

Violent First-Person Shooters:
Investigating Life-Satisfaction and Empathy in Long-Term Excessive Users

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Declaration

‘I declare that this thesis that I have submitted to Dublin Business School for the award of HDip Psychology is the result of my own investigations, except where otherwise stated, where it is clearly acknowledged by references. Furthermore, this work has not been submitted for any other degree.’

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Abstract

The aim of the current study was to explore the differences, in terms of life-satisfaction and empathy, between excessive long-term users and non-excessive users of violent FPS games. A correlational design with a cross-sectional quantitative survey was utilised. A total of 79 participants completed a 26-question online survey consisting of demographic and video game usage questions, along with empathy and life-satisfaction scales. The study found that excessive and non-excessive users did not differ significantly in measures of life-satisfaction or empathy and found a weak positive correlation between empathy and life-satisfaction.

Violent First-Person Shooters:

Investigating Life-Satisfaction and Empathy in Long-Term Excessive Users

Towards the end of the 1990s, the ever-increasing sophistication of integrated circuitry, with regards to computer hardware — coupled with the advent of an internet which could sufficiently transmit data at an acceptable latency — led to the beginnings of multiplayer First-Person Shooter (FPS) games, in which players could play against and communicate with each other across the world. This interconnection of people enabled and propelled interest in these types of video games and led to an increase in the number of adolescents who would spend greater periods of time indoors; playing online with their friends or with strangers instead of engaging in the ‘normal’ social behaviours of their age groups (Johansson & Gotestam, 2004).

A study by Rehbein, Psych, Kleimann, Mediasci, and Mossle (2010), for example, found that computer ownership by German adolescents increased from 35% to 71% in the 10 years from 1998 to 2008. This study also highlighted the problematic blanketing of internet and gaming use as one aggregated field, computer-related addictive behaviour, instead of qualifying the multi-layered issues that more accurately describe it. This steadily growing enthusiasm for technology has spawned a growing interest in the psychological ramifications of its use, and it has been proposed that, in certain instances, playing computer games can become psychologically and socially detrimental to the user (Kuss & Griffiths, 2012; Weinstein & Lejoyeux, 2010).

Two distinct camps have formed around the debate on the effects of Violent Computer Games (VCGs). Heated academic exchanges have taken place between those who have found that VCGs have detrimental cognitive, social and emotional consequences (e.g., Anderson et al., 2010; Bartholow, Sestir, & Davis, 2005; Funk, Buchman, Jenks, & Bechtoldt, 2003) and those who question these conclusions, citing issues such as flawed methodologies, selection

biases or potential misinterpretations of the data (e.g. Browne & Hamilton-Giachritsis, 2005; Ferguson & Kilburn, 2010; Freedman, 2002). Anderson has been particularly prolific in producing research which concludes that violent media exposure is highly detrimental to its users, and that this exposure is causal. He derides research in which conclusions are drawn claiming associations or linkage as outcome results; and asserts data obtained from his General Model of Aggression (GAM) should be viewed as causal results, not correlations (Anderson & Carnagey, 2004). One facet of research to date, however, upon which all sides seem to agree, is the lack of data available for long-term users of VCGs in general, especially long-term excessive users.

An fMRI study involving two user groups — a control group who abstain from FPS games (n = 19), and those who play FPS games for at least 15 hours a week — was undertaken, to examine the effects of excessive play. When shown negative images of real-world events, both groups displayed similar amygdala reactions; a region of the brain involved in processing negative emotions. However, upon examination of the left medial frontal lobes, a region involved in controlling fear and aggression, excessive users showed lower activation levels than the control group, which the authors suggested was probably due to a desensitisation to violence caused by their excessive game playing. It is difficult however, to know if these results indicate that people who are desensitised to violence are drawn to FPS games, or if FPS games cause a desensitisation to violence; consequently, personality traits were examined, and no major differences between the groups were noted. The study suggested that violence desensitisation does occur among heavy FPS users and that it bleeds into both real and virtual life; however, also suggested is that not enough studies have been conducted in this domain to reach any concrete conclusions (McCracken, 2018). The current study hopes to investigate some of these differences through data gained from a population that is excessive both in terms of time played on a day-to-day basis, and in terms of the number of years spent doing so.

Empathy

Empathy is an emotion which is instrumental to an individual making moral evaluations (Eisenberg, 2000), and the way in which empathy is experienced and expressed depends on both an individual's disposition and the context of the situation (Eisenberg, Wentzel, & Harris, 1998). A positive relationship between empathy and well-adjusted social behaviour has been identified, while lower empathy has been found to predict poorly adjusted social behaviour (Cohen & Strayer, 1996; Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000).

