Oh, the Horror!:
Psychological Horror Video Games and Game Transfer Phenomena Severity

Intro

The gaming industry has grown to become a very popular and engaging form of media for entertainment and storytelling. This may be due to its manipulation of player interaction, narrative, audio, visuals, and overall gameplay. As the gaming industry evolves, developers are finding new and innovative ways to incorporate the elements of the horror genre as it creates opportunities for shock value and is famous for audience engagement and thrill. However, as technology advances, games become more immersive and personal with the introduction of Virtual Reality gaming. This is exciting for genre fans, especially in regards to psychological horror which intends to make the narrative personal and have players relate to their avatars on a mental and emotional level by means of immersion, and ultimately create fear and paranoia during gameplay. However, the implications of these games have been considered in the debates among researchers regarding the effects of the media on one's behavior.

There is a need to further understand how this form of media affects the mind. As the horror gaming industry evolves, the lack of understanding of the topic becomes more evident. In addition, the controversy surrounding horror games both attract audiences and harm developers since excessive negative attention can prompt for games to be censored or banned entirely, like in cases with games such as *Manhunt*.

As of right now the debate has no clear answers; hallucinations, delusions, and other concerning phenomena can be attributed to both excessive gaming as well as the player's mental disposition, and can vary in each case. However it is possible that a better understanding of this topic can be explored in the context of Game Transfer Phenomena (GTP) better known as the Tetris Effect. The effects of severe GTP include hallucinations, and delusions, both in willed and autonomous cases. Since the controversy focuses more so inevitable consequences, autonomic GTP would be the best concept to examine.

Although the observation of the extent of the effects of psychological horror games on the brain is important, current research has overlooked exactly what elements of these games have the most potential to set off severe cases of delusion or the antisocial behaviour the general public is concerned about. This study aims to discover what elements of the psychological horror video game contribute to the symptoms of severe GTP. As a result, insight on the justification of horror game controversy and a clearer understanding of GTP itself will be available for future research.

Review of the literature

Studies surrounding behavior motivated by fictional content has been an area of interest since the popularity of video games, specifically in the horror genre. The general belief is that games in this genre make players more prone to paranoia, criminal behaviour, and delusions. However, there has been seldom focus on exactly which aspects of these games would lead to such consequences. This is up for debate if one considers the research attributing this to the brain of the player as opposed to the content of the game itself. Regardless, research needs to narrow down exactly what about these games makes its players so prone to the severe consequences such as delusional thinking.

More recently, there has been investigation on Game Transfer Phenomena (GTP) and its severity. There is a lack of understanding in where it comes from, the factors in severity, and how to identify its presence. In this study, the primary focus will be autonomic and severe cases of GTP in the context of psychological horror video games played with both a console or Virtual Reality technology. Horror is one of the most popular and controversial genres of fiction, however recently the more popular subgenres of horror include survival horror and psychological horror as demonstrated by the popularity of independent games within this subgenre. Furthermore, psychological horror stresses strategy, narrative, and theme as opposed to shock value making it a more complex and intricate genre to dissect.

This study aims to determine which elements of the psychological horror game are the most likely to act as “triggers” for severe autonomic GTP. The implications of this study will also determine if there are certain cases where people should be prevented from playing games within the genre. Furthermore, it can provide insight into using Virtual Reality as a method of studying paranoia in a context outside of GTP, and discuss the validity of the controversy surrounding psychological horror games.

VIDEO GAMES AND THE BRAIN

It appears that the majority of the literature surrounding video games centers around the debate regarding aggression; there is disagreement as to whether or not violent video games lead to violent or anti-social behaviour. This is a notable conflict as it is a long-standing debate with no black and white answers. It also provides insight regarding what the effects of GTP would be. The negative consequences *Brains on Video Games,* an interview regarding this debate and others, primarily discusses are reduced attention, increased aggression, and criminal violence. This paper discusses the common questions within this debate with six experts in the field. When asked “Does playing video or computer games have negative effects on brain and behaviour?” Daphne Bavelier, who has studied cognition in relation to video games, and C. Shawn Green, who has approached the topic of aggression and on-screen violence, state that “the answer to the above question is always ‘it depends.’” Furthermore, they state that violent video games are unlikely to “turn a child with no other risk factors into a maniacal killer” but they may prove to be more of a risk with children who do. The negative consequences this paper primarily discusses are reduced attention, increased aggression, and criminal violence. In contrast, the other four experts strongly believe that excessive play of

violent video games can act as “triggers” to all three of these things. To illustrate, Doug Hyun Han, who has written studies about internet addiction, and Perry F. Renshaw, who has investigated psychological disorders such as major depression, cite a number of tragic incidents around the world in which people have either been seriously injured or killed due to some form of internet or game addiction. (Bavelier et al, 2011.)

Similarly, one situation that is constantly cited in sources such as the Canadian Broadcasting Corporation (CBC)’s news division, CBC news, and the Chicago Tribune, a generally Conservative paper, is what is described as the “Slender Man Stabbings.” Two Wisconsin girls stabbed a friend of theirs several times with their motives at the time being appeasing fictional character Slenderman so he wouldn’t hurt them or their families. Slenderman is a popular figure of Internet folklore, often described as a *Creepypasta*, or Internet ghost story. This, as well as a series of other similar events is often viewed as “a wake-up call” for parents to be weary of internet culture and what their children are exposed to. It has been argued that Slenderman himself, although not completely to blame, is “a factor ”(Chicago Tribune, 2014.) This viewpoint disagrees with the ones made earlier stating that virtual content cannot by itself make a killer out of someone, this would imply that the content plays a bigger role in behaviour than one’s mental predisposition. There is some considerable bias on the part of the Chicago Tribune for it is mainly a projection of conservative views and mainly contained information arguing this. However, evidence supporting the opposing view is found in CBC’s coverage of the following trial of the same incident. The jury had ruled that Anissa Weler, who plead guilty, was mentally ill and became obsessed with Slenderman (CBC, 2017) implying that the general public puts more blame on one's predisposition, not internet content. Despite this, CBC’s accusations of bias need to be taken into account.

