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ANALYSIS ON THE INFLUENCE OF EMPATHY IN SINGLE-PLAYER VIDEO GAMES

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ABSTRACT

The purpose of this study was to determine the influence of empathy and relevant character information on a player's emotional and critical reaction to a video game and its characters, as well as to determine its influence on a moral choice. A substantial amount of research regarding video games has focused on the negative effects they may have, which leaves much unknown on what the positive aspects they may have. Understanding how an individual relates to the characters they play as can help determine if video games can promote deep parasocial interactions, and even the relative success at helping people understand others situations and actions. In this study, participants watched one of two videos to provide different amounts of information on the world and player character, then read a passage to dispose them into either a low or high empathy state. They then played a segment from "The Wolf Among Us", and then completed a questionnaire battery on how they felt while playing and their feelings towards their avatar. Results indicated that empathy has a positive effect on both positive and negative emotions, but a negative influence on their reaction on their ratings of the game quality, desire to play it, and willingness to recommend it to others. There were no significant differences caused by two groups receiving different amount of information on the game's events, there was influence of empathy on participants' investment in the main character and game world, and there were no significant interactions between information and empathy manipulations.

TABLE OF CONTENTS

LIST OF TABLES

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Chapter 1

Introduction

Much media attention and research has examined the relationship between video games and aggressive behavior and gun violence, but a smaller portion of the research has examined how video games can benefit people and society. A great number of people play video games and they are becoming more present in society and pop culture (164 million people in the United States alone are estimated to play video games). As a result, understanding how video games could benefit society and what positive effects they have is essential to ensure they are used and designed appropriately for the society and even be used in prosocial way. According to Eisenberg and Mussen (1989), prosocial actions are those that benefit a person or a group of people, going beyond just entertainment and economic gain (Essential Software Association, 2019). Prosocial Video games have been shown to have many benefits, such as improving mood and one's mental status, as well as teaching social skills (Granic, Lobel, & Engels, 2013). Playing prosocial video games has been shown to increase the likelihood of conducting prosocial behavior, like cooperating with, supporting, and helping others (Greitemeier & Osswald, 2010; Ewoldsen et al., 2012). As an extension of these concepts, I suggest that video games could have other personal benefits, such as the training of sociable and cooperative orientations toward others, engaging critically with intellectual scenarios, and/or considering varying viewpoints. In addition, as the popularity and presence of video games increases, it becomes important to understand how video games affect people and, because of the input, control, and immersion of players in this media, the parasocial interactions (relationships between a person and an unreal

entity) that occur are likely to be different than those of traditional media (which is mainly a one-way transmission).

Empathy is defined as the quality one has in response to the feelings, wellbeing, and emotions of another person, as well as the ability one has to understand another's position and feelings (Batson et.al, 2012; Singer & Klimecki, 2014). Empathy is a complex feeling combining emotions, cognition, and physiological reactions, and its implications have been of great interest to many disciplines, both academic and entrepreneurial. Empathy and media have had a strong relationship for a long time. Both emotion and cognition have a significant impact on one's enjoyment and engagement with a piece of media, and the focus of many media is on their characters, so empathy (which is both an emotional and cognitive feeling towards a person) has a logical place in the relationship between people and media (Batson et.al, 2012; Bartsch & Oliver, 2011). Additionally, because of empathy's strong association with emotions, one's affect in regards to a piece of media is likely to be influenced by empathy's influence towards that media's characters. Reactions associated with empathy are typically divided into concern and empathic distress. Concern is commonly associated with more positive emotions, like care or warmth, while empathic distress is associated with more negative emotions, like distress itself or nervousness and fear (Singer & Klimeki, 2014). Traditionally, empathy itself is assessed using the set of emotions of compassion, sympathy, soft-heartedness, tenderness, feeling moved, and warmth (Johnson, 2012). However, there are several limitations when applied to media like video games. Internally, the scale lacks assessment of negative emotions, which may leave out considerations of empathic distress. Additionally, the scale is focused on how one feels towards another person. While this would be adequate for assessing interpersonal reactions, the feelings cannot be generalized outside of this reaction, such as a piece of media overall.

The positive and negative affective scale (PANAS, see Appendix D) is a common scale used in assessing general emotions, so it may offer a better assessment of an overall reaction, as well as be able to differentiate if concern from empathic distress (Watson et.al. 1986). Negative emotions like feeling distressed, upset, nervous, and jittery is or are forms of distress, and emotions of feeling scared and afraid can be feelings for the wellbeing of another. Feeling ashamed and guilty could be uniquely associated with something like video games because the possessor of empathy may have influenced the character which they are feeling empathy for. Feeling irritable and hostile may be overly negative and aggressive to be associated with empathy, but may also be caused by significant setbacks befalling a character one feel empathy for (like watching them die, or simply watching them fail). Positive emotions like feeling interested could be both focused on a character or a more general feeling towards the media, and feeling strong and proud could result from the feeling of players guiding the main character towards success. Other positive emotions it assess include feeling enthusiastic and excited which may relate to both what has happened in the game (like an action scene) or enthusiasm for the character they feel empathy towards overcoming their distress, feeling alert and attentive because of the level of engagement and attention shown in the game, feeling inspired because of the actions the character has done and wanting to imitate such actions, and feeling determined, which may be related to seeing their character they are controlling reaches safety or satisfaction. Overall, the PANAS scale conglomerates many different factors that may appropriately assess these factors that are likely to be influenced by empathy.