The current study adopted empathy as one of the variables of interest, mainly because of the link often made between a desensitisation to violence and repeated exposures to violent media (Bushman & Huesmann, 2001); likewise the occurrence of changes in emotional and cognitive responses to violent events, including a decrease in empathy and a more positive view of violence (Funk, Buchman, Jenks, & Bechtoldt, 2003). Lemmens, Bushman, and Konijn (2006), in a study involving Dutch and Belgian secondary school students (N = 299), found that aggressive and less emphatic students were more attracted to VCGs than their counterparts, and that a lower social status was a positive predictor of more time spent playing VCGs. They concluded that heavier users of violent games might display less empathy and higher aggression due to a desensitisation from excessive play; and that the more empathetic a boy was, the less likely he was to play VCGs.

Bartholow, Sestir, and Davis (2005) examination of the effects of VCGs have found positive correlations with VCGs and self-reported aggression, which can in part be explained through trait hostility and empathy. Empathy was tested using the Interpersonal Reactivity Index (IRI), a 28-item questionnaire which measures empathy using 4 sub-scales: Perspective Taking (PT), Fantasy (FS), Empathic Concern (EC) and Personal Distress (PD). These subscales are positively related to the Toronto Empathy Questionnaire (TEQ) scale, which the current study used to investigate empathic differences between user groups (Spreng,

McKinnon, Mar, & Levine, 2009). The author concluded that the broad scope of factors encompassing problematic behaviours, such as aggression, including cultural influences; poverty; parenting; and arousal levels, makes it practically impossible to declare that playing VCGs has an immense effect on such outcomes. Nevertheless, they do express that it is probably an important factor in these negative outcomes. This study, like many studies involving VCGs and issues of empathic desensitisation, laments the lack of data on the long-term consequences of VCG exposure.

Critics of the alleged long-term effects of VCG exposure, such as Freedman (2002), have expressed doubt about the long-term effects that playing VCGs has had, suggesting instead that other unrelated variables, such as hostile personalities, are more likely factors. Freedman declares that psychologists and health organisations — who have claimed that research has proven that violent media causes aggression — are incorrect, and that research results provide no causal evidence at all. A more recent study by Szykik, Mohammadi, Münte, and Te Wildt (2017) used fMRI data and relevant psychological questionnaires to study long-term VCG users who they assumed would show lower levels of empathy, due to repeated VCG playing. A total of 15 people — excessive users of violent games, and control subjects of similar age and education — viewed pictures that showed emotional and normal situations, while they interacted either socially or alone; during which time fMRI activations were taken. Neither group showed differences in brain responses, which led the authors to conclude that, if a blunting of empathy did occur, it was likely short-lived.

Funk, Buchman, Jenks, and Bechtoldt (2003) tested child empathic responses in relation to VCGs and found exposure to be statistically significant but small when compared to other predictors. They further say that, in any case, these relationships cannot be categorised as causal, as desensitised children with lower empathy may be more attracted to violent games, or other factors such as poor parenting may be responsible for lower empathy. A more thorough

examination of participants cognitive, emotional and situational baselines would help in separating aberrations from predictable trends.

A meta-analysis by Anderson et al. (2010) examined how exposure to violent media impacted an individual's empathy. They expected that short exposures would have a small effect, and that larger effects would be noticed in long-term studies and over longer desensitisation processes. The short exposure data matched expectancies, but unfortunately, they lacked the necessary long-term data to reach any conclusions on the matter. Theoretical frameworks exist which predict that repeated exposures to VCGs will result in a culmination of effects over time; the most influential and contentious of which is the GAM (Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011). According to Szyck, Mohammadi, Münte, and Te Wildt (2017), one of the central mechanisms of the GAM is that an emotional desensitisation occurs, which evidences itself through a reduced empathy in excessive users. Most studies seem to agree that there are short-term consequences of VCG playing, impacting areas such as emphatic responding; but because long-term data is so scarce and difficult to come by, any conclusions drawn from short-term exposure and extrapolated to long-term consequences are presumptive at best.

Ferguson & Dyck (2012), in a provocative paper titled 'Paradigm change in aggression research: The time has come to retire the General Aggression Model' argue that data used to support the GAM has never approached conclusive, and that social cognitive theories in general are not currently adequate to explain aggressive behaviours. They accuse the GAM of having weak and hidden assumptions and feel that it is time to move forward and develop more robust theories which can better describe the effects of VCGs on their users.

Life-Satisfaction

According to Diener, Emmons, Larsen, & Griffin (1985), life satisfaction is the cognitive-judgemental aspect of subjective well-being, and it reflects the ways by which a person consolidates the reality of their standards of living with their preferred ideal. Global life-satisfaction is measured as an overall evaluation of an individual's contentment with life.