Tragic and ill-explained events like this bring a lot of attention to the psychological horror genre, internet culture, and its effects on the mind. This research aims to examine this genre in the context of this debate and gain further reasoning as to why these events happen.

This controversy can be further examined by looking at the effects of video games in a more specific context. Much like video games in the broader sense, there is a limited understanding of GTP, its effects, factors to its severity, and how to quantify it. Angelica B. Ortiz de Gortari, who has a post-doctorate degree in psychology at the University of Liege and has written a number of research papers surrounding GTP and cyberpsychology, conducted along with others a mixed-method research project with goals of identifying and classifying GTP experiences and finding the factors associated with them. Prior to this study, it has been argued that GTP occurs due to the application of psychological theories about learning and the transfer of information such as Pavlovian conditioning, priming effect, the excitation theory, and the neoassociation theory (Ortiz de Gortari, 2014.) One trait these theories have in common is the concept of being presented with one stimulus and being trained to approach it in a certain way. In this context, violent video games train players to respond aggressively. This would suggest that the game itself plays a large role in negative post-game behaviour.

To explain factors and severity, Ortiz de Gortari also did an online survey amongst over 2000 gamers. The authors acknowledged a continuum from mild to severe levels of GTP and pursued the goal of discovering the differences between these levels and the gamers who experience them. Overall, it was concluded that the major factors associated with severe GTP included being between the ages of 18 to 22, being a professional or dysfunctional gamer, playing for more than six hours daily, having an intent to escape reality, having a pre-existing mental or sleep disorder, and substance use or abuse. Common symptoms were easily recalling dreams, and some form of distress brought on by GTP. Overall, the authors argue that those with higher levels of GTP share characteristics with dysfunctional gamers. For the sake of the study, dysfunctional gaming is defined as problematic or addictive gaming (de Gortari et al., 2016.) It is important to note that not all severe GTP experiences are negative. This implies that how someone responds to GTP or whether or not the phenomena occurs is mainly dependent on the gaming and daily habits of the player in addition to their pre-existing mental state.

Overall, Ortiz de Gortari's research emphasizes two major recurring factors in the severity and effect of GTP; the mental state and habits of the gamer in combination with the game itself. In this study, the goal is to examine GTP and its relationship with psychological horror, as it has not been viewed through this particular genre very heavily. Violent video games in the horror genre tend to lean more towards survival horror which focus more on creating fear by presenting the player with an immediate threat and prompting them act violently. By focusing on psychological horror, which has its own set of controversy, evident by the aftermath of the Slenderman stabbings, not only will we gain insight into how the elements of horror can "trigger" GTP, but we also have a better understanding of the relationship between gaming and aggression and in turn have better judgement regarding whether or not controversy surrounding horror is justifiable.

One major contribution Ortiz de Gortari has made to the subject is the assessment of the Game Transfer Phenomena Scale (GTPS) which is an instrument meant to quantify the severity of GTP. The scale features a twenty-item survey each answered using a five point Likert scale, filled in by the player. Each item includes a phrase and the player must decide how much the statement applies to them. Five represents "Strongly Agree" while one represents "Strongly Disagree." (Ortiz de Gortari et al, 2015.) This scale is one of the only scales used specifically for measuring GTP. Other instruments such as Green et al Paranoid Thoughts Scale (Freeman et al, 2008) are more broad and are more so applied to other subjects. This scale would be ideal had the methodology for this study involved interviews or input from people, however this is not the case.

THE INFLUENCE OF GAMING TECHNOLOGY

The available literature suggests that there needs to be consideration of gaming technology. Psychological horror films and video games have similarities, however they are overall approached differently; video games have certain mechanics that call for more involvement from the player. Ashley Merriner of the University of Oregon, a research university,

applied film theory to her case study of games in the genre though stated that it was not meant to be the central method of analysis (Merriner, 2017.) This would suggest that media is another factor in fear in the player and severity of GTP. Ortiz de Gortari's research also suggests that this true. It was concluded in her work that the use of physical objects and realism in the game, such as with Virtual Reality (VR) plays a role in GTP severity (Ortiz de Gortari, et. al, 2015.) As a result, VR technology will be a focus in this study; it's important to recognize how gaming media applies to GTP.

VR has also been discussed when attempting to understand paranoia in the general public, therefore it could also be an instrument in this study as delusional thinking accompanies paranoia. To illustrate, in an experiment conducted in the United Kingdom, 200 people "in the general population" were given VR headsets mean to stimulate a typical train ride. None of the subjects were clinically ill so schizophrenia or related disorders would not be a factor in the results. The virtual characters were generally neutral in nature; they would occasionally look at the passengers and smile, or engage in conversation with others, but were mute otherwise. The subjects were then asked to complete a survey asking them about how they felt about the ride. Although the majority felt that the passengers were neutral or even friendly, 15 to 20% of participants expressed some form of paranoia, defined as unfounded mistrust, about the intentions of the virtual passengers around them. The data indicated that virtual characters can illicit paranoid feelings. It was concluded that VR could be an effective and safe method of explaining and exploring paranoia (Freeman et al, 2008.) This information suggests that analyzing VR horror games would be an effective way of understanding paranoia; psychological horror aims to create these feelings and VR is being used as an instrument to explore them. The study also confirms the fact that virtual content can instill paranoia in its viewers and in turn be a vehicle for exploring it. The conductors of the experiment entitled *Dead Fun* consider this to be true and think of it as a good thing. During this experiment, a VR game was developed with the intentions of stimulating being buried alive inside a coffin and have participants be confronted by the theme of death. The participants, when asked about the experience, stated that the overall game was "morbid (Brown et al, 2015.)" Although the observations do provide confirmation of the effect of VR, the physical coffin could be a major factor in responses, so it is not completely clear how much VR alone played a role.