Empathy is also associated with prosocial behavior. Empathy is also associated with empathic distress, which is a strong aversive and self-oriented response to the suffering of others that inspires heling and comforting others in attempts to reduce distress (Singer and Klimecki,

2014). Although those who generally feel more empathy are more likely to commit more prosocial acts, it is also possible to encourage, motivate, and train people to feel more empathetic, which then makes them more likely to conduct prosocial acts. A study by Leiberg et.al (2011) showed that it was possible to increase prosocial behavior (in the form of helping other complete tasks in a video game, even though it is out of their way) by using this compassion training (using a form of Buddhist contemplation techniques that focus on loving kindness, positive emotions, benevolence, and friendliness). Although this study does not use this training, confirming that empathy has a part in video games may indicate that compassion training may be used in experiments alongside video games, or even include these trainings as part of the game's design to be used in promoting prosocial actions.

Practical applications of compassion training could include these techniques in various media, like exposing children to behavior emphasizing care for others and other ideas that support empathy, which would then instill in them that these are good things to do and feel. Many studies have shown how prosocial television shows can increase prosocial behavior, somewhat acting like compassion training themselves (Mares & Woodard, 2010). Video games can act somewhat like this media, but video games also have mechanics (the systems of input and feedback) which is a unique consideration when looking at how games interact with people. People actually have input and feedback in a video game vs the static consumption of television (and other visual media). On one hand games have components like reward mechanics (the game rewarding players upon doing something the game wants them to do), which can be a helpful and effective technique in training people to be compassionate because it teaches them socially desirable behavior. Games could also immerse players in the world so that they form close and empathetic relationships with the characters. The empathy itself can help them better understand

and want to act upon the issues and conditions of others, which could then be applied to the real world. Creators successfully design these characters which appeal to the empathy of others, which would elicit different reactions if they weren't appealing in this way. These two ideas can also be combined with ideas of empathic distress. Creating these empathetic characters and distressing scenarios creates empathic distress which the player is rewarded by resolving such conflicts in the game. On the other hand, video games also have a level of control, which can objectify the characters or break immersion because the player because the characters are seen as objects or just part of the game, rather than as people. This can then prevent empathetic relationships from forming, and thereby producing prosocial actions and feelings. As stated previously, video games with prosocial elements can increase prosocial behavior, but the underlying mechanisms, as well as the presence of real empathy in these interactions must be looked at further. The relationship between empathy and video games is complex, and linking peoples' experiences of video games with empathy has strong implications for their positive effect on society, so this relationship must be further investigated.

One issue that can plague research into video games is generalizability of results, specifically due to the amount of content video games have. Video games have genres and styles like those of other media, so their effects should also be similar. However, when comparing the time taken to complete a viewing of each media, video games have a much wider gap that makes them significantly harder to study. Typically, a mainstream television show will run between 20-60 minutes with a range of 6-22 episodes per season, and mainstream movies run approximately 1.5 to 3 hours. However, a mainstream video game can run upwards of 100+ hours of content to complete, not even considering that the creators of many games opt to add or change a game over time. For example, "Persona 5's" heavily story driven experience took on average 110

hours to complete, and its developers plan to release additional content extending this already hearty length (Howlongtobeat.com, 2016). Additionally, there can be great variation in how players consider whether a game is "completed" or not (both because games can have different endings and results depending on choices made in a game and because players may not try to complete secondary content that is adjacent to the primary story). "Fortnite" lacks any conventional ending as it consists mainly of multiplayer fights between 100 players, with 1 player or team being the victor, though one usually just continues on to the next match at one's leisure. There is significantly more variation in how one experiences a video games as compared to a show or movie. It is more feasible to try and run experiments and research on scenes from movies and shows than with video games because there is less content that needs to be covered and compacted, and researchers do not have to worry about considerations of gameplay influence, which makes researching commercial video games relatively more difficult. As a result, video game research will usually utilize sections of games that do not focus specifically on the story, characters, and events, and focus on gameplay and skill or player-to-player interactions in multiplayer modes. An example of one of these games is used by Greitemeier et.al (2010) study, which uses the game "Lemmings" as a prosocial example of a video game, as it has the player guide the lemmings to safety, which is shown to be rewarding to the player. Players are rewarded for showing prosocial behavior, so it is a prosocial game. However, these studies are limited in assessing parasocial relationships since there are not characters to which players can attach and relate to, or the game does not set out with the goal being these relationships. The present study utilizes a more story and character focused game within a research study to assess the feasibility of using them in future studies.

Furthermore, because of the "game" aspect of a video game, along with their non-uniform acceptance and familiarity in the public, the ability for a participant to successfully play a particular game must be considered. Because of tools that are publicly available, it is possible for researchers to create their own video games for research; however, these are better utilized for assessing a specific skill or quality, rather than assessing general implications of commercial video games on the public. Again, these made games are limited in size because of the experiments in which they are used. The quality of such an experience could also be put into question. The effectiveness of the story and utilization of gameplay in a research-specific game would hardly be comparable to that of professional writers and designers of a commercially sold game whose careers often hinge on the creation of parasocial relationships and immersive events. The lack of such quality in an amateur piece of media can dissociate the viewer from the events and characters, which presents another barrier to assess true empathetic relationships. The ability of studies to use quality, professional material would be of great benefit to reduce the effort and resources used by researchers to create games themselves, reduce dissociation of participants as a result of quality, and better assess these relationships with this media in the real world. Overall, research has been limited on investigating the relationships between people and commercially created, character focused games, and this research attempts to better understand how games can be used in this field. In this research, the game "The Wolf Among Us" is utilized because of its simple controls, its focus on emotionally complex characters, and general unfamiliarity of its source material in the public (even for those who have played video games). The game typically takes 8.5-11 hours to complete all 5 episodes, with this study condensing most of the game into six- to seven-minute videos (Howlongtobeat.com, 2013).

