

To See and Fear: A Pilot Study on Gaze Behaviour in Horror Gaming

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Abstract

Inspired by a dearth of research in the increasingly popular genre of horror video games, this study piloted a method focused on comparing fixations on visual horror across the variables of differing horror interests and gaming habits. 12 participants were recruited and split into groups after answering questions pertaining to group identification and the Fear Questionnaire (video game player/ horror fan, $N = 5$; non-player/ horror, $N = 2$; player/ non-horror, $N = 5$). Tobii Pro Eye-Tracking Glasses were then equipped to allow for the recording and subsequent calculation of fixation number and fixation threat percentage while playing a short video game demo, *Resident Evil 7 Teaser: Beginning Hour* (CAPCOM, 2016). Following an independent T-Test for each dataset, horror vs. non-horror and player vs. non-player, this study revealed significant differences in percentage threat fixation in the second of the two scenarios extracted from the demo for analysis. This research concludes that game design or resilience/desensitisation can explain a lack of consistently significant results, as can a lack of sample power. Overall, the research method attains ideal replicability, consequently lending itself to suggestions for continued studies in this area. Noteworthy future directions include a focus on evolving technologies in horror gaming and how non-horror fans interact with the genre.

Keywords

Horror; eye-tracking; threat; fixation; gaze behaviour; video gaming.



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Introduction

Defined as “an extremely strong feeling of fear and shock” (Cambridge Dictionary, 2024) and derived from the Greek word “phryke,” meaning shudder (Martin, 2019, p. 3), horror presents itself as a potentially aversive and paradoxical genre. The relationship between the consumer and the instinctive fear reactions that horror ignites invokes the question of why one would consume this particular genre of media. This is a question that researchers in the field of psychology have previously investigated, but no definitive answer has yet been uncovered (Miller et al., 2024). At its core, horror presents a psychological point of interest, especially when considering the prevalence of horror in the interactive form of video games.

Horror as a genre has been described as especially adaptable into digital gaming (Andersen & Shimabukuro, 2013; Stobbart, 2019). This is likely due to the genre’s archetypal nature, with horror-adjacent elements bleeding into a variety of disparate game genres. Additionally, as an evolving medium that necessitates interactivity, video games could spark a significant and revolutionary step for the horror genre (Rouse III, 2009; Marak et al., 2024). While the horror genre aims to evoke feelings of fear and anxiety (Scrivner, 2024), horror games use this interactivity to augment suspenseful narratives, immersive atmospheres and lingering frights (Lynch & Martins, 2015; Lin et al., 2018), as well as act as a conduit for increased arousal (Juvrud et al., 2022).

At a conventional level, video games are a popular form of media and a part of everyday life for many (Vorobeva, 2024). However, the horror genre in particular can be described as holding niche appeal. While individual reports of principal video game sales prove inconsistent, the only horror game within the tech corporation HP’s top 50 bestselling games is *The Last of Us* (Naughty Dog, 2013) at joint-49th with a reported 20 million units sold (HP, 2023). However, there have been suggestions that the horror genre in general is on the rise, due to both escalating appreciation and rising profitability (Martin, 2019; O’Brien, 2023). Demonstrably, the gaming studio Capcom has found the horror series *Resident Evil* (1996-present) to be their most profitable franchise (Capcom Public Relations & Investor Relations Section, 2024), despite producing other well-known titles such as the 2D fighting series *Street Fighter* (1987-present) and the action/adventure franchise *Monster Hunter* (2004-present). Furthermore, alongside game releases, *Resident Evil* boasts its own movie franchise (Anderson, 2002-2016); a financially successful, if critically mired, movie series recently mirrored by the eponymous and highly profitable *Five Nights at Freddy’s* (Tammi, 2023) film adaptation, which earned \$290 million gross on a budget of \$20 million (Murphy, 2023; Box Office Mojo, 2025)

The genre's recent growth is thus worthy of discussion, with a psychological lens being especially advantageous to achieve a finer understanding of the relationship between the individual and the horror stimuli with which they are interacting. This notion is supported by a dearth of research within psychology on horror gaming, driving researchers to suggest further research as an "illuminating" proposition (Martin, 2019, p.3; O'Brien, 2023) so as to further understand the attraction individuals have to material considered unpleasant and fear-inducing.