The responses suggest that games like this one allow for discussion of uncomfortable topics such as death in this example. This brings light to the fact that many psychological horror games are controversial due to their subject matter. For example, Slenderman in folklore is a abnormally tall man with a featureless face who stalks and lures children to make them his followers (CBC, 2017.) Overall, it has been argued that VR can be used to understand how and why people respond to certain subject matter in a particular way. If that is the case, this implies that the analysis of VR horror games can be used bring some insight as to why autonomic criminal behaviour or delusional thinking occurs after or during gameplay, which is one of the major goals of this study moving forward.

Although this did not appear in the relevant literature as often as VR, Augmented Reality (AR) is notable for its fusion of reality and virtual content. Similarly to VR, it is often used in gaming to develop atmosphere. In a paper written by Trond Nilsen, who has a PhD from the University or Washington and has research experience in VR and AR, Steven Linton with experience in several roles in game development, and Julian Looser, who has expertise in the subject of AR, discussing the motivations for using AR in gaming, the strengths of this technology are viewed within an informal model of gaming experiences, which draws focus to the physical, mental, social, and emotional aspects of the experience. It is argued that AR and computerized games in general lack the social aspect, however it is more important for emphasis to be applied in the emotional aspect of the experience to make the game more immersive (Nilsen et al, 2004.) Furthermore, it is noted by Christopher Stapleton, who has researched experiential media that “the best route to engaging the player’s imagination is through presentation of physical and virtual content (Stapleton, 2002.) This contrasts with VR since it only presents virtual content. Furthermore, VR has been thought of to be more immersive, as a result, Stapleton’s argument is challenged by the feedback given by participants in the VR experiments above. However, this study will focus more on VR as the available and relevant literature has more to say about it in comparison to AR. Despite this, both technologies share obvious similarities in the context of gaming and reveal the goals of developers. As a result, there is implications revealed about the common elements we will be expected to find during analysis of psychological horror games.

THE ELEMENTS OF HORROR:

It's important to note, as earlier mentioned, that horror has several sub-genres and sometimes when classifying games, there is overlap between “survival horror” and “psychological horror.” One major reason for this overlap is the characteristics they share; although survival horror stresses this more, both sub-genres use visuals and audio to make the player uncomfortable or fearful. This overlap is evident in the literature as many authors classify games as both survival and psychological horror. Therefore, going forward in this study, games will be classified based on their prevalent characteristics. Those with elements under psychological horror will be considered for content analysis. To sum up, identifying the elements of horror is crucial to the research.

Fear is viewed from both a psychological perspective and an artistic perspective. Both are worth looking at deeper; the artistic standpoint is important when looking at the elements of horror. Meanwhile, the psychological aspect aids with understanding why this particular genre is so effective in scaring its viewers. To illustrate, Dan Pinchbeck in his essay on Ludic manipulation in first person shooter games explained how they succeed in scaring players. He states that the keys to successful gameplay are presence and flow; the player is engaged with the content at a psychological level, and they are in an “optimum psychological state of play” where progress is seamless. Pinchbeck also notes that emotion is the core to presence (Pinchbeck, 2009.) The writers behind *Motivations for Augmented Reality* seem to agree with this in the context of first person shooters. They state some game developers are motivated to

use AR because “some first person shooter games attempt to establish a game atmosphere that affects a player’s emotional state... (Nilsen et al, 2004.)“ It is evident that immersion is a major goal of the developers behind both horror and first person shooters in general.

This is important to note in the context of GTP, as it is theorized by Ortiz de Gortari that “similarities between video games’ content and real life contexts facilitate associations that end up in transfer of experiences (Ortiz de Gortari, 2015)” Furthermore, the *Monster and Machines* study makes note of the relationship between the player, the monster, and the other content in the game, similarly to Pinchbeck’s essay regarding first-person shooter games. Both focus on psychological horror and make note of games in the genre where the protagonist in the game does not have a visible avatar. This returns to the notion of creating an immersive horror experience and implies the importance of relationships in the game. Overall, this information reinforces the idea that immersive psychological horror video games are an important area of interest in the context of this study.

While survival horror emphasizes shock value, psychological horror is more famous for emotional manipulation; using the player’s thoughts, feelings, and morality against them. There were a series of case studies of notable video games with the goal of discovering how this is accomplished. The authors of *Auditory Hallucination: Audiological Perspective for Horror Games* have cited the work of several researchers who believe that a major factor in the effectiveness of audio is “a series of beliefs individuals have about their auditory hallucinations.” These include the identity of the voices, their purpose, their power, and the consequences of resistance to them (Demarque & Lima, 2013.) To illustrate, in a case study of *Silent Hill*, which is considered to be a genre defining game, it was observed that the auditory hallucinations present in the game such as whispering, slamming doors, and children’s laughter, seemingly coming from an unknown source “increase even more the frighten atmosphere of the game (Demarque & de Lima, 2013.)” This suggests that the fear of the unknown on top of the presentation of unsettling stimulus acts as a trigger to paranoia in the player. However, Pinchbeck’s work states that in context of referential horror in first person shooter games, “The appearance of monsters is not, in itself, necessarily indicative of the horror genre (Pinchbeck, 2009.)” In contrast, other viewpoints suggest that these same feelings can be achieved despite the explicit presentation of said stimulus. Furthermore, the creative approach to this particular topic will provide another important element of the genre.