The first concept this experiment looks at is the presence of empathy in how people relate to a game avatar and the game itself. Participants are manipulated into a high or low empathy state using a valid, well tested method. Participants' emotional reactions to the events, emotional investment in the main character, narrative transportation (one's immersion and presence within the game's story and narrative), suspension of disbelief (willingness to ignore immersion breaking events or details in the game), the main character's anthropomorphic autonomy (how independent they exist from the player) and sense of control of the main character, would be significantly different between groups if empathy does have a part in how participants engage with the game. Additionally, how much participants liked engaging in the gaming experience itself was assessed to look at the relationship between how empathy influences their enjoyment and appreciation of the game, how much they would want to play other sections of the game, and how much they would recommend the game to other people.

The second concept this experiment examines is the capability of a research study to successfully simulate a significantly longer video game playing experience. This is assessed by giving two groups different amounts of information on the characters and events that occurred within the game, and looking at the same variables assessed with the empathy manipulation. Differences in this information would indicate that there is critical info within a video game (namely character focused information) that can be successfully presented to participants of a study to help them minimize the confusion and dissociation of not having played these earlier events and, thus, avoid compromise their feelings towards their player character and the game experience. However, if the manipulations were ineffective, then this would indicate that studies would not need to focus so much on informing the participants on the events of the game and it is relatively safe to use later portions of games in studies. Finally, when presented with more

information and details on the characters, it is anticipated that this will provide more details that participants may then empathize with and create an interaction between empathy and character information. Those who are put into a more empathetic state will be more likely to relate this empathy onto the information provided and feel an overall stronger relation to that character, and by extension the game itself.

Chapter 2

Purpose and Hypotheses

The purpose of this study is to examine the influence of empathy on a player's reactions toward the player character in a video game (emotional investment) and reactions towards the game itself (i.e. express higher enjoyment, appreciation, desire to play additional segments, higher immersion, and likelihood to recommend). The study also looks at the necessity of a study to inform its participants on prior game effects prior to playing the chosen game, simulating what would normally take hours of actual play to achieve, at least to the extent that it does not interfere with results. The study assesses a participants general emotional reaction to the gaming experience using the PANAS, as well as more specific feelings towards the main character with the emotional investment, anthropomorphic autonomy, and sense of control subscales of the PAX, and feelings towards the game itself by asking about their enjoyment and appreciation of the game, their desire to play additional segments of the game, how much would recommend the game, and immersion in the game world (via the Narrative Transportation scale and suspension of disbelief subscale of the PAX). This study also asks participants on what choice they made on a binary, morally grey choice at the end of the game segment. This research has several hypotheses:

1. Participants in high (vs. low) empathy conditions will show a greater emotional reaction to the game and characters, both positive and negative. Having higher empathy will likely cause players to care more about the characters and the story, which will result in

stronger emotional reactions. Empathy encompasses both positive and negative emotions, so those of a higher empathic disposition will have higher emotions.

2. Those who receive more character-related information will show a greater emotional reaction to the game, both positive and negative. Having more context and details on the player character may increase a participant's emotional investment in them because there is more for participants to attach to, which may then impact their reactions.
3. Participants in the high (vs low) empathy conditions will have stronger emotional attachment to the player character (emotional investment), have a more positive reaction to the game (i.e. express higher enjoyment, appreciation, desire to play additional segments, higher immersion, and likelihood to recommend) and choose the more moral option in the final scene. Increasing one's empathic sensitivity would increase one's feelings towards a character one may feel empathy for. This makes their gameplay interactions more impactful and rewarding, which then increases their enjoyment and appreciation of the game, attachment to the characters, and desire to play other sections of the game. Additionally, because of feeling more empathetic, participants will be more inclined to choose the option at the end of the play session that shows more empathy, which will be established if there is a difference, as the choice at the end of the game is generally morally grey.
4. Participants in the high (vs. low) information conditions will have a stronger emotional attachment to the player character (emotional investment), have a more positive reaction to the game (i.e. express higher enjoyment, appreciation, desire to play additional segments, higher immersion, and likelihood to recommend) and choose the more moral option in the final scene. The information will help prevent discontent and confusion

from significantly impacting the play experience, so providing more of this information will further decrease this effect. Additionally, because the new information provided in the high (vs low) info condition is more character focused, players will have an easier time understanding and relating to the main character and make their reaction towards them stronger.

5. There will be a positive interaction between information condition and empathy condition. More information is predicted to provide more details on the character which will provide more things details that will influence what the player will feel empathetic about and make the character more enjoyable.

Chapter 3

Methods

Participants

A power analysis was run to establish that the number of participants was adequate to assess the generalizability of the results. The power analysis was for a medium effect size, run with the conditions of a 2x2 design with two levels per group, a 0.05 alpha level, and a 0.80 power level. Analysis indicated that a sample size of at least 128 would yield sufficient power.

Participants were 187 participants at the Pennsylvania State University who were recruited using the Psychology Subject Pool, as well as flyer distribution throughout the campus. Participants were compensated with either class research credit (via the Subject Pool), extra credit (via distribution by professors in other classes), or monetary compensation of $10. Participants were randomly assigned to one of four conditions created by crossing empathy (high, low) and information (high, low; Ns in (High Empath-High Info = 46; High E-Low I = 43; Low E-High I = 47; Low E-Low I = 45). Three participants were excluded because of their experience or exposure to the game "The Wolf Among Us" or the graphic novel "Fables", from which the game was derived. Additionally, two additional participants failed a manipulation check (see Appendix A) and one participant requested that their data not be included in the data

set. This left a working data set comprised of the responses of 181 participants (48 men, 132 women, 1 non-binary).