A study by Ko, Yen, Chen, Chen, and Yen (2005) examined Taiwanese adolescents (N = 395) and found that online play can provide individuals, particularly males, with an avenue to escape from a reality with which they are not satisfied. Low life-satisfaction, low self-esteem, and older age all predicted a greater severity of addiction to online gaming. They recommended that strategies be developed which could limit this need to escape from society, especially with older individuals, as self-esteem and life-satisfaction are both important predictors of harmful behaviours such as substance abuse. Like most studies in this area, the focus was on younger individuals; which is why the current study examines life-satisfaction in older individuals who may have used these escape-from-reality strategies over a long period of time.

Zullig, Valois, and Huebner (2001) conducted a study involving public high school students in North Carolina, and they found that substance abuse was significantly associated with low life-satisfaction. Another finding was that people who had taken their first illicit substance aged 13 or younger also had a significant association with low life-satisfaction. They determined that further evaluations of low life-satisfaction determinants are important in supporting future intervention strategies which can prevent or reduce life-dissatisfaction. If excessive long-term playing of FPS games is a contributing factor in low life-satisfaction, it is important that it be established; so that potential causal chains can be examined and intervention strategies can be discussed (Snodgrass, 2014). Life-satisfaction was chosen as one of the variables of interest in the current study, in part due to expectations that if excessive

playing of FPS games had measurably negative consequences in the sample population, then low life-satisfaction scores may be one indicator of these outcomes, and long-term users should be particularly likely to produce data which reflects this.

Gender Differences

A study by Hoeft, Watson, Kesler, Bettinger, and Reiss (2008) was undertaken in hopes of gaining a better understanding of the underlying neural processes of playing computer games. This was done using a functional magnetic resonance imaging (fMRI) study, the results of which indicated that males showed higher levels of activation and functional connectivity in the mesocorticolimbic system when compared to females. They concluded that gender differences may explain why males are more likely to play and become addicted to computer games, through differing motivational states and reward predictions. The current study was interested in investigating group differences regarding gender, but it was expected that males would dominate the excessive user category, based on a study by Wei, Chen, Huang and Bai (2012), which concluded that males, as well as generally playing more games than females, also tended to have a longer history of game playing. According to Rehbein et al. (2010), in their German nationwide study of male and female adolescents ($N = 44,610$), male video game dependence was recorded at a 10:1 ratio ($m = 3\%$, $f = .3\%$) when compared with female dependents.

Video-Game Usage

Various proposals have been put forth in attempts to classify 'excessive' computer game use. Messias, Castro, Saini, Usman, and Peebles (2011) for example, proposed that anything above five hours of play a day be considered excessive, and Huang (2006) suggested that anybody playing more than ten hours a week be considered 'dependent'. Griffiths (2010), however, when comparing a case study of two individuals who both played up to fourteen hours of games a day, found that although behaviourally similar in terms of hours played; the

psychological experience, the meaning of game playing, and the consequences in their lives were vastly different. He proposes that context is important, and that to accurately measure gaming addiction, a focus should be placed on the negative consequences of excessive game play, and not the amount of time spent playing these games. Based on this premise, the current study chose life-satisfaction as one of the variables to be measured, as significant negative consequences should be apparent in an individual's life-satisfaction levels, especially if these negative consequences have been occurring for extended periods of time.

Life-Satisfaction and Empathy

Several studies on the positive relationship between life-satisfaction and empathy have been conducted (e.g., Bourgault et al, 2015; Choi, Minote, Sekiya, & Watanuki, 2016), and both lower-life satisfaction and lower empathy have been associated with excessive internet usage (e.g. Lachmann, Sariyska, Kannen, Cooper, & Montag, 2016). Lachmann et. al (2018) conducted a study which investigated the relationship between empathy, life-satisfaction and excessive internet usage. The study looked at data from Chinese (N = 612) and German (N = 304) independent samples, and found that, like previous research on the matter, higher problematic internet usage; lower empathy; and lower life-satisfaction were positively correlated.

A study by Wei, Liao, Ku, and Shaffer (2011) examined Subjective Well-Being (SWB), a model which describes how a person experiences their quality of life, and it is not associated with income, age, gender, race or education. Three distinct but related factors encompass SWB, positive effect and negative effect, which are emotional reactions; and life-satisfaction, which is a judgemental-cognitive process. This study used two sample groups, college students (N = 195) and community adults (N = 136), to examine the relationship between emotional empathy towards others, attachment avoidance, and SWB. Based on previous research, they suggested that empathy towards others would likely be linked with increases in one's life-satisfaction.

They found that SWB might increase empathy and self-compassion, but advised caution as to the results, due to the lack of longitudinal data.

Aims

In summary, the present study aimed to build upon previous research in which a negative association between empathy and excessive gaming, and life-satisfaction and excessive gaming, had been presented; and also to investigate relationships between empathy and life-satisfaction. These relationships were examined across two distinct user groups to highlight expected differences. Data was gathered to test for differences between excessive long-term users of FPS games and non-excessive users. Alongside former professional FPS players, the excessive user group comprised other users who also met excessive user criteria and whom have played FPS games for a considerably longer period of time than any individuals in studies such as those of Syzcik et al.'s (2017). These users, given the ever-increasing popularity of gaming in general, may provide much useful data on how the future might look for today's adolescents and present-day FPS players — unless strategies to reduce negative aspects of excessive use are enacted.