The artistic perspective of horror is one that is important to consider as horror is viewed as an art form; it is a popular genre for movies, books, and video games alike. This perspective is more significant in this study during completion of one of the primary goals; separating the genre into its core elements. An example of the potential of explicit content to unsettle the viewer is the research being done on the Uncanny Valley; the concept that players respond negatively to man made characters which take on a human-likeness. It is stated that within this Valley is zombies, corpses, and puppets. Furthermore, Mark Grimshaw, a professor of music at the University of Bolton, concluded that audio has a significant role in generating horror, so much that the definition of the Uncanny Valley, which discusses more so the visual aspect,

should be modified to include audio (Grimshaw, 2009.) Merriner also approaches the topic of audio usage in video games from the perspective of music and dance.

In a case study of the critically acclaimed, first person shooter *BioShock,* the major audio elements are music and voice acting. They are not from unknown sources; they come from characters in the game, each with their own distinct voices making it easy to identify who the speaker is. Despite this, the voices themselves are multiphonic, which is inhuman and unsettling in itself. In addition, the character who interacts directly with the player through radio, acting as a guide, has a catchphrase “Would you kindly?” which indicates the player will have to complete a task. It is later revealed in the game that this character has been manipulating the player for selfish reasons, exposing the intentions of the game to comment on player agency; the lack of control (Merriner, 2017.) These findings demonstrate that the beliefs surrounding the physical source of audio may not be as important as the other beliefs; power, purpose, and consequences of resistance. Overall, this perspective agrees with certain aspects of the series of beliefs surrounding auditory hallucinations, but does not prioritize this above theme of lacking control and fearing the unknown. In this case, it is unclear as to which element provoked the most paranoia in the player; the unsettling audio alone, the exposure of the lack of control, or what information was given or not given. The aim of this study is to narrow down these elements further and put them in relationship with GTP with the goal of filling this gap. This would also identify which kind of games in the genre are the ones that would act as “triggers.”

The point about manipulating evolutionary fears is further backed up by the *Monsters and Machines* study which looks at how horror uses representations of technology. Typically, technology is thought of as being a symbol of safety and control, therefore when it is presented as being faulty, or bringing the player closer to the monsters in the game, the initial perceived safety is completely shattered and fear ensues. The example used in this study is the *Five Nights at Freddy’s* franchise which is a notable independent game in the genre. The player receives information from a pre-recorded tape to further isolate the player from human interaction and then is overwhelmed by technology including security cameras, ventilation, lights, and electronically locked doors, each used to protect the player from the monster. However, this technology would eventually prove limited and could ultimately betray the player (Russell, 2017.) It appears that the most notable elements of psychological horror games act upon common evolutionary fears and manipulating the player’s emotional state. This is supported by the psychological perspective of fear. In fact, a paper entitled *Sign of a Threat: The Effects of Warning Systems in Survival Horror Games*, notes the importance of anticipatory fear and its role in keeping the player in a desired emotional state (Perron, 2004.) The classification of this element as a characteristic of survival horror does not decrease the relevance of it to this study as earlier mentioned, emotional manipulation is a common strategy in psychological horror.

The results of manipulating evolutionary fears is viewed first-hand through the AUTHORS VR experiment conducted in 2015. During said experiment, a VR multiplayer game was created. Participants were placed in separate spaces, one of which being the “coffin” while

the other would have to locate them using the instructions given by the other player. The VR experience was complete with darkness and virtual rats. After the experiment, many stated that they were uncomfortable and found the overall experience to be somewhat morbid (Brown, 2015.) The darkness, physical coffin, and the notion of being essentially buried alive would easily play into the fears of the player placed inside the coffin. In addition, the use of suspense and uncertainty are recurring elements in the genre. This further reinforces the need to consider the manipulation of evolutionary fears during the analysis of psychological horror games.

Overall, recurrent themes in this genre are manipulation of basic human fears, the uncanny, immersion in the atmosphere, and the first person perspective. These will be the elements that will be considered during the content analysis stage of this study.

CONCLUSION

To sum up, the current literature has made some important suggestions and has guided the methodology and approach to this problem. The work of Ortiz de Gortari has proved to be especially significant to this as it has exposed the connection between GTP, gaming media. and the elements of horror and has pushed for further consideration of all three. It has also provided a method of quantifying GTP severity which is crucial to this study; all elements in psychological horror can contribute to GTP levels, but the GTPS allows for analysis of which can create severe levels.

The goal of this paper is to go beyond whether or not virtual content is responsible for delusional thinking, and specify exactly which elements of the content could lead to severe autonomic consequences. This will also create a better understanding of GTP by itself as there is still very little understanding of it and related gaming disorders. In regards to the horror genre, this study will imply the validity of controversy surrounding it. Moving forward, this paper will look at psychological horror console and VR games through a content analysis with (headings) such as audio, characters, narrative, and atmosphere as suggested by the literature.

Methodology

This study focuses on the elements and strategies used in psychological horror games in relation to each other and GTP. Therefore, relational content analysis is the best means of examination, as it allows for the analyzation of individual elements and how they work together to create the desired effect.

The “texts” for the analysis were psychological horror games released within the ten years prior to beginning the review of the literature, which is the time between 2007 and 2017, for relevance purposes as gaming has changed drastically since its initial release and popularity. The classification of these games can vary as horror is made up of several different subgenres; in many cases games could be classified as “survival horror” or “first person shooter” by online critics, but have the central elements of a psychological horror game. In

addition, independent games may lack any sort of genre title beyond “horror” due to a lack of coverage. For the sake of this study, if a game is considered psychological horror by the majority of online gaming communities and fan bases found on the YouTube gaming community or wiki sites for the game, as well as trusted video game critics such as Metacritic, it was considered as “text.”

Diversity among the texts is important; the goal is to create an understanding of psychological horror games, therefore if there are variations in gameplay, mechanics, gaming technology, and developer, the conclusions from this study become more universal. The categories created for this analysis were based on the elements of video games regardless of genre, including audio, technology, objective, mechanics, developer, duration, the avatar, and external obstacles. There are also genre-specific elements considered as observed in the literature review such as internal obstacles, representation of technology, subject matter, and sound, specifically atmospheric audio like thunder and disembodied voices.