Experiment

Upon arrival, participants were escorted to a computer. They were then instructed to complete a demographics survey (Appendix A), as well as a survey assessing Empathic Concern (Appendix B). Participants were randomly assigned to read one of two passages, which were altered to manipulate perspective-taking (high, low). In the high perspective taking condition, participants read a paragraph that encouraged them to take the perspective of the player character and allow their emotions to influence their interpretation of events. By contrast, in the low perspective taking condition, participants read a paragraph that told them to be objective in their judgement of events and to not let their emotions influence their interpretations. After reading perspective taking instructions, participants were shown one of two randomly distributed videos (high or low information). Both videos contained information on the fictional world the game takes place in and prior events of the game and basic information on the character players would control. The game takes place in Fable Town, a hidden section of New York, where fairy tale characters and creatures reside after being forced out of that original world. The main character is Bigby Wolf (the big bad wolf), who is the Sheriff of the town tasked in protecting and handling the disputes of the many residents. After the murder of two residents, Bigby uncovers the plot of the Crooked Man, whose money and power allows him to subvert the Fable Town hierarchy. The two women killed were prostitutes owned by Georgie and Vivian of The Pudding and Pie strip club, and the Crooked Man ordered Georgie to kill them because they were trying

to subvert their plot. Bigby confronts the Crooked Man at his hideout where he tries to recruit and manipulate Bigby and hand over Georgie, but conflict erupts and Bigby fatally wounds Georgie. The Crooked Man and Georgie escape, and Bigby follows Georgie and Vivian to the Pudding and Pie. The videos both end at this point. The high information condition contained additional information about the negative experiences of Bigby, such as the residents fearing him and questioning if he really cares about them, and his relationship to the killed characters.

When done reading information on how to play the video game, participants directed to play a portion of the game "The Wolf Among Us" (i.e. Act 5 Chapter 2). The game is single player and involves a series of dialogues between characters in which the player selects one of four options in a list for their character (Sheriff Bigby Wolf) to say or do. The game was chosen following several criteria. First, it had to have simple enough controls and mechanics so that participants would not need experience with video games to successfully play it. Secondly, the game had to focus on emotionally complex characters, present a scenario in which players are likely to feel empathetic towards them, and have a final choice that was morally ambiguous so that players would not all choose the same options and choose what may be socially desirable. Third, the setting and plot of the game must be generally unfamiliar to the public (even for those who have played video games). For example, a similar game by the same developers is "The Walking Dead", but the general public has likely watched or heard of the television show or graphic novel it is based on, which could influence their expectations and potentially influence results. Finally, the game had to have content appropriate to show a generally college-aged population. Certain content, while potentially emotionally appealing, may cause non-negligible psychological distress to participants. An example includes "Life is Strange" which has emotional and distressing scenes of teen bullying and suicide, which, within a university student

population, may have actually happened to participants or to someone participants know, both influencing their reaction and causing significant distress upon viewing, requiring them to opt out of participating.

After completed the selected scene of the game, participants completed a questionnaire containing all dependent variables. The surveys, passages, and videos were all either created or administered using Qualtrics.

The survey consisted of questionnaires that assessed the emotions they felt during and after play (Appendix C), how much they enjoyed and appreciated the game (Appendix D), their Narrative Transportation (Appendix E), how attached they felt to the character (Appendix F), and how much they felt like they controlled the character (Appendix F). Additionally, they were asked what choice they made at the conclusion of the chapter (Appendix G), as well questions about the details of the game to ensure that they had paid attention to the events (Appendix G). Upon completion of the battery, participants were fully debriefed, thanked, and given credit.

Variables

Groupings of questions for dependent variables were submitted to reliability analyses. Measures of overall positive emotion (Alpha = 0.879), overall negative emotion group (Alpha = 0.914), Narrative Transportation (A = 0.872), and the subscales of the PAX (Emotional Investment (0.872), Suspension of Disbelief (0.703), Anthropomorphic Autonomy (0.592) and Sense of Control (0.715)) were appropriate for future use with Cronbach's Alphas being greater than 0.6, as opposed to .7 since the scales have all been thoroughly empirically tested and supported. The averaging of the questions for assessing Anthropomorphic Autonomy does not

pass this threshold for significance with its Alpha of 0.592, although the scale has been tested by previous studies as reliable and the Alpha falls close. to the Alpha of .6 for reliability of tested scales.

Emotional Reaction (Appendix D)

Emotions were assessed using the Positive and Negative Affect Scale (PANAS). Specifically, using 5-point scales (endpoints: 1 = Not at all; 5 = Extremely), participants indicated the degree that they felt 20 emotions after playing the. Ten items assess positive emotions (i.e., interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive), and the other ten items assess negative emotions (i.e. distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, afraid). Each group of positive (Alpha = 0.879) and negative (Alpha = 0.914) emotions was averaged to create a score that was then put through a between-subjects ANOVA with the independent variables.

Enjoyment of the game (Appendix E)

Several questions assessed how much participants liked and appreciated the game. The fourth question directly asks about their enjoyment. A final question asked about their appreciation of the game, which is a factor different than enjoyment and pleasure gained from playing the game. Defined by Oliver et.al. (2011), appreciation is akin to the meaningfulness of the game, or how insightful, smart, thought-provoking, or introspective it is. This experience is more neutral or mixed in its affect, causing emotions like compassion or feeling touched and moved, versus the more overtly positive experience of enjoyment. The other three of the questions were custom created for this research. One question asked how likely they would be to recommend this game to others, two questions ask about how much they would want to return and play earlier sections and later sections of the game. All of these statements were rated on

how much the participant agreed with them on a 7-pt scale (1 = Strongly Disagree; 7 = Strongly Agree).