Although there was no opportunity for a longitudinal study involving prior personality trait tests — so that changes could be observed, rather than inferred — conclusions can still be discussed in terms of other research with similar findings. Due to the conflicting opinions on reliability of data and constructs, misinterpretation of data, and inherent biases in this contentious area of study; no predictions can be confidently made as to outcome expectations for this study, which is reflected in the construction of the hypotheses.

This study has three hypotheses:

H1: It was hypothesised that there would be a positive correlation between empathy and life-satisfaction.

H2: It was hypothesised that there would be a relationship between game usage and empathy.

H3: It was hypothesised that there would a relationship between game usage and life-satisfaction.

Methodology

Ethical approval

Before research began, ethical approval was sought and given by the ethics board at Dublin Business School.

Participants

A total of 79 individuals participated in this study (M=72, F=6, O=1). These individuals were recruited using purposive and snowball sampling. An online survey was used to collect the data.

To reach the excessive user sample, two former managers of Irish professional gaming teams were contacted by phone, wherein they were given details of the survey and its purpose. All queries were answered, and they both agreed to receive the information sheet (Appendix A) by e-mail, and to respond to me with their consent. They then passed a link to the survey, as well as the information sheet, to former players and other individuals whom they thought might reach the excessive user criteria.

The non-excessive user sample were recruited using social media, such as Facebook and WhatsApp. Willing participants were given the information sheet and a link to the survey. They were also encouraged to pass both on to friends or family. The survey was designed to be anonymous — it collected some demographic information (age range, gender) — but it did not allow for the input of any primary identifiers. Participants had the option to withdraw from the survey at any point, without any data being collected. However, due to the anonymity of the data, consent could not be revoked after the submit response button was clicked. Given the low rate of female and other responses, it was decided not to take gender into account, as it was felt that no meaningful conclusions could be drawn from this variable. Eighteen was the

minimum age group permitted to take the survey. Age range data was collected solely to ensure that participants acknowledged that they were over the age of 18, and to check the consistency of years-played responses (e.g. someone who is 18–25 shouldn't input that they have been playing for 30 years).

Excessive and non-excessive users were designated based on their responses to the Video Game Usage Questionnaire (Appendix E). Specifically, if a participant played for more than ten hours per week, or more than five times per week, and they had been playing FPS games for at least 10 years, then they were categorised as excessive users, otherwise they were considered non-excessive users.

Design

A correlational design with a cross-sectional quantitative survey was used to investigate relationships between variables and between group differences. The survey consisted of five sections: 1) Demographic information (age-range and gender); 2) Video game usage (Hours per week, times per week, years playing); 3) SWLS; 4) TEQ; 5) Submission link page.

A Spearman's rho correlational analysis was carried out to investigate the relationship between empathy and life-satisfaction, while Mann-Whitney U tests were used to investigate relationships between game usage (excessive or non-excessive) and empathy and game usage and life-satisfaction. The criterion variable was game usage, while empathy and life satisfaction acted as predictor variables. Non-parametric testing was chosen over parametric testing for life-satisfaction because, after running normality tests, it was found that the SWLS data was significant ($p = .007$) on a Shapiro-Wilk report. Non-parametric testing was chosen over parametric testing for empathy, based on a study by De Winter and Dodou (2010), which compared two samples of 5-point Likert data analysed using a t-test and a Mann-Whitney U test, and discovered that Type II error rates from both tests approached 0%; implying that differences between samples were big enough to be found by either method at an α level of .05.

After running Little's Missing Completely at Random (MCAR) test, missing data was deemed to be a result of randomness (user error) rather than a systemic issue involving the dataset which would make some values more likely to be missing than others (Little, 1988). As such, missing data was replaced with values derived using an imputation technique, specifically Expectation-Maximisation (EM). An α level of .05 was deemed sufficient in determining significance for all tests.

Apparatus

Google Forms was used as a platform to design and host the survey. An excel sheet containing the results was downloaded, recoded and reverse scored where required, and analysed using SPSS 25.

Materials

Research was carried out via a 26-question online survey. This survey contained two demographic questions (age range, gender); three questions which determined whether users were excessive or non-excessive; five questions which determined life-satisfaction scores; and sixteen questions which determined empathy scores. Prefacing these sections, a cover sheet (Appendix B) was used to introduce the study; to define the meaning of FPS; to detail storage methods of data; to assure the user that they could withdraw from the survey at any time; and to stress the anonymous nature of the study. Users were also informed that submission of responses was considered consent, and irrevocable.