Disembodied voices in psychological horror are often used to reflect the mental state of the protagonist or the environment they are exploring. In addition, they can aid in the development of the narrative and characters. This is unique compared to other genres as well as the other elements in these games and have to be analyzed differently. Disembodied voices are, in this study, treated as the traditional texts relational content analysis was created for, similar to speeches and written text as they do act as communication in the fictional world the game has introduced to the player. As for further analyzation, disembodied voices in the games are first identified for presence and later given a quantitative value by means of affect extraction. The values assigned represent tone and intensity of the emotion presented. These values will be considered because it is possible that the intensity of an expressed emotion could potentially provoke an emotional response in the player and in turn be a factor to GTP severity.

Affect extraction for the disembodied voices was completed by using the Gottschalk-Gleser emotional-psychological scales. Originally, this method was created for analyzing statements made by patients in therapy by listening for phrases reflecting feelings such as anxiety, hostility, cognitive impairment, and narcissism, as well as their respective subcategories, and considerations for tense as these could all affect the values assigned. It was discovered upon selecting the texts that the majority of the dialogue during gameplay was similar in speaking style to that of therapy sessions and interviews, therefore the original scales did not have to be modified with the exception of statements specific to therapy (“References to the interviewer.”) The intensity of each emotion was calculated using the original formula Gottschalk developed. Following this, each measure was classified based on how they compared to the mean intensity of each emotion, which varied based on sex (male or female) and age (adult and child.) The baseline measures were provided by GB Software, a research site that has been developing a PCAD equivalent to the Gottschalk-Gleser scales.

Categorization ranges from “in normal range” which was considered within one standard deviation of the mean, and “very high” which was defined as more than three standard deviations of the mean.

A disembodied voice was only further analyzed if the speaker was speaking directly to the protagonist, or creates the illusion of this, the speaker was not visible, the dialogue was not part of a conversation meaning no one in the game verbally replied to or interrupted the statements made, and the statements were at least two words in length. The criteria listed allows for effective and accurate use of the Gottschalk-Gleser scales as it was developed for the interview format. In addition, the scales do not account for tone of voice.

The texts were selected and observed using YouTube gameplay videos with minimal to no verbal commentary from the uploader, as this would have obstructed elements of the game. Due to time restrictions for this study, only the first hour of gameplay was analyzed. Gameplay is defined as any points in the game where the player has some form of control over the events of the game or their experience, this includes the ability to look around or move. Consequently, “cutscenes” are omitted from analysis as they would have to be observed in the same fashion as film, which although has similarities to video games, is ultimately an irrelevant form of media in regards to GTP.

After coding the categories, the relationships between them were coded according to common psychological horror tropes and strategies including immersion, the Jungian concept of the human psyche, unreliable narrative, and cognitive dissonance. All elements are analyzed using proximity analysis. Following this, the texts were organized according to the tropes. The relationships were then compared to the common “triggers” or factors to GTP severity as explored in the review of the literature. Finally, the relationships with the most potential to act as factors for GTP severity were identified based on the severity criteria already observed. The criteria was developed based on factors explored by previous research as explored in the literature review, with a focus on in-game factors and excluding those outside of the game, such as the habits of the player.

Proximity analysis, much like affect extraction, are designed for written text and speeches. As a result, the procedure had to be edited for the sake of accommodating the non-verbal texts. For example, during the proximity analysis, when calculating for the “sign” of a relationship between two elements, “sign” was determined by the type emotional reaction it produced, or was meant to produce; a positive sign in the context of this genre would include feelings of security, confidence, strength, or satisfaction with the situation, whereas a negative sign would indicate feelings of fear and paranoia, or confusion.

After the analysis of a total of twelve samples in the genre ranging in subcategory and player mechanics, as well as overall game design, the texts were organized based on four major characteristics of the psychological horror genre with consideration to gaming specifically; Immersion, Manipulation of the Human Psyche, Unreliable Narrative, and Cognitive

Dissonance. Following this, the means of the characteristics being developed and their effect on the player were compared to the elements of the currently known and suspected factors in GTP severity; Realism, Elicitation of an Emotional Response, Reinforcement of Action, and the Manipulation of Evolutionary Fears.

Results

IMMERSION

Psychological horror gaming media has recently aimed to become more immersive and create an increasingly personal and realistic experience for the player, evident by the popularity of VR. In the twelve texts analyzed in this game, four titles possessed this characteristic, namely *Bioshock, Duck Season, Condemned: Criminal Origins,* and *Layers of Fear.*

A trend noted in this group is the sub-category, full duration of the games, first person perspective, and the player objective. First person perspective is utilized across all these samples, in which the avatar is only partially visible, if at all. In addition, these games are often classified as either “exploration” or “puzzle” with the objectives being “search” across all immersion samples. It is important to note that the objective is introduced prior to the distortion of the physical atmosphere.

The further achievement of the immersion effect varies between the texts. *Condemned: Criminal Origins, Layers of Fear,* and *Bioshock*, maintain first person perspective, and realism in the technology represented in game, including utilizing computer files on a PC. However, *Duck Season* breaks this illusion at climatic points of gameplay, and the avatar is completely visible. Despite this, Duck Season is the only game among the samples to utilize VR technology and therefore still achieves immersion during these points.

MANIPULATION OF THE HUMAN PSYCHE (PARANOIA)

Psychological horror is both praised and criticised for its ability to manipulate the human psyche. It has been noted that the genre often refers to the Jungian concept of the “shadow” or undesired feelings. In this context, the focus is feelings of doubt and paranoia. With the exception of *Alice: Madness Returns*, all texts possess this characteristic, which implies its prevalence in the genre. In this study, the presence of this effect mainly relies on the manipulation of audio, the occurences of the objective in relation to the monster, and the surrounding atmosphere.