Immersion in the game world (Appendices F and G)

This is assessed by Narrative Transportation, an independent scale, and the suspension of disbelief subscale for PAX. Designed by Green and Brock (2000), the narrative transportation scale consists of 11 statements that participants rate their agreement with on a 7-pt scale (1 = Strongly Disagree; 7 = Strongly Agree). The scores were averaged (Alpha = 0.741) to create a single NT score for each participant, which could then be put through an ANOVA. Narrative transportation is the immersion in the story and game world. Suspension of disbelief is one's willingness of accept the concepts, worlds, and characters within a media, as well as willingness to disregard inconsistencies and immersion-breaking occurrences. The suspension of disbelief subscale of the PAX consists of four statements in which participants rate their agreement with on a 7-pt scale (1 = Strongly Disagree; 7 = Strongly Agree). The four scores were averaged (Alpha=0.703) so that could then but subjected to an ANOVA. Typically, players become more immersed in a game they enjoy playing, so assessing this immersion is expected to be a good indicator that the players were being drawn into and enjoying their experience.

Investment in the main character (Appendix G)

This study is also concerned with how much the player character becomes attached to the main character and how they see them. This is assessed using certain subscales of an assessment for Player-Avatar Interaction (PAX), namely scales on Emotional Investment, Anthropomorphic Autonomy, and Sense of Control. Emotional investment is a measure of how much the player cared for their avatar. Anthropomorphic autonomy is the player's perception of the character they are playing as a distinct social entity and ability to function independently of the player.

Sense of control is how much input the player felt like they had over the avatar's actions and influence in the game's world. Each subscale consists of statements that participants rate their agreement with on a 7-pt scale (1 = Strongly Disagree; 7 = Strongly Agree). The emotional investment scale consists of six statements, the anthropomorphic autonomy scale consists of four, and the sense of control scale consists of three. The PANAS also directly assesses the emotion of interest.

Final Choice

At the end of the gameplay session, players are presented with a binary choice for Bigby to make. After confronting Georgie and Vivian and listening to their struggles, justification, and actions, a dying Georgie requests Bigby to kill him to end his pain (since he is going to die anyway). Players have the choice to either obey his request and kill him or refuse to kill him and leave him in pain (which he berates the player for). At the end of the survey, they are asked what choice they made. Because of the moral ambiguity of the scenario

Additional Independent Variables (Appendix H)

Although this study focusses on the effects of information and empathy manipulation, this study tracks the demographics of gender and how often participants played video games in addition to their empathic concern (or how empathetic a person they are without other influencing factors). These are additional factors that may have potential influence on the dependent variables assessed because they may influence general familiarity with video games, but their effects are assumed to be negligible due to random distribution. Still, their inclusion and use under simple analyses may provide insight into different effects that future research may wish to control for or look at in more detail.

Chapter 4

Results

It was hypothesized that there would be a significant increase in positive and negative emotions and feelings towards the game and toward characters as a result of both manipulations to empathy and information. To test this prediction, each variable (positive emotion, negative emotion, narrative transportation, anthropomorphic autonomy, suspension of disbelief, sense of control, enjoyment of the game, appreciation of the game, desire to play earlier sections of the game, desire to play later sections of the game, and likelihood to recommend the game to others) was submitted to an empathy (high or low) X information (high or low) between-participants Analysis of Variance (ANOVA). In addition, the choice players made at the end of the game was submitted to a logistic regression. The other non-manipulated independent variables (Gender, Frequency of Video Game Playing, and Dispositional Empathy sub-scores) were also analyzed with a linear regression. All data was analyzed via SPSS software.

These analyses revealed significant main effects of empathy condition on several variables. These include, positive emotion, $F(1,176)=7.817$, $p = .006$, $\eta p2 = .042$, negative emotion, $F(1,176)=5.998$, $p = .015$, $\eta p2 = .033$, enjoy play, $F(1,176)=2.766$, $p = .098$, $\eta p2 = .015$, appreciate play, $F(1,176)=4.248$, $p = .041$, $\eta p2 = .023$, complete play, $F(1,176)=2.752$, $p = .099$, $\eta p2 = .015$, and play earlier, $F(1,176)=5.941$, $p = .016$, $\eta p2 = .032$. Participants in the high (vs. low) empathy condition felt more positive emotion (*M*s =3.11 and 2.72) and more negative emotion (*Ms* =2.67 and 2.29). On the contrary, it was participants in the low empathy condition, rather than high empathy condition, who reported greater enjoyment of play (*Ms* =3.34 and 3.07) and appreciation of play (*Ms* =3.3 and 2.98), as well as being more likely to want to complete

play (*Ms* = 3.63 and 3.16) and desire to play earlier segments (*Ms* =3.58 and 2.91). Amount of information did not exert any main or interactive effects, all *F*s < 2.75, *p*s > .10.

Finally, as noted, final choice was submitted to a logistic regression. This analysis did not reveal any significant results.

Chapter 5

Discussion

Findings showed that empathy increased the overall positive and negative emotions participants felt after playing. Overall, the analyses utilizing emotions followed the expectations of the hypotheses in that emotions would be higher for those in the high (vs. low) group. This includes the prediction that both positive and negative emotions would be increased. The positive feelings could come from seeing the hero and main character overcome villains, feeling compassion for the suffering and struggles the main character went through, and participants associating the success of the main character with their inputs and interactions with the game. The negative feels may come from strong feelings of guilt or shame that may be caused by witnessing a character suffer as a result of a player's direct actions, or feelings of fear and nervousness over the character's welling within the perilous scenarios the game puts them in. In both cases of positive and negative emotions, having a higher disposition towards empathy would likely increase the care over another's wellbeing, which is then focused on the characters in the game, which then manifests as stronger emotions because of the care and distress over them. The positive and negative increases lending support to the theory that both concern and empathic distress influence the relationship between a person and how they experience a game like "The Wolf Among Us". Overall, the data suggests the existence and influence of empathy in the experience of the player with the game.