The Satisfaction With Life Scale (SWLS) (Appendix C) is a 5-item self-report questionnaire. Users input data based on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). A total score is output, based on the sum of each individual item (5 – 35, extremely dissatisfied – extremely satisfied). This scale is used to measure global life-satisfaction as a judgemental-cognitive process, and it has high internal consistency and temporal reliability. It can be used with differing age groups and it correlates predictably with

specific personality characteristics. It is important to note, however, that how satisfied an individual is with their life is based on internal notions of ideal circumstances as compared with their current conditions, and will differ accordingly, dependent on individual standards of acceptability (Diener, Emmons, Larsen & Griffin, 1985). This scale was chosen to measure life-satisfaction because it is both effective and short, and fit well with the desire to design a relatively brief survey. An internal reliability analysis of SWLS items yielded a strong Cronbach's α of .90.

The Toronto Empathy Questionnaire (TEQ) (Appendix D) is a 16-item self-report scale. Users input data based on a 5-point Likert scale (0 = never to 4 = always). Higher scores indicate higher levels of self-reported empathy. Items 1 and 4 test the perception of an emotional state in others which activates the same emotional state in oneself. Item 8 tests how well the emotional state of others is understood. Items 2, 7, 10, 12, 15 test the frequency at which appropriate sensitivity is displayed when faced with emotional states in others. Items 3, 6, 9 and 11 test sympathetic physiological arousal. Items 5, 14 and 16 test altruism, and item 13 tests the frequency at which higher-order empathic responding, such as pro-social behaviours, occur. Items 2, 4, 7, 10, 11, 12, 14, and 15 are negatively scored (Spreng, McKinnon, Mar, & Levine, 2009). The TEQ was chosen because it is a brief and clear questionnaire that has a high internal consistency and construct validity. An internal reliability analysis of TEQ items yielded a strong Cronbach's α of .85.

The video game usage measure used was a self-report questionnaire designed to assess problematic video game play (Appendix E). A modified version was used, due to the irrelevance of some of the questions to the study, e.g. "Do you own a video game console or a computer on which you play games?" (Tolchinsky, 2014)

The final section of the questionnaire (Appendix F) thanked participants for their time, provided email addresses for Mental Health Ireland and the Samaritans, as well as phone

numbers for the Samaritans (north and south of Ireland). An email address to contact the surveys creator was also included in this section.

Results

SPSS was used to analyse the data, and a battery of inferential and descriptive tests were run to check hypothesis viability and to examine the dataset.

Descriptive Statistics

The sample involved 79 participants, 91.1% of which were male ($n = 72$), 7.6% of which were female ($n = 6$), and 1.3% identified as other ($n = 1$). When participants were classified by age, it was found that 9.1% were in the 18-25 range ($n = 7$), 37.7% were in the 26-35 range ($n = 29$), and 53.2% were in the 36+ range ($n = 41$). Age range data was missing for two participants. Most responders were non-excessive users (59.5%, $n = 47$), while excessive users accounted for 40.5% of responses ($n = 32$). An internal reliability analysis of life-satisfaction items yielded a strong Cronbach's α of .90, and an internal reliability analysis of empathy items also yielded a strong Cronbach's α of .86. Examination of MCAR output with regards to SWLS data showed a non-significant result $\chi^2(4, N = 79) = .30, p = .990$, and so the null was rejected.

Central tendency and dispersion measures were carried out for life-satisfaction and empathy for excessive and non-excessive users. As can be seen below (Table 1), excessive users had slightly higher life-satisfaction scores than non-excessive users. The mean score for life-satisfaction for both excessive and non-excessive participants fell within the slightly satisfied range (21 – 25). Excessive users also had slightly higher mean empathy scores than non-excessive users.

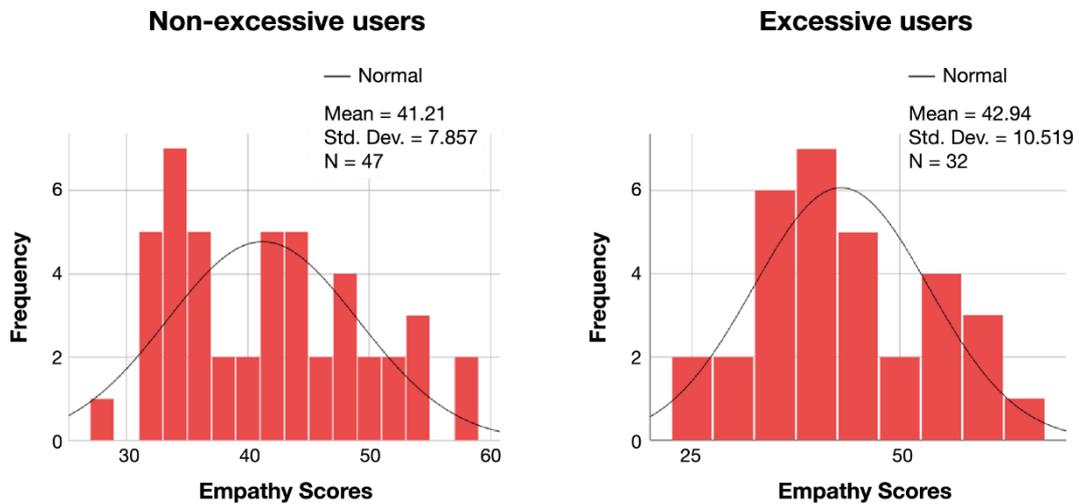
Table 1: Life-satisfaction and empathy scores