As such, this study pilots an approach to studying the interactions between video game players and a key element of horror gaming: visual stimuli (De Lima et al., 2020; Vorobeva, 2024; Mazlan, 2025). Utilising eye-tracking to examine gaze behaviour, an aspect largely overlooked in horror gaming research, this study aims to highlight the psychology behind these interactions. This research hopes to offer new insights into player engagement, immersion, and fear response, particularly concerning potential variations in gaze behaviour when considering disparate relationships with video games and horror across participants.

Research in Horror Gaming

The psychological impact of horror gaming is a multifaceted field of study, encompassing various aspects such as mental well-being, stress responses, and motivations for engaging with fear-inducing content. Regarding mental well-being, research highlights that there is a psychological benefit to overcoming fear, suggesting that it can empower individuals by boosting resilience (Graja, 2021; Nidelcu, 2023; Scrivner & Christensen, 2021). For players, this might not only reduce susceptibility to fear in horror games but also enhance confidence. Due to this, some studies debate whether repeated exposure to horror media desensitises high sensation-seekers (Lynch & Martins, 2015; Villarreal, 2020). However, this may be counterproductive to a horror player's desired experience, who may avoid repeated exposure in an attempt to resist desensitisation to preserve their enjoyment and maximise fear.

Regarding stress, Griffith and Sharpe's (2024) survey of 54 participants found that players of horror games experience lower everyday stress than those who play competitive shooters but similar levels of stress to sandbox players (see Table 1 for genre information). Moreover, horror players and sandbox players further share comparable positive mental health. Overall, the heightened stress of competitive shooters is consistent across studies (Smith et al., 2022; Sharpe et al., 2024a; 2024b), possibly indicating that exposure to fear-inducing stimuli enhances resilience among players of horror games.

Genre	Definition	References
Horror	Immersive atmosphere and lingering frights; produces a strong feeling of fear or shock.	Lynch & Martins, 2015; Lin et al., 2018; Cambridge Dictionary, 2024.
Competitive shooters	Involves killing and shooting opponents or enemy players.	Daneels et al., 2018.
Sandbox	Large, open, full-of-life worlds where players are granted a high level of freedom.	Ocio & Brugos, 2009.

Table 1. Definitions of genres.

The comparison with competitive shooters brings attention to the theme of violence in video games, a focal point in psychological gaming research (Adachi & Willoughby, 2011). However, whilst violence appears in both competitive shooters and horror games, genre categorisation by marketing, not themes, simplifies research. Furthermore, other more complex themes besides violence can allow for introspective experiences while playing horror games, such as morality, agency, and humanity (Lee, 2024), as seen in *The Last of Us* (Naughty Dog, 2013). Moreover, real-time factors such as co-op play further amplify stress due to shared responsibilities, as shown in Marak et al.'s (2024) analysis of 42 co-op playthroughs of the *Dark Pictures Anthology* (Supermassive Games, 2019-2022). Co-op players report higher unease, anxiety, and frustration than solo players, highlighting unique stress dynamics.

Motivations for engaging with horror include morbid curiosity and risky play. Morbid curiosity drives the investigation of negative stimuli (Zuckerman & Litle, 1986; Oosterwijk, 2017), while risky play pushes fear-related boundaries, often observed in children (Sandseter & Kennair, 2011). These motivations suggest players are drawn to horror, not despite its nature, but because it provides control and intrigue. Some players often experience exhilaration in horror games akin to a rollercoaster ride (Holm, 2023), or anticipation of sudden horror stimuli, similar to gambling (Miller et al., 2024). Overall, these sensations can prove desirable for a multitude of different reasons, providing an allure to horror.

