. However, result shows that the number of male participants (84%) who took part in the questionnaire is dramatically higher than the number of female participants (16%).

![Gender Distribution]

Figure 6-1 – Gender distribution

Although the total number of respondents who participated in the present study’s online questionnaire is relatively smaller than the number of participants in Borders’ (2012) and Zammitto’s (2010) studies, the results are somewhat similar, as Zammitto’s (2010) results showed that approximately 84% of respondents were males, and only 16% were females. This result supports the fact that the industry of games is still largely presented by male players and that females have less interest in playing video games.

6.2 Discussion 2 – Age group

All of the participants of this study were aged between 18 and 27, with the majority being between 18 and 22 (68.2%). None of the participants were aged above 27. This result is in agreement with Both Zammitto’s (2010) and Borders’ (2012) results, as both of the studies’ participants had a mean age of approximately 20 years.
6.3 Discussion 3 – Hours spent playing per week

The majority of the study participants (27%) responded that they spend 10 to 15 hours per week playing video games, and 18.9% said they play more than 20 hours per week. Moreover, all of the participants who selected ‘15-20 hours per week’ and ‘more than 20 hours per week’ are male players, which means that males who are into video games spend a significant amount of time playing. On the other hand, females are the exact opposite, as the majority of the female respondents (57%) said that they spend between 1 to 6 hours per week playing video games. It can be concluded from the results above that it is more likely that a male player will spend more time playing video games than a female player.

6.4 Discussion 4 – Selected preferred game genre

6.4.1 Strategy

After the analysis of game patterns questions and personality scores, results show that there are correlations between a person preferring a type of game and their personality. Video games that are categorised under the ‘strategy’ genre are mostly preferred by players with high extraversion and openness to experience scores. As mentioned in chapter 3.1 ‘genre definitions’, a strategy game requires players to use careful planning and have high decision-making skills. Furthermore, high openness to experience scorers tend to be creative, imaginative and innovative. These skills
are highly important in terms of playing strategy games and the results of this study further supports this statement. Therefore, the study concludes that the higher the openness score, the more likely the person will have a preference for strategy games.

6.4.2 Horror/survival

As shown in table 5-7, players who selected the horror/survival genre as their favourite have noticeably high neuroticism scores. Horror games are designed to provoke fear and anxiety to players, and high neuroticism scorers tend to constantly feel guilt, anxiety, depression and other negative emotional impacts. In addition to high neuroticism scores, horror games players have scored low in openness to experience (mean = 11.0), which means they think more conventionally and are not very creative. Unlike strategy games, horror games usually do not require players to be creative and innovative in order to achieve objectives, and instead, the main focus is to manipulate players’ emotions using fear elements. Therefore, the result clearly indicates that a player with high neuroticism score and low openness to experience score will most likely be inclined to play horror games. Furthermore, this result is congruent with Zammitto’s (2010) study, as she found that high neuroticism scorers tend to have a preference for horror games.

6.4.3 Sports

The sports players’ highest personality trait score is openness to experience (mean = 21.0), and their lowest score is agreeableness (mean = 17.0). Scores for the other personality traits include extraversion (mean = 20.0), neuroticism (mean = 20.0) and conscientiousness (mean = 18.0). These results indicate that a person who prefers sports game is innovative and creative. In addition, low agreeableness scorers tend to be naturally competitive and hostile. Sports games usually involve players competing against each other where each player is required to pick their team and try to defeat their opponent. In addition, players can also choose to cooperate with each other by playing in the same team. However, the former method of playing a sports game is more common (Zammitto, 2010).

The results of this study are partially in agreement with Zammitto’s (2010) results, as she suggested that sports player have low openness and agreeableness scores, whereas the present study’s results
suggest that sports players have high openness and extraversion scores, as well as low agreeableness scores.