Empathy also influenced participants' appreciation and enjoyment of the game and wanting to play earlier and later game segments. However, contradictory to the hypotheses, empathy condition influenced these variables in a direction opposite to predictions; specifically, participants in the low empathy condition rather than the high empathy condition expressed more

appreciation for and enjoyment of the game and a greater desire to play earlier and later segments in the game. This suggests a relationship between empathy and how players experience the game itself, but not in the hypothesized direction. An increase in empathy seems to decrease the desire to play the game and know more about what else happened or will happen. Enjoyment and appreciation may be lower for those manipulated to have higher empathy because the game aspects may interfere with their reactions. There may be a level of frustration or dissatisfaction experienced because the game controls and interactions interfere with the experience with the story and characters, leading to lower rating of interest. Their empathy may be heightened to connect with other humans, and the parasocial, virtual relationship may be insufficient. Alternatively, the empathy may make the characters more emotionally fulfilling, which may then decrease the player needing to play other sections of the game to find satisfaction in the game. Additionally, there was no significant correlation with wanting to recommend this to others, which may be a result of the general public's acceptance of video game. It is more uncertain whether someone actually plays video games versus using other media, so it can be harder for someone from the general public to suggest a video game to others. Overall, the data lends to the idea that empathy has a place in the relationship people have with the game itself as a result of relationships with the characters, but further research must be conducted to establish whether the relationship and influence of empathy is supportive or diminishing.

It was also hypothesized that the information manipulation would cause a significant increase in empathy-related emotions and feelings towards the game and main character. Overall, providing more information on the events that happened to the player avatar did not have a significant bearing on any of the direct variables (how participants felt about the game, its

characters, emotional changes, and end of play choice), and the hypotheses regarding these were not supported. Providing information appears to have no effect on participant's reactions to the game, which would indicate informing participants of the game is not necessary, although this would require a comparison to a control group to compare and assess. Alternatively, the difference between the two information groups may not have been large enough (i.e., the quantity of information provided) or other kinds of information may provide more influential (like info on the other characters within the play segment). Additionally, there was no significant interactions between the empathy and information manipulation, so this hypothesis was also not supported either.

There were several other analyses that did not report any significant correlations. The final choice in the game was not influenced by either of the manipulations. It was expected that there would be a difference caused by empathy because the more empathetic people may choose one option over the other and establish which choice is more empathetic. However, there was no significant difference between groups, so the hypothesis was not supported. The choice itself likely has other factor unrelated to empathy at play, such as personal morality on the justification of killing. Additionally, none of the scales within the PAX had significant interactions with the manipulations. Narrative transportation did not have any significant correlation with empathy, which indicates that empathy does not increase the believability of the game world and engagement with it. Although empathy is relevant to emotions experienced as a whole, the positive feelings may not extend into the fictional world, setting, and all events within the game, and does not make the player believe in the world more. Additionally, there was no significant correlation with empathy to any of the scales of the PAX, which may contradict the prior supporting evidence of empathy's influence. The PAX section of Suspension of Disbelief, which

also regards the belief in the game world like narrative transportation, is likely insignificant for similar reasons. The scale on emotional investment indicates that empathy did not influence how much players cared about the main character. Additionally, empathy may not have an influence on how much control a player has over their character in a game (SC) and how independent the character is from them (AA), as it may be more of a matter of mechanics and user interface. However, the PAX was developed to assess the relationship between a player and their avatar in a Massive Multiplayer Online game (MMO). An avatar in one of these games differs from that of ones in games like "The Wolf Among Us" in that an MMO avatar is created by the player, while other games act much more like other media by having their characters set. An MMO character is much more likely to give the player a first-person interaction, rather than a third-person interaction with limited input in decisions. The relationships are different, and the PAX is based around assessing only one of these relationships, so the absence of significance may be a result of this. This may indicate that the PAX should either not be used, or must be adapted to different game formats. As a whole, there was insufficient support for the hypotheses that the information and empathy manipulation would cause differences in how players felt towards character and game world, as well as what choices were made at the end of the game.

Overall, the research provides several interesting insights, but there are aspects that may be improved upon. Future research may wish to continue testing the effectiveness of informing participants of prior events of the game. In this study, it appears that there is not a large difference between the two information categories, so studies may wish to compare using control groups that are given no information, or attempt to add more details to try to increase the differences between the two categories of information. The videos differ in length by about 1 minute of new content, so there may need to be more differences to elicit a difference.

Additionally, a participant was only asked about their general emotions and feelings towards the played avatar, but were not asked about their specific feelings towards the other two characters interacted with during the play session. This was done intentionally to avoid exhaustion effects, and because the study was primarily focused on the player character, but future studies could examine how the concepts looked at affect relationships with non-player characters. Additionally, it was assumed that the manipulation of empathy was effective because of the prior validity of the measure, and the study already included a scale that assessed empathy, so a direct measure after the manipulation was not utilized. However, the passages were edited slightly to focus them on the player avatar, so future research may wish to assess empathy afterwards to completely ensure that the manipulations were successful.

There was also an issue with the attention test criteria. A significant number of participants (40; 22%) selected the area in which the game takes place as a "bar", which was not untrue, as there was a bar section within the gentlemen's club where most of the scenes takes place. For the purposes of exclusion, the bar option was considered correct. Using a much clearer distinction is suggested for future experiments to better establish that participants were actively engaged in the events of the game.