Variable	Game Usage	N	Mean	Std. Deviation
SWLS Total	Non-excessive	47	23.98	6.05
	Excessive	32	24.56	5.70
TEQ Total	Non-excessive	47	41.21	7.86
	Excessive	32	42.94	10.52

Inferential Statistics

Hypothesis one. examined whether a statistically significant difference existed between excessive and non-excessive users with relation to empathy (Figure 1). A Mann-Whitney U test was run and revealed that the non-excessive user condition (mean rank = 38.72) and the excessive user condition (mean rank = 41.88) did not differ significantly ($z = -.60$, $p = .549$). Therefore, the null could not be rejected.

Figure 1: Mean empathy scores for excessive and non-excessive users



Hypothesis two. examined whether a statistically significant difference existed between excessive and non-excessive users with regards to life-satisfaction. A Mann-Whitney U test was run and revealed that the non-excessive user condition (mean rank = 40.47) and the excessive user condition (mean rank = 39.31) did not differ significantly ($z = -.220, p = .826$). Therefore, the null could not be rejected.

Hypothesis three. examined whether there was a positive correlation between life-satisfaction and empathy. A Spearman's rho test found a weak, positive correlation non-significant association between life-satisfaction and empathy ($r_s(79) = .12, p = .288$). Therefore, the null could not be rejected.

Discussion

The current study was a cross-sectional, correlational study which examined whether excessive use of FPS games could predict life-satisfaction and empathy differences when compared with a non-excessive group. The study also examined whether there was any relationship between life-satisfaction and empathy.

Excessive users had slightly higher life-satisfaction scores ($M = 24.56, SD = 5.70$) than non-excessive users ($M = 23.98, SD = 6.05$). This indicates that both user samples are roughly the same in terms of how satisfied they are with their lives, and that excessive usage of FPS games may not have a significant negative impact on life-satisfaction, as perceived by the individual users. Both groups fell within the slightly satisfied range of the SWLS (Spreng, McKinnon, Mar, & Levine, 2009). Excessive users also had slightly higher empathy scores ($M = 42.94, SD = 10.52$) than non-excessive users ($M = 41.21, SD = 7.86$). Group differences, as with the SWLS results, are considered small and not significant.

A Mann-Whitney U test was run to examine the differences between non-excessive and excessive users in terms of empathy, and it showed that no evidence of any significant differences existed. A Mann-Whitney U test was also run to examine the differences between

non-excessive and excessive users in terms of life-satisfaction, and this again returned no evidence of any significant differences between the two groups. A Spearman's rho correlation did not find any significant relationship between empathy and life-satisfaction.

Gender and age Differences

The study intended to include gender differences if it was feasible to do so, but as expected, the sample size of females ($n = 6$) was too small to obtain any meaningful data (excessive user sample of females was 0). A cursory look at female responding did not show any glaring differences when compared with male respondents, and so the data was treated as homogenous.

As adolescents are more likely to be involved in problematic internet usage, are more susceptible to any negative effects of gaming, and have higher self-regulation issues, typically, research tends to focus on this section of the gaming population (Prizant-Passal, Shechner, & Aderka, 2016). Due to this data volume discrepancy, respondents had to be at least 18 years old to complete the survey; due to the inclusion criteria of at least 10 years playing FPS games, the entire excessive user population was at least 26 years old.

Empathy Differences

The results of the current study showed that excessive use of FPS games did not significantly predict empathy scores. The non-significance of empathy differences in both sample populations falls in line with studies like Szyck, Mohammadi, Münte, and Te Wildt (2017), who found that even when comparing groups who exhibited significant differences in antisocial personality, significant differences in empathy were not present. This led the authors to the conclusion that VVG use might be a symptom of this group's problems and not its cause. It also backs up Freedman's (2002) claims that previous research on the effects of violent media may not reflect reality.

Life-Satisfaction Differences

Life-satisfaction differences between the two groups were not significant, with both groups falling into the slightly satisfied bracket. Because a lot of the research which investigates links between problematic gaming and low life-satisfaction involve adolescent samples (e.g. Ko, Yen, Chen, Chen, and Yen, 2005), data on long-term users is sparse. One possible interpretation of the results from the current study may be that excessive users have come to terms with the conditions of their lives now that they are older, as opposed to when they were adolescents, or that excessive use doesn't necessarily cause low life-satisfaction. It is also important to remember the contextual and individual difference nature of life-satisfaction; given the exact same life conditions, one individual may experience high life-satisfaction, and the other might experience low life-satisfaction (Diener, Emmons, Larsen & Griffin, 1985).