6.4.4 Role Playing

The results suggest that players who prefer RPG (role-playing games) have significantly less openness to experience scores (mean = 12.6) than it was expected. As mentioned in chapter 3.1 ‘game genre definitions’, role-playing games involve very large imaginary worlds in which players can roam around freely, and it often requires a significant amount of time for players to explore the in-game world and complete all the tasks and objectives that the game has to offer. In addition, high openness to experience scorers tend to have the desire to seek new adventures and explore fresh ideas, which is what RPGs are designed to make players experience. However, players who prefer role-playing games often spend a significant amount of hours and sit through excessively prolonged sessions playing these games in order to achieve objectives, which indicates that these players generally do not have desires to be more social and would choose to stay in and spend their time playing video games rather than going out and exploring new experiences. This statement may explain the low openness to experience scores for RPG players. Moreover, this result is not in agreement with Border’s (2012) study results, as Borders found that participants who selected RPG as their first preferred genre have higher openness scores than participants who chose sports, action and shooter as their favourite genres. The present research results show that all of these genres have higher average openness to experience scores than role-playing, with the horror/survival genre being the only exception.

6.4.5 Action/adventure

Study results show that participants who prefer action games have scored the highest scores in neuroticism and extraversion, with an average scores of 21.0. Action games usually requires players to have high mechanical skills and perform movement, quick reflexes and accuracy. Adventure games are also action games that involves storytelling with dialogue and character development. Therefore, it is concluded that individuals with high neuroticism scores are more likely to be interested in action & adventure games than any other game genre, as high neuroticism scorers tend to be more sensitive and emotional, which makes them more inclined towards
storytelling that involves emotional situations. This conclusion can be supported by the fact that players who preferred other genres have scored lower neuroticism scores than those who preferred action/adventure, with the exception of horror/survival players who have significantly high neuroticism scores, as discussed in chapter 6.4.2 ‘horror/survival’.

In addition, the study results show that action/adventure players have low agreeableness scores (mean = 13.0), which indicates that action/adventure players are hostile, self-centred and suspicious. Furthermore, these findings are in agreement with both Border’s (2012), Chory and Goodboy’s (2011) and Zammittos’ (2010) results, as their studies found that there is a negative correlation between agreeableness and action games.

In summary, the following charts (figure 6-3 and 6-4) demonstrate the highest and lowest trait scores for each preferred genre:

![Bar chart showing highest trait scores for each preferred genre](image)

*Figure 6-3 – Summary: Highest trait score for each preferred genre*
As shown above, the results suggest that most of the participants have a higher average neuroticism score than any other trait. This indicates that the majority of individuals who regularly play video games are short-tempered, suffer from constant feeling of depression and guilt, regardless of the type of games that each player prefers. In addition, figure 6-4 suggests that the lowest trait average score is openness to experience, which means that a large portion of gamers, regardless of preferred game types, do not regularly seek and explore new adventures and ideas. However, there is one exception to this conclusion, which is individuals who selected sports as their favourite game type. Interestingly, the average openness to experience score for sports players is higher than all other traits. This is an indication that people who prefer sports games are not necessarily interested in any other type of video games. Although all of these types are computer games, the sports genre is quite different. Action, FPS, RPGs, strategy, horror and the other genres have many play styles in common, as these genres generally involve violent themes that require players to use weapons, firearms and other types of lethal equipment to eliminate targets. On the other hand, sports games do not involve any kind of violence, and there is no lethal equipment to be used. Thus, it is
concluded that players who prefer sports games may or may not be interested in the other ‘violent’ game types.

6.5 Discussion 5 – Preferred method of playing

As shown in chapter 5.5 ‘preferred method of playing’, almost half of the respondents (42%) prefer playing video games as single player mode, without connecting to the network. This result is congruent with Zammitto’s (2010) study, as her study results show that about 45% of participants preferred offline mode single player games. Moreover, the present study’s results show that approximately 27.1% of participants prefer multiplayer co-op mode, which means they prefer to play with other players and cooperate with them in order to achieve the objectives of the game. Zammitto (2010) found that only 14% of respondents preferred co-op mode, which is not in agreement with the present study results. The third method of playing is multiplayer competitive mode, which refers to games that involve two or more sides, each player joins one side and compete against the other to win. Study results show that 31% of participants prefer competitive games.

![Figure 6-5 – Playing method distribution](image)

6.5.1 Single player (offline mode)

As shown in tables 5-9, 5-10, 5-11, 5-12 and 5-13, single player respondents have high neuroticism scores (mean = 20.0), which indicates that they are more emotional and sensitive than co-op and
competitive players. These traits might be the reason as to why they opt for single player, as multiplayer games often require players to communicate with each other, which may lead to players being aggressive and unfriendly. In addition, respondents who prefer single player have low agreeableness scores (mean = 14.0), which indicates that they are usually hostile and antisocial.