A noteworthy thematic analysis by Brown and Marklund (2015) identifies three distinct horror elements: loss of agency, the Freudian Uncanny (paradoxically unnerving yet alluring experiences [Freud, 1919]), and the Heideggerian Uncanny (temporal incongruity between game and real life [Heidegger, 2000]). Their application of these themes to *Animal Crossing: New Leaf* (Nintendo, 2013) reveals how contrasting horror elements can permeate non-horror games, offering a nuanced perspective on horror's reach beyond its genre. This argues for a discussion of how individuals with differing interests in the horror genre interact with video games.

Overall, whilst the above research suggests positive outcomes for players of horror games (resilience: Graja, 2021; Scrivner & Christensen, 2021; stress levels: Smith et al., 2022; Griffith & Sharpe, 2024; satiated morbid curiosity: Zuckerman & Litle, 1986), it may be impetuous to generalise to any and all players. For example, players not typically drawn to playing horror games may experience only the immediate shock and fear when playing. As such, alongside examining how players visually engage with horror stimuli, this study will further consider differences in horror interest and gaming habits to provide a nuanced understanding of visual interactions with horror games, contributing to the expanding psychological research within cyberspace (Baker et al., 2024; Sharpe & Birch, 2025).

Gaze Behaviour

Considering the unique interactivity posited by horror video games, whereby individuals play through a game as opposed to simply watching it like a movie, and their use of visual stimuli as an element of horror, gaze behaviour will be incorporated as the key dependent measure. The measure of gaze behaviour will focus on fixations, defined by Vickers (1996) and Vickers and Williams (2007) as a sustained gaze maintained within 1-degree of visual angle for a minimum of 120 milliseconds. Eye-tracking can be a useful tool in the study of video games, allowing psychologists to measure the interaction between the player and visual stimuli, a principal element of the gaming experience.

Prior research has formulated suggestions regarding gaze behaviour in gaming, such as the observation that esports experts playing *League of Legends* (Riot Games, 2009) have a wider horizontal area of gaze distribution and a shorter gaze fixation duration (Jeong et al., 2024). Other research regarding action games suggests that visually cluttered environments can affect visual behaviour and weaken performance (Delmas et al., 2022). Moreover, it has been argued that players may fixate on what is deemed the most visually threatening entity, regardless of whether prior playtime has shown the entity to be harmless (Popović, 2024). However, Popović does suggest that player skill as a variable is challenging to define, due to the mechanical differences that exist across many different games of different genres.

Research has also identified how gaze behaviour can be advantageous in studying player behaviour (Kepplinger et al., 2020) as well as in designing video game material. Such research can help refine educationally aimed games and interfaces (Mat Zain et al, 2011) as well as create interventions, such as Dæhlen et al. (2024), who conducted a bibliometric study on research regarding eye-tracking and games for the detection and rehabilitation of neurodevelopmental disorders (NDD). They found that the research often lacks key aspects of eye-tracking, such as detailed measures and calibration details. They conclude by suggesting that training support for children in various NDD categories, as well as concrete eye-tracking measures, should be better illustrated in papers, as eye-tracking can be unique and useful in such a setting. Finally, research has suggested the use of eye-tracking as an input device in games to increase player immersion (Smith & Graham, 2006; Antunes & Santana, 2018), such as tracking fear-revealing flickering eye movements in horror games (Jönsson, 2005).

While tentative theories can be formulated in relation to gaze behaviour in horror players, such as the effectiveness of vision use or possible improvements in visual capabilities when immersed in shadowed environments, there is a shortfall of research in this area. The common integration of visual stimuli such as darkness and apparitions (De Lima et al., 2020) as horror elements within horror games further makes this paucity of research significant. Therefore, the proposal to integrate gaze behaviour into horror game research proves compelling (Ningalei & Wöhrman, 2018).

Aims of the Study

Prior research has explored varying utilisations of eye-tracking relating to gaming (Smith & Graham, 2006; Mat Zain et al, 2011) but there remains a shortage of research specifically focusing on gaze behaviour and horror video games. Consequently, this study will be exploratory in nature, aiming to pilot an investigation into discrepancies in gaze behaviour (percentage of fixations on visual horror-stimuli and fixation number) across the grouped factors of horror interests and gaming habits.