Basic correlational analyses were performed using demographics, and although the manipulations performed limit the validity of interpretations with them, the correlations provide potential future areas of interest. Correlations suggest significant relationships between gender and both how often they play video games, as well as their empathic concern. The assessment of empathic tendency before the manipulations also had significant results similar to those of the manipulations, in which people of higher empathy had a higher emotional response but a more

negative response to the game itself. Again, although these correlations were secondary to the hypotheses, they provide useful insight for future research.

Chapter 6

Conclusion

Overall, this experiment has given support to the notion that single player, story and character-focused video games are able to utilize empathy in the parasocial relationships they attempt to make. Factors changed as a result of the changing empathy, which indicates the presence and importance of empathy in this relationship. However, some expectations turned out to have the contrary hypothesis supported. While both positive and negative emotions were heightened as a result of the empathy manipulation as hypothesized, general attitude towards the game and wanting to play it decreased with higher empathy. Furthermore, results indicated that there was not a significant relationship between groups that received differing amounts of information on the character, as well as results on the PAX scale. This indicates that future researchers may want to devote less attention to the amount and detail of information provided to participants to minimize dissociation and confusion from playing an unfamiliar game. It is also suggested that future research on video games take into account what kinds of video games various scales were designed with in mind. As with human relationships, empathy in parasocial relationships has complex interactions which should be understood in order to better create and study this media that is becoming more and more present in the lives of everyday people, as well as to utilize this media to promote prosocial values and improve the lives of others.

Appendix A

Demographic, Experience, and Attention Testing Questions

-What is your Gender?

Male

Female

Non-Binary

-How Frequently on a weekly basis do you play video games?

Less than 1 hour /week

1-3 hours

3-6 hours

6-10 hours

11-15 hours

15-20 hours

21+ hours

-Have you played or watched extended periods of play of the video game “The Wolf Among Us”?

Yes, I have played

Yes, I have watched a playthrough to completion

Yes, I have watched a playthrough, but not past Act II

No

-Have you ever read the graphic novel “Fables”?

Yes

No, but I know the plots and events that take place

No

Attention Test (Original. *=correct answer)

-Where did the segment you played take place?

-A Beer Distributer

-A Hotel

-A Bar*

-A Strip Club*

-What was the name of the main character you controlled?

-James Howler

-Bigby Wolf*

-Wolfgang

-Bart Lupin

Appendix B

Interpersonal Reactivity Index

The Interpersonal Reactivity Index assesses a person's general reactivity towards others, consisting of sub-scores of Perspective Taking (PT), Fantasy taking (FS), Empathic Concern (EC), and Personal Distress (PD). (Davis, 1980)

"The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate number on the scale: 1-5. When you have decided on your answer, fill in the letter next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can."

1: Does not Describe me well – 5: Describes me very well

1)I daydream and fantasize, with some regularity, about things that might happen to me.

2)I often have tender, concerned feelings for people less fortunate than me.

3)I sometimes find it difficult to see things from the "other guy's" point of view. *

4)Sometimes I don't feel very sorry for other people when they are having problems. *

5)I really get involved with the feelings of the characters in a novel.

6)In emergency situations, I feel apprehensive and ill-at-ease.

7)I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. *

8)I try to look at everybody's side of a disagreement before I make a decision.

9)When I see someone being taken advantage of, I feel kind of protective towards them.

10)I sometimes feel helpless when I am in the middle of a very emotional situation.

11)I sometimes try to understand my friends better by imagining how things look from their perspective.

12)Becoming extremely involved in a good book or movie is somewhat rare for me. *

13)When I see someone get hurt, I tend to remain calm. *

14)Other people's misfortunes do not usually disturb me a great deal. *

15)If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. *

16)After seeing a play or movie, I have felt as though I were one of the characters.

17)Being in a tense emotional situation scares me.

18)When I see someone being treated unfairly, I sometimes don't feel very much pity for them. *

19)I am usually pretty effective in dealing with emergencies. *

20)I am often quite touched by things that I see happen.

21)I believe that there are two sides to every question and try to look at them both.

22)I would describe myself as a pretty soft-hearted person.

23)When I watch a good movie, I can very easily put myself in the place of a leading character.

24)I tend to lose control during emergencies.

25)When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

26)When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

27)When I see someone who badly needs help in an emergency, I go to pieces.

28)Before criticizing somebody, I try to imagine how I would feel if I were in their place.

PT :8, 21, 25, 28

PT (reverse) :3, 15,

FS :1, 5, 16, 23, 26

FS (reverse) :7, 12

EC :2, 9, 20, 22

EC (reverse) :4, 14, 18

PD :6, 10, 17, 24, 27

PD (reverse) :13, 19

Appendix C

Perspective-Taking Passages- Empathy Manipulation

These are passages adapted from other passages designed by Batson et.al. to manipulate the participant to enter either a high or low perspective taking state, which has been shown to directly influence empathy (Batson, Batson, Slingsby, Harell, Peekna, & Todd).

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Low Empathy

"Try to take an objective perspective, being as objective as possible about what has happened to this character and how it has affected and will affect his choices. Try not to let yourself get caught up in imagining what this character has been through and how he feels as a result. Just play objectively to the information presented in the video and the video game."

High Empathy

"Try to take the perspective of the character you are playing as, imagining how he feels about what has happened and how it has affected his life. Try not to concern yourself with attending to all the information presented. Just imagine how this character feels about their situation."

Appendix D

PANAS – Emotion Assessment

The Positive and Negative Affective Scale assesses emotions towards a certain event, specifically how participants felt while they were playing or directly after. (Watson et.al. 1986)

Please rate how you felt after playing “The Wolf Among Us”.

1:Slightly/Not at All. 2: A Little. 3: Moderately. 4: Quite a Bit. 5: Extremely.