6.5.2 Multiplayer (competitive mode)

Table 5-9 shows that players who selected competitive mode as their preferred method of playing have higher extraversion scores than all other methods, with an extraversion average score of 22.0. This result indicates that competitive game players often display energy, ambition, affiliation and positive emotions, all of which are often required in competitive games. Furthermore, table 5-10 shows that the average agreeableness score for competitive game players is 14.6, which is lower than players who prefer other playing methods. This indicates that competitive players have similar traits as single mode players, as both participant groups are hostile and suspicious.

6.5.3 Multiplayer (co-op mode)

Multiplayer cooperative mode players have scored highest in neuroticism trait (mean = 19.8), as shown in table 5-12, indicating that cooperative players share similar traits with single mode players. However, they have low openness scores (mean = 15.7). Low openness to experience scorers think more conventionally and are generally not creative and imaginative. Playing a cooperative game does not always require all involved players to be creative, thus it can be concluded that players with low openness to experience may like to follow teammates’ orders to perform game tasks.

The following charts summarise the highest and lowest personality trait for each preferred method of playing:
Figure 6-6 – Highest trait score for each preferred method of playing

Figure 6-7 – Lowest trait score for each preferred method of playing
6.6 Discussion 6 – Preferred genre & preferred playing methods

The results from the previous 6.5 and 6.4 chapters further indicate that gamers generally have high neuroticism scores, regardless of the different genres or methods of playing they prefer. The reason this is true is because each one genre is not necessarily tied to a certain playing method. For example, an action/adventure game, such as Grand Theft Auto V, can be played in a number of different ways; a player who prefers single (offline) mode is given the option to play the story of the game on their own (Bogenn, Barba and Davis, 2013). Players who are more into online multiplayer mode are also given the option to play Grand Theft Auto Online together via the network, where they can either cooperate to achieve objectives, or compete against each other (Weaver, 2013). This is also applicable to other genres including sports, role-playing games and strategy. Therefore, players with different personalities may prefer different games that fall into the same genre. This is one of the reasons the question from Border’s (2012) questionnaire “what is your top favourite game title?” was removed from the present study’s questionnaire, and instead, participants were asked what their favourite genre and playing methods were, in an attempt to acquire more accurate results and better understand personality based on game genres.
7.0 Conclusion

The primary reason for conducting the present research is to determine whether gamers prefer certain types of games based on their personality, and as mentioned in the previous chapters, there have been several studies that suggested there is indeed a relationship between personality and game genre preference. The present research explored the previous studies and used them as a main structure in order to acquire accurate results that could be cross-validated. During the process of investigating the problem, this research proposed a new questionnaire that combines the personality test with gaming patterns questions, and examined the relationship between game genre preferences and personality traits.

The following sections highlight the main areas discussed in this research.

7.1 Game genres

The rapid technology improvements throughout the years have helped enhance video games significantly; game developers started to be more innovative and created games with different styles, concepts and mechanics. This led video games to be classified into many ‘genres’, such as action/adventure, sports, RPG, strategy, horror and many other classifications, attracting larger groups of people with different interests and personalities. This classification was used as the main factor to measure game preference and personality. The present study used nine different game genres, including sports, action/adventure, role playing, strategy, FPS (first-person shooter), horror/survival, stealth action, educational and puzzle. Although there are several more game genres available, these were selected as they were thought to be the most popular.

7.2 Personality traits

The second main area examined in the present study is personality traits. The Big-Five Factor of Personality, which includes extraversion, agreeableness, conscientiousness, neuroticism and openness to experience, was the model of personality used for this research. Each trait was thoroughly examined and explained in order to further understand the personality of each individual and how it differs from another.
7.3 Questionnaire

After the two main areas, game genre preference and personality traits, were explored, an online questionnaire was constructed which contains both areas. The questionnaire consisted of two sections: the first section (Appendix B) included gaming habits questions, and the second section (Appendix C) contained the Big-Five Personality test. The questionnaire targeted only regular video game players and was sent out using mainly social media platforms, including WhatsApp, Twitter and Facebook. Participants were fairly easy to find due to the popularity of video games nowadays.