Concerning tentatively linked prior research, it can be theorised that horror fans will be more comfortable looking at the horror-stimuli and will, therefore, have an increased percentage of horror-stimuli fixations compared to non-horror fans. However, a dearth of research makes theorising about gaming habits challenging. To further enrich the discussion of the study, the Fear Questionnaire (FQ [Marks & Mathews, 1979]) will be deployed, with the scores pertaining to themes relevant to the horror genre, such as global phobia and avoidance.

From this, the hypothesis for the study is "there will be differences in gaze behaviour across the groups," with the null hypothesis being "there will not be differences in gaze behaviour across the groups."

Method

Participants

A total of 12 participants ($M_{age} = 23.67$, $SD = 5$) were recruited using opportunist sampling, with the gender distribution including eight males ($n = 8$) and four females ($n = 4$). The primary source of distribution was the lead University's Research Participation Scheme (an online list of studies with bookable slots). Students from the university had the study advertised to them through email and classes, with the promise of thirty minutes of participation credit necessary for the course. To widen the sample, the university's Esports Society was contacted, and the study was advertised in their Discord server. As per Poulus et al., (2024), this was a non-elite sample.

The nature of the independent variables meant that anyone, as long as they were above the age of 18, was permitted to take part. Demographic information such as age, gender or race did not lead to exclusion. However, the participants were required to have 20/20 vision (no visual aid required to play the game) or wear contact lenses, as the eye-tracking equipment did not permit the use of glasses. The participants were also required not to have played the game demo before, to avoid confounding variables. While nationality was not a discussed variable, all participants lived locally to Chichester, England, as a result of the in-person nature of the study.

The research was approved by the university's research ethics board, with informed consent gained prior to the onset of data collection and information regarding data storage outlined as per the university ethical guidelines. Ascertaining questions were also asked at the start of the study to confirm which of the four groups the participant belonged to, relating to whether the individual plays video games and whether they are a fan of the horror genre: player/ horror fan ($n = 5$; 2 males and 3 females); non-player/ horror fan ($n = 2$; 1 male and 1 female); and player/ non-horror fan ($n = 5$; 5 males). No participant fell into the group of non-player/ non-horror fan ($n = 0$). The target sample size was guided by prior research, with an aim of 6-12 participants per group, allowing for a total of 24-48 (Smith & Graham, 2006; Mat Zain et al., 2011). However, due to the exploratory nature of the study, the target sample was deemed tentative.

Measures

Eye-tracking equipment

A Tobii Pro 2 eye-tracker was used to measure gaze behaviour, encompassing the dependent variables of percentage fixation location and fixation number. The eye-tracker is a head-mounted tool equipped with four sensors operating at a frequency of 50 Hz and controlled by Tobii Pro Glasses Controller Software. It records the gaze behaviour by analysing the binocular corneal reflection in relation to an integrated camera. The integrated view camera captures visuals at a resolution of

1920 x 1080 pixels, operating at a frame rate of 25 frames per second, and offering a field of view (FOV) of 90 degrees. An 82-degree horizontal FOV and a 52-degree vertical FOV were offered to the participant. Prior to use, it must be calibrated to the participant, which involves wearing the tracker and staring at a small black target on a white card against a blank white background.

Resident Evil 7 Teaser: Beginning Hour

The horror video game demo used was *Resident Evil 7 Teaser: Beginning Hour* (RE7BH; CAPCOM, 2016), a modified sequence of the game *Resident Evil VII: Biohazard* (CAPCOM, 2017), played on the laboratory gaming computer and connected to the associated speakers. The lowest brightness setting was used to increase immersion, with English subtitles activated to allow easier understanding of the story and instructions. The game was chosen due to its first-person perspective, meaning the participant sees what the player-character sees, allowing for increased immersion and accuracy of gaze behaviour. Additionally, the lack of combat allowed for a playthrough which did not discriminate based on gaming experience, akin to the proposed usage of *Counter-Strike: Global Offensive* (Valve & Hidden Path Entertainment, 2012) as a measure in research concerning the competitive shooter genre of video games (Sharpe et al., 2022).