Another possibility is that the excessive user population consisted largely of individuals who would likely have considered themselves successful in their chosen game, as most would have competed in international tournaments at some point. This might separate non-successful and successful excessive users into two distinct groups, with distinctly different outcome expectancies. It is impossible to make any non-speculation judgements due to the lack of longitudinal and experimental data.

Empathy and Life-Satisfaction Relationship

Surprisingly, only a weak positive correlation was found between empathy and life-satisfaction but may in part be due to the narrowness of the single factor of life-satisfaction, rather than the entire complement of SWB. In other words, empathy may have a greater relationship with the emotional reactive parts of SWB, positive and negative affect, than it does with its cognitive-judgemental aspect (Wei, Liao, Ku, & Shaffer, 2011).

Strengths of the Study

In design terms, one strength of the study was its relative shortness. Shorter questionnaires such as the TEQ are particularly useful for internet surveys as they reduce lack of time and participant fatigue issues (Spreng, McKinnon, Mar, & Levine, 2009), as well as increasing the chance that respondents will aid in snowball sampling as they won't feel that they are sending on a lengthy and laborious task to their friends or family.

A major strength of the study was the fact that it included so many excessive respondents. To find so many users who met such strict excessive user criteria would be almost impossible to achieve with any non-purposive sampling. Given the constant pining for long-term user data (e.g., Anderson et al., 2010; Ferguson & Kilburn, 2010) — an objective proven difficult due to a tendency for research to focus on younger age groups, and a dearth in applicable candidates — the data gained from the study is somewhat rare, and potentially useful when compared with other data involving a similar population, despite being gained through cross-sectional means.

Limitations of the Study

In retrospect, with regards to ignoring gender during analysis, it would have been more effective to design the survey explicitly stating that it was meant to collect male data only, as the possibility of skewed data was likely, especially given the unlikelihood of female excessive user respondents, and the established differences between genders in terms of gaming motivations (Hoeft et al., 2008). Further, it would probably have probably benefitted this study to remove female responses, especially considering that the non-excessive user responses were more abundant than excessive user responses anyway.

Another potential video game usage question asking respondents to rate their level of success in FPS games would have allowed for further division of the excessive user group,

and as a result, a narrower excessive user purposive sampling effort could have attempted to attain equal numbers of successful and non-successful excessive users.

The authors of the scale that is used to measure empathy (TEQ), noted that, while valid for its tested constructs and sample population, it was not tested over varying age ranges; and so the possibility exists that those individuals, older or younger than the tested population, may score differently on the scale.

A greater number of participants would have been preferable, and a longitudinal design would have allowed for time point comparisons and the ability to test for personality traits as an initial condition, with views to test personality differences later in life. An experimental design would have also yielded more solid results, as self-report surveys are always going to be open to dishonest answers.

The study did not consider cultural differences, and so lacks ecological validity in this regard. Ideally, different samples from a multitude of countries would have been examined, such as was done by Lemmens, Bushman, and Konijn (2006) when they compared Dutch and Belgian adolescents, noting differences such as Dutch boys being more addicted to playing violent games, and Belgian boys wanting to play more than their counterparts, perhaps implying that Belgian parents are more strict in their gaming allowances than Dutch parents. Some research has suggested that Europeans are more empathetic than their Chinese counterparts (Melchers, Li, Chen, Zhang, & Montag, 2015), while others have noted cross-cultural influences on life-satisfaction (Lachmann et al., 2018).

Future Research and Recommendations

Future research should seek to employ a longitudinal study, as cross-sectional data makes it impossible to draw conclusions with regards to the causal relationship between variables. It should also employ a rigorous purposive sampling design, to avoid a large skewedness in terms of male to female respondents. Experimental conditions coupled with

quantitative and qualitative questionnaires, repeated at multiple points in time would help give more accurate measurements of the effects of playing VCGs. More data should also be gathered on populations such as former professional gamers, as they are almost guaranteed to meet strict excessive user criteria, and they provide a counterpoint to non-successful excessive users, as their excessive usage has led to some level of achievement in their field.

Conclusion

In conclusion, this study found no significant relationship between game usage and life-satisfaction, no significant relationship between game usage and empathy, and a weak positive correlation between empathy and life-satisfaction. The results could be interpreted as being due to the success of the excessive user participants in comparison to the normal adolescent excessive user, who would normally receive no accolades, by way of global participation recognition (winning tournaments on a global stage), or monetary compensation and, consequently, peer approval. This study lacked the correct design in terms of participant acquisition and classification, as well as its lack of longitudinal and experimental conditions. Future research could expand upon and clarify the results of this study.