7.4 Results

After collecting the data from respondents, results show that the majority were males (84%), which indicates that the games industry is heavily represented by male players. In addition, results suggest that females spend significantly less time playing video games than males, as their average time spent playing is 3 hours per week, whereas males’ average time is 20 hours per week. Moreover, results suggest that there is a correlation between game genre preference and personality. It was found that action/adventure players have high scores in the extraversion and neuroticism traits. Results also suggest that action/adventure players have low agreeableness scores, which indicates that gamers with high scores in both extraversion and neuroticism, and low scores agreeableness are more likely to be interested in action-packed games that include quick decision-making and complex gameplay mechanics. Therefore, it is concluded that high extraversion supports fast, impulsive behaviours, whereas low agreeableness supports competition and hostility, as well as prioritising player’s own desires.

The sports genre players have scored high in openness to experience, which is not in agreement with Zammitto’s (2010) and Border’s (2012) studies. The present study result indicates that high openness supports creativity, unlike Zammito (2010) who found that openness refers to players who are interested in more precise scenarios, which sports games offer. In addition, sports players have low agreeableness scores, indicating competition and rivalry, which is one of the main concepts in sports games.
Horror genre players have high neuroticism scores, indicating that they are highly emotional, often feel depressed and anxious. The main theme of horror games is to provoke players’ emotions by using fear and tension. In addition, horror players have low openness scores. It can be concluded that players who have high neuroticism scores and low openness scores are more likely to be inclined to horror games than any other game types.

7.5 Project evaluation

After the completion of the analysis and examining the collected data, the results yielded interesting, meaningful results which are in agreement with most of the previous studies’ findings. Appropriate research papers were studied prior to conducting the primary research for the present study. This was extremely beneficial as it helped further understand the areas involved (personality and game genres) and how they could correlate together. Furthermore, the research methods conducted successfully resulted in meaningful discoveries that fulfilled the aim of the present study. As mentioned in section 2.2, the aim of this study was to investigate players’ video game preference and their personalities; whether there is a relationship between them. The results clearly indicate that gamers’ preference for certain game genres is affected by their personalities. Therefore, it can be predicted what type of game an individual would be interested in if their highest and lowest personality trait scores are determined. This statement is supported by the cross validation performed between the present study’s results and the previous studies’ results.

For future studies, researchers may be able to find more accurate results by analysing the collected data more extensively. Linear regression analysis can be performed on the data from the questionnaire using analysis software such as IBM’s SPSS Standard.
8.0 References


9.0 Appendices

9.1 Appendix A – Approved Ethics Form

Ethics approval number: **2016D0285**

When undertaking a research or enterprise project, Cardiff Met staff and students are obliged to complete this form in order that the ethics implications of that project may be considered.

**If the project requires ethics approval from an external agency (e.g., NHS),** you will not need to seek additional ethics approval from Cardiff Met. You should however complete Part One of this form and attach a copy of your ethics letter(s) of approval in order that your School has a record of the project.

The document *Ethics application guidance notes* will help you complete this form. It is available from the [Cardiff Met website](#). The School or Unit in which you are based may also have produced some guidance documents, please consult your supervisor or School Ethics Coordinator.

Once you have completed the form, sign the declaration and forward to the appropriate person(s) in your School or Unit.

**PLEASE NOTE:**

*Participant recruitment or data collection MUST NOT commence until ethics approval has been obtained.*

**PART ONE**

<table>
<thead>
<tr>
<th>Name of applicant:</th>
<th>Abdullah M Allam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor (if student project):</td>
<td>Dr. Hilary Berger</td>
</tr>
<tr>
<td>School / Unit:</td>
<td>CSM (School of Management)</td>
</tr>
<tr>
<td>Student number (if applicable):</td>
<td>ST20057016</td>
</tr>
<tr>
<td>Programme enrolled on (if applicable):</td>
<td>BSCs (Hons) Business Information Systems</td>
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<tr>
<td>Project Title:</td>
<td>Investigating the relationship between gamers’ personality traits and their preferred video game genres.</td>
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<tr>
<td>Expected start date of data collection:</td>
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<tr>
<td>Approximate duration of data collection:</td>
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<tr>
<td>Funding Body (if applicable):</td>
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</tr>
<tr>
<td>Other researcher(s) working on the project:</td>
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</tr>
<tr>
<td>Will the study involve NHS patients or staff?</td>
<td>No</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Will the study involve human samples and/or human cell lines?</td>
<td>No</td>
</tr>
<tr>
<td>Does your project fall entirely within one of the following categories:</td>
<td></td>
</tr>
<tr>
<td>Paper based, involving only documents in the public domain</td>
<td>No</td>
</tr>
<tr>
<td>Laboratory based, not involving human participants or human samples</td>
<td>No</td>
</tr>
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</table>
Practice based not involving human participants (eg curatorial, practice audit) | No
---|---
Compulsory projects in professional practice (eg Initial Teacher Education) | No
A project for which external approval has been obtained (e.g., NHS) | No