When starting the game, brief instructions highlight the WASD keys on a QWERTY keyboard as the controls for directional movement, with the shift key toggling running. The game starts by instructing the player to "Get out of the house," before granting the player control to freely explore a rundown house. The player encounters locked doors as they explore the space before finding a videotape that reveals a secret passage. Using this passage, they can find a key to the back door, as well as the fuse needed to activate the stairs to the attic. The game boasts multiple endings; the "Bad Ending" takes approximately 15 minutes, and the "Good Ending" and "Infected Ending" take approximately 30 minutes (all participants secured the "Bad Ending"; $M_{time} = 18:37.9$ Minutes, $SD = 8.56$). Only in the "Good Ending" can the player escape. However, the "Good Ending," along with the "Infected Ending," requires knowledge gained from a previous playthrough to complete, making them unlikely to achieve when playing for the first time.

Fear Questionnaire

Prior to playing the video game demo, participants were asked to complete a short questionnaire regarding fear and phobia levels: The Fear Questionnaire (Marks & Mathews, 1979). This allowed the calculation of Main Phobia Level of Avoidance, Total Phobia Score, Global Phobia Rating, and Associated Anxiety and Depression score for each individual. Participants were provided with explicit instructions to answer 24 questions on a 0-8 Likert scale. Questions 1-17 focused on avoidance due to fear or unpleasant feelings (e.g., "injections or minor surgery"),

with the scale ranging from “would not avoid it” at 0 to “always avoid it” at 8. Question 18 concerned the individual rating their own phobic symptoms on a scale ranging from “no phobias present” at 0 to “very severely disturbing/disabling” at 8. Finally, questions 19–24 focused on how troubled the participant felt regarding specific problems (e.g., “feeling irritable or angry”), with the scale ranging from “hardly at all” at 0 and “very severely troublesome” at 8.

Procedure

Once present in the psychology lab at the university, participants were seated at the laboratory gaming computer, where the study exclusively took place, and were fully briefed on the study. Their informed consent was then gained using an online form. Participants began by answering exploratory questions (used to determine group) and questions pertaining to the FQ. After completing the questions, participants were equipped with the eye-tracking equipment, which was quickly calibrated, before starting their playthrough of RE7BH. The provided instructions were echoed to ensure clarity. While playing the video game, participants had their gaze behaviour tracked and, upon completion of the demo, were fully debriefed and thanked for taking part.

Eye Data Processing

Once every participant had completed the study, the collected eye data was analysed using the Tobii Pro Lab software (v2.01.33, 2022). Two scenarios of the gaming demo were chosen as the focus due to their relevance. Both scenarios take place during a playable segment where the protagonist watches a videotape through the eyes of a cameraman filming inside the demo’s abandoned house. The cameraman is accompanied by a presenter and producer. Scenario 1 involves the player-as-cameraman following the presenter through a dark living room, in search of the producer who has mysteriously wandered off. This section ends once the player begins their descent down a ladder (*Mtime* = 01:19.2 minutes; see Appendix A). Scenario 2 starts with finding the missing producer and ends with the completion of the videotape recording (*Mtime* = 00:15.0 minutes; see Appendix B). It was determined that, for Scenario 1, the dark room is deemed threatening, and thus any fixation on the environment is a “threat fixation,” with a fixation on the presenter being a “non-threat fixation.” Conversely, the menacing figure of the producer in the cramped basement room of Scenario 2 led to the decision for environmental fixations to be deemed “non-threat fixations” and the figure a “threat fixation.” The analysis focused on the percentage of threat fixations in the total fixation number, as well as the total fixation number itself. Additionally, the scores from the FQ were used to calculate the Total Phobia Score, Main Phobia Level of Avoidance, Global Phobia Rating, and Associated Anxiety and Depression score for each participant, and the additional survey questions were used to group individuals by video game player and horror-fan status.