Audio or the lack thereof is present to generate paranoia in the player. In addition, the majority of the human psyche texts that utilize disembodied voices feature voices that range in speaker, emotion, and intensity. The texts featuring several different speakers all allowed for free roaming in the game mechanics. The voices would become present just prior to encounters with obstacles and are meant to encourage action or provide insight to the story. In contrast,

texts featuring one speaker would have a wide range of emotions expressed with the subject matter centered around the plot and characters. The speech would not follow a linear path, often alternating between character philosophies, description of unseen events, and sensitive subject matter. Texts that did not feature disembodied voices manipulated audio to cue certain reactions from the player. For example, during the climax of *Duck Season*, the player is given a weapon and then audio from earlier points in the game is repeated on a loop. Following this, there is a prolonged silence meant to make the situation suspenseful. In summary, the audio in this group of games is manipulated to lack clarity and contrast the expectations of the player and, as a result, takes advantage of the common fear of the unknown or misunderstood.

The order of events regarding external threats and game objectives is crucial to in several texts in the game. Typically, the player is presented with the primary objective, which varies between “search” and “survive.” Regardless, following this is the first appearance of external obstacles, in most cases among this sample, a monster. However, the monster is only temporarily present before vanishing. As a result, the player becomes more paranoid while completing the objective, due to anticipation of the threat reappearing. Across the texts, the distortion of the atmosphere, which is present in eight of the titles in this category and is often meant to reflect the mental state of the protagonist in the majority of the texts, occurs between the presentation of the objective and the introduction to the monster. Distortion is subtle and take place in short and spaced out intervals throughout gameplay. Also, the atmosphere is not always distorted in the same way, especially in games that allow for free roaming and do not feature a visible avatar. Therefore the player is not give the opportunity to adapt to the distortion and be prepared, further adding to their paranoia.

COGNITIVE DISSONANCE

In major contrast to the previous mentioned category, Cognitive Dissonance is the least common characteristic amongst the samples, being present in only three titles; *The Park, The Suffering,* and *Bioshock.* However, this category has a significant amount of similarities between the texts in contrast to others. To illustrate, all texts are from mainstream developers. Furthermore, *The Suffering* and *Bioshock* are both categorized as first person shooter (fps) and utilize disembodied voices to encourage action or provide guidance (“Aim for the head!”) In the fps games, this occurs usually just before an encounter with an antagonist, often a monster. According to the Gottschalk-Gleser method of classification, the voices in both cases were moderate to very high levels of hostility (“Remember the one-two punch!”), moderately high to very high anxiety (“Someone has been hurting him!”), as well as wavering levels of cognitive impairment (“You promised pretty Steinman, you promised me pretty!”) The wide range may be due to the presence of multiple distinct voices varying in tone, character, sex, and age.

The other common use of disembodied voices among Cognitive Dissonance texts is found in both *Bioshock* and *The Park*. The voices vary in emotion, however in both cases the purpose is characterization, and development of the setting and plot. Characterization is accomplished with speech reflecting the characters’ ideals (“I rejected [communism, religion,

and democracy]"), backstory ("After they let me out [of the mental institution]..."), or mental state ("Wait, what day is it?") This makes up the majority of the subject matter in *The Park*. These usually become present during less active gameplay, such as just after a major event. The ideals presented to the player may change the player's feelings about completing the objective, even when it is the only way to progress.

The use of disembodied voices throughout all three texts ultimately create cognitive dissonance. The games themselves explore complex subject matter such as insanity, and contrast human thoughts, feelings, and ideals with the actions encouraged during gameplay. Specifically, in this group, the subject matter had to do with "bad children." To illustrate, the voice of Atlas in *Bioshock* urges the player that a group of childlike characters known as "Little Sisters" are monsters, and shortly after this, the player is given the option to either save or "harvest" these characters. In addition, the protagonist in *The Park*, describes children as monsters and justifies possibly abandoning her missing child. Finally, throughout various points of *The Suffering*, voices urge the player to give into their rage, and criticizes their virtuous behaviour. At other points, the voice of a child, presumably the protagonist's son, begs to be let go. In summary, the Cognitive Dissonance texts mainly achieve their desired effect through utilization of voice and subject matter.

UNRELIABLE NARRATIVE

An unreliable narrative has become a staple of the psychological horror genre as a whole, which is evident by the analyzation of the texts; all the texts achieved this with the exceptions of *Bioshock* and *Mirror Layers*, making the Unreliable Narrative texts the second largest category in this study. The similarities between the texts in this category are broad and smaller in number in comparison to smaller groups like the Cognitive Dissonance texts. To illustrate, the unreliable narrative is achieved in three common ways between the texts in this category; the unreliable narrator, the creation of a false sense of security, or development of a false sense of clarity. In both cases, the illusion is disturbed by internal obstacles, namely hallucinations.

In texts featuring an unreliable narrator, namely *The Park, Condemned,* and *Layers of Fear*, the effect is attained within the context of a puzzle, where the player objective is to search for someone or something. Furthermore, the number of different disembodied voices present in the games are limited to one, if any, and provide detail about the protagonist, including their backstory and personality. The effect itself is accomplished by introducing an atmosphere set in realism and a search mission, followed by a distortion of the space around them. Shortly after this, present voices introduce information about the protagonist that would reveal them to be anti-heroes or unreliable narrators. The voices present are covertly hostile in nature, and in very high levels. As a result, the player's perception of the objective changes.