Number	Feelings/Emotions
1	Interested
2	Distressed
3	Excited
4	Upset
5	Strong
6	Guilty
7	Scared
8	Hostile
9	Enthusiastic
10	Proud
11	Irritable
12	Alert
13	Ashamed
14	Inspired
15	Nervous
16	Determined

17	Attentive
18	Jittery
19	Active
20	Afraid

Positive Affect: 1,3,4,9,10,12,14,16,17,19

Negative Affect: 2,4,6,7,8,11,13,15,18,20

Appendix E

Enjoyment and Appreciation

These scales assess how much participants enjoyed and appreciated the game, and how much they would want to play more. The questions on enjoyment and appreciated were taken from Oliver et. Al. (Oliver et. al, 2016)

-Custom Created

-How likely are you to recommend this game to someone?

-Rate: 1 Not Likely at all/recommend against it – 7 Very likely

-Given the opportunity, would you want to play the game to the end?

-Rate: 1 Not Likely at all/recommend against it – 7 Very likely

-Given the opportunity, would you want to play through the earlier sections of the game?

-Rate: 1 Not Likely at all/recommend against it – 7 Very likely

-Oliver et.al: Enjoyment vs Appreciation

-How much did you enjoy playing the game?

-Rate: 1 Not at All – 7 Very Much

-How much did you appreciate the game (did you feel like the game did something other than entertain you? Did it possess aspects that you consider appreciable even if you didn't/wouldn't have enjoyed it? Was this game meaningful, smart, powerful, etc?)

-Rate: 1 Not at All – 7 Very Much

Appendix F

Narrative Transportation

This set of questions assesses narrative transportation, or how much a person is drawn into and believes in the fictional world (Green & Brock, 2000).

Please rate your agreement with the following statements.

-Rate: 1 (Strongly Disagree) – 7 (Strongly Agree)

1) While listening to and experiencing the narrative, I could easily picture the events in it taking place

2) While experiencing the narrative, activity going on in the room around me in the room were on my mind. (R)

3) I could picture myself in the scene of the events described in the narrative

4) I was mentally involved in the narrative while experiencing it

5) After finishing the narrative, I found it easy to put it out of my mind*

6) I wanted to learn how the narrative ended

7) The narrative affected me emotionally

8) I found myself thinking of ways the narrative could have turned out differently

9) I found my mind wandering while experiencing the narrative*

10) The events in the narrative are relevant to my everyday life

11) The events in the narrative have changed my life

Appendix G

Player-Avatar Interaction (PAX)

A question battery that assesses the relationship between a persona and their avatar, traditionally used for Massive-Multiplayer Online Games (MMOs). These assess how emotionally invested a person is in an avatar, how independent and separate the avatar is from the player, how much they believe in and embrace the game world's rules, and how in-control they feel they are of the avatar (Banks & Bowman, 2015).

Emotional Investment (1-6), Anthropomorphic Autonomy (7-10), Suspension of Disbelief (11-14), Sense of Control (15-17)

Please rate your agreement with each of the following statements.

Rate: 1 (Strongly Disagree) - 7 (Strongly Agree)

1) This avatar became special to me
2) I don't really care about this avatar *
3) I would be heartbroken if this avatar died
4) I have no emotional connection to this avatar*
5) I appreciate this avatar
6) I love this avatar
7) The avatar had its own thoughts and ideas
8) This avatar has its own feelings
9) This avatar is autonomous and acts on its own
10) The avatar exists independently from me
11) It was important to check for inconsistencies in this avatar's game
12) I paid attention to errors or contradictions in the avatar's world
13) I concentrated whether there were any inconsistencies within the video game

14) I thought about whether this avatar's actions were plausible

15) I controlled this avatar

16) This avatar did what I wanted

17) I enjoyed controlling this avatar

*indicates reverse scoring

Appendix H

Additional Analysis Results

Table 1: Linear Regression of Demographics x Dependent Variables

DV	Gender p	Gender T	Frequency p	Frequency T	Empathic Tendency	ET T
Positive Emotions	0.014**	-2.494	0.322	0.994	0.114	-1.587
Negative Emotions	0.249	1.155	0.738	-0.336	<0.001**	-4.772
Recommend	0.149	1.450	0.041**	-2.061	0.234	1.195
Complete Play	0.123	1.551	0.002**	-3.083	0.287	1.068
Play Earlier	0.038**	2.086	0.039**	-2.084	0.679	0.414
Enjoy Play	0.021**	2.322	0.013**	-2.517	0.197	1.295
Appreciate Play	0.033**	2.152	0.252	-1.15	0.001**	3.279
Narrative Transportation	0.926	0.093	0.011**	-2.557	0.005**	2.813
Emotional Investment	0.185	1.330	0.035**	-2.124	0.002**	3.117
Anthropomorphic Autonomy	0.105	1.630	0.191	1.313	0.222	1.224
Suspension of Disbelief	0.694	-0.395	0.062*	-1.875	0.017**	2.401
Sense of Control	0.171	1.374	0.967	-0.042	0.493	0.687
End Game Choice	0.434	-0.785	0.002**	3.221	0.815	-0.234

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Responsible for distribution and administration of medications and treatments (requiring state certification), reporting and assessing various medical complaints residents may have, escorting residents to the dining hall and distribution of various meals throughout the day, paying attention to and memorizing dietary restrictions and allergies of the residents, and dishwashing and cleaning the tables.

Assistant Medical Filer, Greater Pittsburgh Orthopedic Association *2016-2017*

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Second-in-command of operating a start-up food truck, aiding in the preparation of food and the truck itself (requiring PA certified training), coordination with other businesses, truck owners, and venue organizers, cashiering, collecting feedback from customers, and generating ideas and providing feedback on optimizing how the truck operates and implementing customer feedback.

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