Statistical Analysis

Statistical analyses were completed in Jeffery's Amazing Statistics Programme (JASP Team, v0.17.1). Each observed variable of the data (threat fixation percentage and total number and FQ scores) was then screened to determine univariate normality. The percentage threat fixation and FQ scores were normally distributed, as indicated by skewness and kurtosis Z-score values, within the ± 1.96 range for those two groups (as proposed by Fallowfield et al., 2005). Boxplots revealed no univariate or multivariate outliers. An independent samples t-test was performed to analyse the data from two distinct groups: players (comprising the player/ horror and player/ non-horror groups for a comparison of horror) and individuals interested in horror content (including the player/ horror and non-player/ horror groups for a comparison of players). Alpha level (p) was set at 0.05, with Cohen's d used as the effect size (Cohen, 1988).

Results

Percentage of Threat Fixations

Significant differences were not found for percentage of threat fixations in Scenario 1 across the player/ horror ($M = 64.87$, $SD = 3.11$) and non-player/ horror groups ($M = 75.72$, $SD = 19.66$); $t(5) = -1.41$, $p = .89$, $d = 1.18$, nor across the player/ horror ($M = 64.87$, $SD = 3.11$) and player/ non-horror groups ($M = 69.54$, $SD = 10.45$); $t(8) = -.96$, $p = .37$, $d = -0.61$.

Significant differences were found for percentage of threat fixations in Scenario 2 across the player/ horror ($M = 74.14$, $SD = 8$) and non-player/ horror groups ($M = 43$, $SD = 12.73$); $t(5) = 4.07$, $p = .005$, $d = 3.41$, and across the player/ horror ($M = 74.14$, $SD = 8$) and player/ non-horror groups ($M = 58.82$, $SD = 8.81$); $t(8) = 2.88$, $p = .021$, $d = 1.82$.

These data are presented in Table 2.

Fixation number

No significant differences in fixation number were found across the player/ horror and non-player/ horror groups in either scenario (Scenario 1: $t(5) = -1.58$, $p = .91$, $d = -1.32$; Scenario 2: $t(5) = -1.76$, $p = .93$, $d = -1.47$) or across the player/ horror and player/ non-horror groups in either scenario (Scenario 1: $t(8) = 1.02$, $p = .34$, $d = .65$; Scenario 2: $t(8) = .98$, $p = .35$, $d = .62$).

However, Scenario 1 (player/ horror: $M = 112$, $SD = 13.58$; non-player/ horror: $M = 146.5$, $SD = 51.62$; player/ non-horror: $M = 93.8$, $SD = 37.4$) was consistently found to contain a higher number of fixations than Scenario 2 (player/ horror: $M = 23.2$, $SD = 7.86$; non-player/ horror: $M = 42.5$, $SD = 24.75$; player/ non-horror: $M = 19.6$, $SD = 2.30$), likely due to its longer length (Scenario 1: $M_{time} = 01:19.2$ minutes; Scenario 2: $M_{time} = 00:15.0$ minutes).

Fear Questionnaire scores

No significant differences were found across the groups concerning FQ scores ($p > .05$ in all cases).

Group	Percentage of threat fixations in Scenario 1	Percentage of threat fixations in Scenario 2
Player/ horror	65%, SD = 3.11	74%, SD = 8
Non-player/ horror	76%, SD = 19.66	43%, SD = 12.73
Player/ non-horror	70%, SD = 10.45	59%, SD = 8.81

Table 2. Percentage of threat fixations across groups.

Discussion

This study aimed to investigate potential disparities in gaze behaviour and FQ scores across individuals with differing gaming habits and horror interests. The results of the study suggest a lack of differences in FQ scores across the groups, as well as conflicting suggestions regarding gaze behaviour, with Scenario 1 not providing significant differences across groups, whereas Scenario 2 does. Therefore, the hypothesis “there will be differences in gaze behaviour across the groups” cannot be confidently accepted or rejected. However, given the exploratory nature of the study, this outcome is deemed acceptable, and the study still provides an avenue for further research in this area.