If you have answered YES to any of these questions, expand on your answer in the non-technical summary. No further information regarding your project is required. If you have answered NO to all of these questions, you must complete Part 2 of this form.

In no more than 150 words, give a non-technical summary of the project:

The aim of this research is to discover the personality traits of the individuals who regularly play video games as well as determine whether there is a correlation between their preferred video game type and their personalities.

For example, there are many gamers who would prefer playing sports games, such as FIFA, to any other game genre, even though they are not necessarily watching or playing any sports in real life. The goal of the research is to discover why this is the case for those individuals and whether their personality traits have any significant impact on selecting the video game type.

In order to conduct the research and collect data, a survey will be distributed to the sample group which includes several types of questions regarding video games. It will also include the “Five Factor Personality Model” test, which determines the personality of the individual based on five different dimensions: agreeableness, conscientiousness, extraversion, emotional stability and openness to experience.

**DECLARATION:**

I confirm that this project conforms with the Cardiff Met Research Governance Framework.

I confirm that I will abide by the Cardiff Met requirements regarding confidentiality and anonymity when conducting this project.

**STUDENTS:** I confirm that I will not disclose any information about this project without the prior approval of my supervisor.

Signature of the applicant: [Signature]
Date: 12/11/2016

**FOR STUDENT PROJECTS ONLY**

Name of supervisor: Dr. Hilary Berger
Date: 12/11/2016

Signature of supervisor: Dr. Hilary Berger

---

**Research Ethics Committee use only**

Decision reached: Project approved x
PART TWO

A RESEARCH DESIGN

A1 Will you be using an approved protocol in your project? No

A2 If yes, please state the name and code of the approved protocol to be used

N/A

A3 Describe the research design to be used in your project

Research Method: Primary research method will be used. A deductive research technique will be used that involves quantitative data gathering aligned to a positivistic philosophy. A questionnaire will be designed containing two main sections: the video game questions and the Five Factors of Personality Test. The survey will be distributed to a minimum of 50 individuals in order to gather sufficient data that produces accurate information when analysed.

Sample and Sampling: Stratified sampling type will be used in this research, as all participants will have one common characteristic. The individuals selected are gamers who regularly play video games, from age 18. In addition, the survey will be delivered to participants in an online form; no physical or hard copies will be created. Therefore, the sample group will be selected mainly from different social media platforms, such as Facebook, Twitter and several online gaming forums. In addition, before commencing the survey, the participants will be informed that the data collected will maintain anonymity and the survey does not include any questions that require sensitive or personal information, such as name or address. The researcher will not require any access to personal information from the participants.

Analytical Techniques: Participants will be asked to provide their informed consent. The survey will be created in the SurveyMonkey website, and although the website automatically calculates the responses and generates different charts and statistics, descriptive analysis will be done in order to address potential correlations between personality traits and video game preferences. For example, the following statement is a possible correlation between personality and game preference: 70% of

---

1 An Approved Protocol is one which has been approved by Cardiff Met to be used under supervision of designated members of staff; a list of approved protocols can be found on the Cardiff Met website here
participants who said that they prefer playing co-op games (co-operative multiplayer involving other players) have scored a high result in the openness to experience personality trait.

All data collected will remain confidential and will be stored securely in a password protected computer system.
All participants will remain anonymous; any data provided will not be traceable back to specific people.
The researcher will not require any access to personal information from the participants.