The unreliable narrator texts are also similar in the order of events; the distortion of the atmosphere happens just prior to the presence of voices implicating the mental state of the

protagonist (“Booze kept my hands steady.”) This subcategory of texts exposes the initial trust the player puts in the character they play, and said character becomes the perceived source of the fear generated during gameplay. Emphasis is placed on people and sanity, or the lack thereof, as opposed to external obstacles. As a result, the player is introduced to a lack of control over the situation, which becomes the primary source of the fear in during gameplay.

Another subcategory of unreliable narrative texts includes *The Suffering, Amnesia, Sanity’s Requiem,* and *Alice: Madness Returns,* making it the largest subcategory within the unreliable narrative texts. The texts in this group develop their unreliable narrative through a false sense of clarity, or a misunderstanding of the situation. Similar to that of the unreliable narrator group, *Alice: Madness Returns* and *The Suffering* feature protagonists which posses a wavering mental state. Furthermore, all the games distort the atmosphere to reflect the protagonist’s mental state. This contrasts with the previous group in order of events; information about the character’s mental state, either implicit such as medical reports in the game, or explicit such as other characters stating that the protagonist is ill, is presented prior to actual distortion. This pattern remains true for *Amnesia*; as the player is warned that witnessing the monsters in the game will lower the sanity level and, in turn, cause hallucinations and distortion of the atmosphere.

Overall, this group of texts distort the clarity of the events and atmosphere. As a result, the player is given a greater sense of control and preparedness as they are given the important information needed to complete the objective and anticipate strange events. However, during these events, distortion acts as a diversion from the objective. In addition, it becomes difficult to distinguish to definite threats and illusions, creating paranoia due to anticipation. These games rarely give much opportunity to analyze the situation as they call for immediate responses to threats, and regardless of whether they are real or fiction, the player will likely respond with fear.

The third and final subcategory is made up of texts that develop a false sense of security. This group includes *Silent Hill 4: The Room, Dead Space*, and *Duck Season.* In summary, these games either create the illusion that the player is completely capable of handling external obstacles or withhold information about said obstacles until much later in gameplay. A false sense of security is created either through the realistic and familiar atmosphere or the number of player aids available.

Silent Hill 4 and *Duck Season* both take place in a home setting, which is associated with safety and security. To illustrate, *Duck Season* additionally presents representations of video games developed in the eighties and the protagonist in *Silent Hill 4* explicitly states that they are in their own apartment. However, the feelings of familiarity are interrupted by subtle, yet noticeable changes in the atmosphere, which expose the illusion of safety present during gameplay. With these two game specifically, the changes take on subject matter such as religion and the occult, which heavily contrast with the initial player perception of the atmosphere.

Duck Season further develops a false sense of security with a similar method to that of *Dead Space*; the player is presented with player aids, namely weapons, prior to the introduction of the threat. Although the feeling of security is brief, the player is still temporarily under the impression that they are safe, as the weapon likely effects the player's perception of the monster, despite never having encountered it. In short, an unreliable narrative and its disruption mainly depend on altering the player's perception of the atmosphere, the plot, and the protagonist.

The most common psychological horror characteristic present among the twelve texts was the Manipulation of the Human Psyche and the least common was Cognitive Dissonance. However, out of the four criteria referred to in this study regarding factors in GTP severity, all categories meet three of them. All groups of texts seem to elicit an emotional response and manipulate evolutionary fears, namely the dark, sudden noises, blood and gore, and death. In contrast, the feature ofof realism and the reinforcement of action seems to vary; realism is present in the immersion and unreliable narrative texts, whereas the human psyche and cognitive dissonance texts utilize the reinforcement of action.

Limitations

It is important to note that there are not many available methods for this specific inquiry. As stated previously, the Gottschalk-Gleser scales were never designed for fictional characters nor do they take into account tone or context, which can factor into the player's perception of the emotions expressed. To illustrate, certain phrases were labelled as "Social Alienation-Personal Disorganization " due to their outlandish nature, however this may be due to an extended metaphor or fictional, abstract events taking place as opposed to the character's mental state as the score would suggest. In addition, "Narcissism" could be only be calculated for presence and classified by the sub-category of narcissism, as there is currently no available methods to calculate for intensity outside of experimental versions of PCAD.

Furthermore, the factors in GTP severity are not limited to what is referred to in this study as there is still research being done on the topic. In addition, GTP is experienced in gameplay, therefore it, nor could its effects be observed in action as the gameplay used in this study featured no commentary from players. Additional elements may have been evident later in gameplay however, due to time constraints, the study only analyzed the first hour, as it this would be enough time to grasp the gameplay patterns and code for elements. Also, it is important to note that psychological horror games, including a few used in this study contain multiple outcomes and endings based on the choices made by the player. This ultimately creates a unique experience for each player. Finally, all the criteria for GTP severity is treated equally due to the earlier mentioned ongoing research; it is possible that some criteria serve as greater factors than others. The treatment of the criteria in this study may alter more accurate results.

Discussion

All the categories vary in size, but all meet the same amount of criteria. This would suggest that there is no single characteristic of psychological horror video games that is more likely to cause GTP than others. However, it is important to note that many of the texts in this study fit into at least two of the categories. Therefore, even if an entire characteristic does not stand out in this sense, certain games potentially could.

Furthermore, the results have identified which of the listed criteria for GTP severity are likely the most prevalent in the genre; eliciting an emotional response and manipulating evolutionary fears. This is expected by the general public as the genre is famous for creating sadness, anger, and most notably fear in its players. However, psychological horror games that possess both these and the less common criteria, realism and reinforcement of action, would be more likely to factor into GTP severity. In the case of realism, which is met by the immersion and unreliable narrative texts, the common element is the use of atmosphere. Between the two groups, unreliable narrative texts merely aim to give the illusion of realism and familiarity before disturbing it, while immersion texts tend to maintain realism throughout gameplay. Whereas with reinforcement of action, cognitive dissonance and human psyche texts share the use of disembodied voices. In both cases, the player is urged by the voices to complete the objective. Yet, cognitive dissonance texts stress story and characterization, as the goal is to have player feel the conflict between their own ideals and their actions in the game. Meanwhile, human psyche texts focus more on the action itself, whether this means explicitly stating that the player needs to act, or implying that they will be faced with an obstacle.