A discussion of the reasoning for the results prompts a critical evaluation of the fundamental element of the gaze itself. Regardless of group, a commonality between participants was their use of vision as a resource when playing *RE7BH*, with each participant using it to puzzle-solve and advance. This necessity could have negated any potential differences due to the game design provoking the player to use their visual perception in specific ways. Additionally, every individual was either a video game player or a horror fan, insinuating a certain history with using vision as a resource during analogous circumstances.

In applying past theory to the results of this study, the suggestions by Delmas et al. (2022) that visually cluttered environments in action video games can negatively influence player performance as well as alter gaze behaviour prove interesting, as it inversely describes the demo. As previously discussed, *RE7BH* was considered favourable for use in the study due to its lack of action and its shadowed appearance and eerie atmosphere, suggesting a game design that would allow participants to optimise their performance, building a sense of confidence within themselves. Additional research continues this proposition, with suggestions of increased resilience for overcoming fear (Graja, 2021; Scrivner & Christensen, 2021; Nidelcu, 2023). Therefore, a scenario taken so late in the demo could illustrate how an individual has

developed increased resistance to fear-inducing stimuli. However, it must be noted that past literature can only be tentatively applied to these findings, as this study is exploratory and unique in nature.

Furthermore, the requirement of gaze behaviour and the interactivity that comes with video games, compared to the non-participatory consumption of a film, could have distracted participants, distancing them from immersion. Past research suggests a positive correlation between interactivity and arousal, but not between interactivity and immersion (Juvrud et al., 2022). This suggests that if participants in the present study felt pressured to skilfully complete the demo, then they could have experienced weakened immersion, possibly leading to a more impactful predictor than a history with gaming and horror.

Another worthy consideration for the results comes from Scenario 2 being substantially shorter in length than Scenario 1, amplifying the impact smaller changes are likely to have on the overall percentage of threat fixations. Therefore, the significance could simply be cases of inconsequential individual differences, with no relation to gaze behaviour or horror gaming. However, the non-player/ horror group having a minority percentage of threat fixations in Scenario 2 does prove interesting, as an interest in horror would not suggest any visual aversion to threatening stimuli. Additionally, the length of the scenario does not warrant any displays of gaming ability outside of minimal steps forward in-game. However, again, this could be a case of extraneous individual differences.

As a theory of behaviour, morbid curiosity introduces an element of intrigue into discussions of horror (Zuckerman & Litle, 1986; Oosterwijk, 2017), with the inquisitiveness for negative content being relevant when discussing gaze behaviour in horror video games. Despite insignificant findings when comparing groups, the study found consistently high percentages of threat fixations compared to non-threat fixations, apparent in every group except for the non-player/ horror group's 43% in Scenario 2. Beyond that statistic, the lowest percentage was the player/ non-horror group in Scenario 2 with 59%, with the highest being the non-player/ horror group in Scenario 1 with 76%. A consistent interest in the threatening environment could suggest a high sense of morbid curiosity in each participant, additionally supported by the theory of risky play in children, which could also act as an explanatory factor in the inquisitive nature of players (Sandseter & Kennair, 2011). Whether the design of the game, the mostly common factor of studentship, or specific individual differences as explanatory factors behind the morbid curiosity, it does suggest an added layer of depth to the horror game discussion.

Practical Implications

The lack of significant differences in gaze behaviour between horror and non-horror fans suggests promising opportunities for expanding the

horror game audience. The findings indicate that non-horror fans naturally adapt their visual behaviour to match experienced horror players, suggesting either inherent psychological adaptability or effective game design. This has important implications for marketing horror games to new audiences and aligns with research showing non-horror games already successfully incorporating horror elements (Brown & Marklund, 2015). Additionally, the potential benefits extend beyond entertainment, as engaging with horror content may contribute to increased resilience and psychological well-being for those who typically avoid the genre (Martin, 2019; Graja, 2021; Scrivner & Christensen, 2021; Nidelcu, 2023; O'Brien, 2023).