A4 Will the project involve deceptive or covert research?  No
A5 If yes, give a rationale for the use of deceptive or covert research
N/A

A6 Will the project have security sensitive implications?  No
A7 If yes, please explain what they are and the measures that are proposed to address them
N/A

B PREVIOUS EXPERIENCE
B1 What previous experience of research involving human participants relevant to this project do you have?
N/A

B2 Student project only
What previous experience of research involving human participants relevant to this project does your supervisor have?
N/A

C POTENTIAL RISKS
C1 What potential risks do you foresee?
- 1) There may be a risk of respondents not willing to answer due to confidentiality.
- 2) Risk of questionnaire not yielding any useful results for the research.
- 3) Risk of respondents not knowing the outcome of the survey.

C2 How will you deal with the potential risks?
- 1) All questionnaires will be conducted in online form and will ensure that researchers maintain confidentiality and all participants will answer the questions anonymously.
- 2) There will be alternative data collection methods, either secondary research or another version of the survey, depending on the time limit.
- 3) The aim of the survey and how the data will be used by the researcher must be clearly stated before the respondents begin to answer the questions.

When submitting your application you MUST attach a copy of the following:
- All information sheets
- Consent/assent form(s)

An exemplar information sheet and participant consent form are available from the Research section of the Cardiff Met website.
9.2 Appendix B – Questionnaire section 1

Part 1: Video Game Preferences

1.1 Please choose an option:
   1) Gender
      - Male
      - Female
   2) Age
      - 18-22
      - 23-27
      - 27-30
      - Above 30

1.2 General
   3) What game genres do you regularly play? (You can choose multiple answers)
      - Sports
      - Action/Adventure
      - Role Playing
      - Strategy
      - FPS (First-Person Shooter)
      - Third-Person Shooter
      - Horror/Survival
      - Stealth Action
      - Educational
      - Puzzle
      - Other – Please specify

   ((TEXT BOX))

   4) What would you say your most favourite genre is? (Select one)
      - Sports
      - Action/Adventure
      - Role Playing
      - Strategy
      - FPS (First-Person Shooter)
      - Third-Person Shooter
      - Horror/Survival
      - Stealth Action
      - Educational
      - Puzzle
      - Other – Please specify

   ((TEXT BOX))

   5) Why is that genre your favourite? (You can choose multiple answers)
      - Graphics
      - Gameplay
      - Game/character customisation
      - Difficulty and challenges
- Social/multiplayer
- Other – Please specify

((TEXT BOX))

6) How many hours do you usually play per week? (Choose one)
- Less than an hour a week
- 1-3 hours/week
- 3-6 hours/week
- 6-10 hours/week
- 10-15 hours/week
- 15-20 hours/week
- More than 20 hours/week

7) Do you prefer playing solo (offline) or (multiplayer)?
- Solo
- Multiplayer

1.3 Gaming Preference/Patterns

8) Please tick the most preferred method of playing:
- Single player (offline mode)
- Single player (helping out, with other players)
- Competitive mode (playing against other gamers)
- Co-op mode (playing and cooperating with other gamers)
Part 2: The Big-Five Personality Traits Test

2.1 For each statement, please choose the response that best represents your opinion (1 being strongly agree, 5 being strongly disagree):

1) I am the life of the party.
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

2) I feel little concern for others
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

3) I am always prepared
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

4) I get stressed out easily
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

5) I have a rich vocabulary
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

6) I don't talk a lot
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

7) I am interested in people
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree

8) I leave my belongings around
   Strongly agree (1) (2) (3) (4) (5) Strongly disagree
9) I am relaxed most of the time  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

10) I have difficulty understanding abstract ideas  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

11) I feel comfortable around people  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

12) I insult people  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

13) I pay attention to details  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

14) I worry about things  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

15) I have a vivid imagination  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

16) I keep in the background  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

17) I sympathise with others' feelings  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

18) I make a mess of things  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

19) I seldom feel blue  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree

20) I am not interested in abstract ideas  
    Strongly agree (1) (2) (3) (4) (5) Strongly disagree
21) I start conversations
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

22) I am not interested in other people's problems
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

23) I get chores done right away
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

24) I am easily disturbed
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

25) I have excellent ideas
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

26) I have little to say
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

27) I have a soft heart
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

28) I often forget to put things back in their proper place
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