At this point, it is evident that the majority of games focus on emotion and fear. Despite this, realism and reinforcement can still exist in this genre and be executed successfully. However, it is still unclear as to which of these is more of a factor to GTP severity. In regards to the elements, if all psychological horror games at the very least will both elicit an emotional response and act on evolutionary fears, reinforcement of action and realism would increase the likelihood of these games “triggering” GTP.

The elements involved in these factors, that exist across the texts that meet these criteria, are atmosphere and disembodied voice. The physical atmosphere of a game can be realistic and familiar, and although not observed in the samples analyzed, could reinforce the player to progress. In contrast, disembodied voices is more likely to reinforce action, but has not been used to create realism among the samples. Furthermore, these two elements can also be utilized in the more common criteria; depending on how the atmosphere is presented or changes during gameplay, and the intensity or emotion expressed by the voices, the player can potentially react emotionally, likely with fear or discomfort. Overall, based on the similarities among categories and the criteria for GTP severity developed for this study, atmosphere and disembodied voice have the clearest potential to possibly factor into GTP severity.

Conclusion

This study was conducted with the goal of identifying which elements of the psychological horror video game act as factors in the severity of autonomous GTP. In the end, the results implied not a definite answer, but rather guidelines to further investigation. Various trends in the genre were made visible, such as the ordering of events and the resulting effect, and how different types of games develop the characteristics of the genre. With everything considered, the manipulation of atmosphere and disembodied voice were recognized for their influence in psychological horror gaming. This is noteworthy considering the fact that many video games in general focus on world building and story, and may use voice in combination with atmosphere to accomplish this. These two elements are the most prominent in exploration and fps games, regardless of developer. Therefore, these findings would imply that these types of games would be more likely to trigger GTP than others. Also, as the psychological horror genre relies on narrative and utilizes these elements frequently, this subgenre of horror could be the greatest guide for further inquiry into the topic of GTP. However, this also implies that psychological horror is not necessarily more likely to factor into GTP severity than other genres, as numerous types of games also use these elements. This implies that the controversy surrounding the genre does have limitations.

On a larger scale, it is possible that atmosphere and disembodied voices could “trigger” antisocial behaviour, if only temporarily. However, the effects of reinforcement and realism are likely increased by playing time. Therefore, indulging in these types of games for extended periods of time could potentially negatively affect the player. Furthermore, the mental state of the player and the lack of information surrounding how much of a factor these two elements truly are, still need to be considered and further investigated. Ultimately, this study serves as a guideline to research following it.

Future research should repeat the study with a focus specifically on the disembodied voices. Although they were regarded as one element alone, disembodied voices have several elements within themselves including tone, speaker, volume, the presence of subtitles, and so on. A content analysis could be repeated with these voices being the main focus across the study. As a result, the impact of these voices could be observed more independently of other elements. In addition, the content analysis should be followed by interviews with gamers and fans of the genre to confirm the effects of these elements. Responses should be analyzed using the GTP scale.

The factors in GTP severity should continue to be explored and tested beyond occurrence; the strength or weight of each factor should be determined, therefore if the study is repeated, severity could be further quantified. Furthermore, video games that possess more than one of the criteria listed in this study should be compared based on the means of manipulating its psychological horror tropes. Prior to this, games that belong in the same groups should be compared and contrasted with the GTP criteria independent of the characteristics.

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Appendix A

CONTENT ANALYSIS

Gaming Technology

- Virtual Reality
- Console (Xbox, PS4, etc)
- PC
- Mobile
- Other (please specify

Duration of Visibility of the Avatar
- Non-occurrence
- Throughout all gameplay
- During partial gameplay

Visibility of the Avatar
- Full body
- Just hands and feet
- Torso
- Other

Perspective
- First person
- Third person

Mechanics
- Linear movement
- Free roaming (360)
- Stationary
- Turning left and right (180)
- Looking up and down (180)

*Atmospheric/Involuntary Audio (excluding music and voices)
- Objects falling
- Screams
- Weather (thunder, wind, etc)
- Technology (e.g. phone ringing)
- Heavy breathing
- Other (specify)

External Obstacles
- Atmosphere
- Outside manipulation
- Other (please specify)

Internal Obstacles
- Delusion

- Hallucinations
- Unreliable narrator
- Other (please specify)

Nature of *Voices in Game (check all that apply)

- Anxiety
- Hostility
- Depression
- Cognitive impairment
- Hope
- Depression
- Health/Sickness
- Achievement Strivings
- Dependency Strivings
- Narcissism
- Other (specify)
- Non-applicable

Visibility of audio

- Clear
- Implied
- Invisible
- Other

*Voices - for the sake of this research we are focusing on disembodied voices, speaking to the player, speaker is not visible

Representations of Technology (in use by player)

- Broken
- Working
- Working conditionally (e.g limited battery life) (please specify)
- Non applicable

Subject Matter/ Theme

- Family
- Apocalypse
- Sanity
- Morality
- Religion
- Fear
- Other

Nature of Physical Atmosphere

- Distorted Realism
- Realism
- Abstract
- Other

Physical Atmosphere
- Hospital
- Prison
- Home
- Forest
- City (abandoned or otherwise)
- Other (please specify)

Nature of Protagonist
- Anti-hero
- Villain
- Neutral
- Hero
- Victim

Primary Game Objective
- Save
- Survive
- Search
- Escape
- Other (specify)

Developer
- Independent
- Mainstream
- Semi-independent

Duration
- Half an hour or less (specify)
- Half an hour
- An hour to two hours
- Two hours or more (specify)