Finally, Research by Mat Zain et al., (2011) explores the use of eye-tracking in relation to identifying issues with educational games. However, applying the themes of eye-tracking and educational games to that of horror leads to a personalised sense of education. Eye-tracking could allow individuals not only to push their boundaries and curiosities in relation to fearful stimuli but also identify their own visual perception behaviours that they may not be able to notice without the aid of technology.

Strengths and Limitations

The study design benefited from using the RE7BH demo, which provided a first-person horror experience without gameplay barriers that could confound the results (Smith, 2023). Additionally, the game effectively represented the horror genre due to its utilisation of shadows and ambiguous sounds (De Lima et al., 2020) and quintessence due to belonging, subjectively, to one of the most principally frightening horror gaming franchises, as identified through interviews (Lynch & Martins, 2015). Finally, the Fear Questionnaire offered notable validity to the study due to high retest reliability (Marks & Matthews, 1979), resistance to social desirability bias (Arrindell & Buikhuisen, 1992; Gills et al., 1995), and Internal consistency (Mavissakalian, 1986; Oei et al., 1991; Van Eeden et al., 2021).

However, several limitations affected the research. Firstly, the artificial laboratory setting may have impacted ecological validity despite the game's immersive nature. Moreover, the predominantly student and nationally specific sample limited the population validity. While developed in Japan, the Resident Evil franchise (Capcom, 1996) is inspired by Western culture (Pruett, 2010) and, as discussed in previous research (Clasen, 2012), fear is a culturally specific phenomenon. This calls for a biocultural lens to be applied for future studies. Finally, technical constraints of the eye-tracking equipment required suboptimal lighting conditions and a researcher to be present during gameplay, potentially weakening immersion or focus of the participant.

Future Directions

Several promising research avenues emerge from this study, particularly in leveraging advancing technology. Virtual reality integration with eye-

tracking could provide more accurate gaze behaviour data in a more immersive environment (Ojainväli, 2024), while exploring gaze as an input device could yield insights into both playtesting and fear responses (Jönsson, 2005; Smith & Graham, 2006; Antunes & Santana, 2018; Lin et al., 2018). Additional research opportunities include examining the "Evidentiary Effect" in found-footage style games (Kressbach, 2024), investigating gender perspectives in horror gaming (Cherry, 1999; Podraza, 2021; ; Almwaka, 2022), and exploring cross-cultural aspects of horror game development and reception, particularly in how game series like the Resident Evil franchise and *Alan Wake* (Remedy Entertainment, 2010) incorporate cultural elements from their development origins into their settings (Pruett, 2010).

Conclusion

This research acted as a pilot study aiming to investigate gaze behaviour in horror gaming across groups, with individuals split based on gaming habits and horror interests. Though the research hypothesis, "there will be differences in gaze behaviour across the groups," could not be confidently accepted or rejected, this research demonstrated merit in exploring how individuals utilise their gaze in different ways while playing horror video games. Prominence can also be applied to the congruent gaze behaviour between horror and non-horror fans, suggesting potential in expanding the horror audience, and deepening intrigue into how non-horror fans interact with the genre.

Overall, a lack of consistent, significant results could suggest a need for further research in eye-tracking with larger sample sizes. Future research should also focus on complexifying the psychological relationship between non-horror fans and horror in video games, incorporating a more nuanced view of how games utilise visual horror. Finally, future research could explore the use of immersive technologies, such as VR headsets, and their relationship to horror gaming. Here, focus could be placed on the impact of sensorial immersion and gaze behaviour accuracy.

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Appendix

Figure A1.



Screenshot of Scenario 1 from *Resident Evil 7 Teaser: Beginning Hour*.

Figure A2.



Screenshot of Scenario 2 from *Resident Evil 7 Teaser: Beginning Hour*.