29) I get upset easily
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

30) I do not have a good imagination
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

31) I talk to a lot of different people at parties
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

32) I am not really interested in others
Strongly agree (1) (2) (3) (4) (5) Strongly disagree
33) I like order
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

34) I change my mood a lot
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

35) I am quick to understand things
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

36) I do not like to draw attention to myself
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

37) I take time out for others
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

38) I shirk my duties
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

39) I have frequent mood swings
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

40) I use difficult words
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

41) I do not mind being the centre of attention
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

42) I feel others’ emotions
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

43) I follow a schedule
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

44) I get irritated easily
Strongly agree (1) (2) (3) (4) (5) Strongly disagree
45) I spend time reflecting on things
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

46) I am quiet around strangers
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

47) I make people feel at ease
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

48) I am exciting in my work
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

49) I often feel blue
Strongly agree (1) (2) (3) (4) (5) Strongly disagree

50) I am full of ideas
Strongly agree (1) (2) (3) (4) (5) Strongly disagree
### 9.4 Appendix D – Microsoft Excel respondents sample

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<tr>
<th>Timestamp</th>
<th>Age Group</th>
<th>Gender</th>
<th>Regular Genre</th>
<th>Preferred Genre</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
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<td>18-22</td>
<td>Male</td>
<td>Sports, Action/Adventure, Role Play/Role Playing</td>
<td>Gameplay, Game/Character Customisation</td>
<td>More than 20 hours a week</td>
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<td>18-22</td>
<td>Male</td>
<td>Sports, Action/Adventure, FPS</td>
<td>Graphics, Gameplay, Game/Character Customisation</td>
<td>15-20 hours a week</td>
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<td>18-22</td>
<td>Male</td>
<td>Action/Adventure, Strategy, FPS</td>
<td>Gameplay, Game/Character Customisation</td>
<td>5-10 hours a week</td>
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<td>18-22</td>
<td>Male</td>
<td>Action/Adventure, Role Playing, FPS</td>
<td>Gameplay, Game/Character Customisation</td>
<td>5-10 hours a week</td>
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<td>2/19/2017 17:04:53</td>
<td>18-22</td>
<td>Male</td>
<td>Action/Adventure, Role Playing, FPS</td>
<td>Social/Multiplayer</td>
<td>More than 20 hours a week</td>
</tr>
<tr>
<td>2/19/2017 17:05:36</td>
<td>18-22</td>
<td>Male</td>
<td>Action/Adventure, Strategy, FPS</td>
<td>Graphics, Gameplay, Difficulty and Challenges</td>
<td>10-15 hours a week</td>
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<tr>
<td>2/19/2017 17:10:34</td>
<td>18-22</td>
<td>Male</td>
<td>Action/Adventure, Role Play/Role Playing</td>
<td>Graphics, Gameplay, Difficulty and Challenges</td>
<td>5-10 hours a week</td>
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<tr>
<td>2/19/2017 17:13:23</td>
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<td>Female</td>
<td>Action/Adventure, Strategy, FPS</td>
<td>Difficulty and Challenges</td>
<td>5-10 hours a week</td>
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<td>Graphics, Gameplay, Game/Character Customisation</td>
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<td>Horror/Survival</td>
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<td>2/19/2017 17:20:55</td>
<td>23-27</td>
<td>Male</td>
<td>Sports, Action/Adventure, Role Play/Role Playing</td>
<td>Graphics, Gameplay, Social/Multiplayer</td>
<td>15-20 hours a week</td>
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<td>Difficulty and Challenges, Social/Multiplayer</td>
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<td>Action/Adventure</td>
<td>Gameplay</td>
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<td>Role Playing</td>
<td>Gameplay, Game/Character Customisation</td>
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<td>Gameplay, Game/Character Customisation</td>
<td>10-15 hours a week</td>
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<tr>
<td>2/19/2017 17:36:20</td>
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<td>Sports, Action/Adventure, FPS</td>
<td>Gameplay</td>
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<td>2/19/2017 17:38:27</td>
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<td>Gameplay</td>
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<td>2/19/2017 17:47:18</td>
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<td>Male</td>
<td>Sports, Action/Adventure, Role Play/Role Playing</td>
<td>Gameplay</td>
<td>More than 20 hours a week</td>
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