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Appendices

Appendix A

Information letter

Dear Participant,

My name is Nicholas Condon and I am performing research on the long-term effects of excessive use of violent first-person-shooter games.

This research is trying to measure life-satisfaction and empathy in users of games such as Quake and Counter-Strike, where users meet the criteria of either: (i) I have played first-person-shooter games for at least 10 years and have at least 10000 hours logged in these games or (ii)

I have rarely or never played any first-person-shooter game. If you meet either of these criteria,

I would appreciate your input on a short survey that will take up about 10 minutes of your time.

The survey employs vetted questionnaires that are widely used and should cause little or no undue stress or negative feelings. If, however, difficulties arise for you because of participation, contact information for support services are linked below. You can opt-out of the survey at any time and your data will not be recorded or included in any research.

Mental Health Ireland:

info@mentalhealthireland.ie

Samaritans in Ireland:

Call Freephone: 116 123

Text: 087 2 60 90 90 (standard text rates apply)

Email: jo@samaritans.ie (RoI)

Email: jo@samaritans.org (NI)

If you have any queries, I can be contacted at: xx@mydbs.ie Thank you for your time.

Appendix B

Consent form.

Participation in this survey is completely voluntary and you have no obligation to start or complete it.

Participation is completely anonymous and confidential; no identifying information will be recorded. Due to this anonymity, a completed survey cannot be deleted, even upon request, as it will not be possible to locate any individual's responses.

Data will be encrypted, stored on a secure computer, and will not be shared with any party that is unrelated to Dublin Business School. Data will be stored for up to one year after it has been submitted and will subsequently be destroyed. Participants can optionally email xx@mydbs.ie and request to join a mailing list that will keep users up to date on submitted data's usage.

It is important to note that clicking the submit button at the end of the survey will be considered consent.

If you have any questions on the research, survey, or any other matter, you can contact me directly at xx@mydbs.ie or you can contact my supervisor at xx@dbs.ie

Thank you in advance for partaking in this survey.

FPS = First-Person Shooter. An action-based game which is played from the users point of view.

Appendix C

The satisfaction with life scale.

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

____ In most ways my life is close to my ideal.

____ The conditions of my life are excellent.

____ I am satisfied with my life.

____ So far, I have gotten the important things I want in life.

____ If I could live my life over, I would change almost nothing.

Scoring

- 31 - 35 Extremely satisfied
- 26 - 30 Satisfied
- 21 - 25 Slightly satisfied
- 20 Neutral
- 15 - 19 Slightly dissatisfied
- 10 - 14 Dissatisfied
- 5 - 9 Extremely dissatisfied

Appendix D

Toronto Empathy Questionnaire.

Below is a list of statements. Please read each statement *carefully* and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can.

1. When someone else is feeling excited, I tend to get excited too
2. Other people's misfortunes do not disturb me a great deal
3. It upsets me to see someone being treated disrespectfully
4. I remain unaffected when someone close to me is happy
5. I enjoy making other people feel better
6. I have tender, concerned feelings for people less fortunate than me
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else
8. I can tell when others are sad even when they do not say anything
9. I find that I am "in tune" with other people's moods
10. I do not feel sympathy for people who cause their own serious illnesses
11. I become irritated when someone cries
12. I am not really interested in how other people feel
13. I get a strong urge to help when I see someone who is upset
14. When I see someone being treated unfairly, I do not feel very much pity for them
15. I find it silly for people to cry out of happiness
16. When I see someone being taken advantage of, I feel kind of protective towards him\her

Scoring

Item responses are scored according to the following scale for positively worded items 1, 3, 5, 6, 8, 9, 13, 16. Never = 0; Rarely = 1; Sometimes = 2; Often = 3; Always = 4. The following negatively worded items are reverse scored: 2, 4, 7, 10, 11, 12, 14, 15. Scores are then summed to derive a total for the Toronto Empathy Questionnaire.

Appendix E

Video game usage questionnaire.

1. How many hours of FPS games do you play during a typical week?
2. How many times during a typical week do you play FPS games?
3. How many years have you been playing FPS games?

Response possibilities for questions were as follows:

1. (a) Less than 10
(b) Greater than 10
2. (a) Less than 5
(b) Greater than 5
3. Numeric value

Scoring

If respondents answer (b) to either of the first two questions and 10+ to the third question, they are classified as excessive users, otherwise they are classified as non-excessive users.

Appendix F

Final section of survey.

If you feel that you need help

Mental Health Ireland:

info@mentalhealthireland.ie

Samaritans in Ireland:

Call Freephone: 116 123

Text: 087 2 60 90 90 (standard text rates apply)

Email: jo@samaritans.ie (RoI)

Email: jo@samaritans.org (NI)

If you have any queries, I can be contacted at: xx@mydbs.ie

Thank you for your time.