T.C.
BAHCESEHIR UNIVERSITY
GRADUATE SCHOOL
THE DEPARTMENT OF COMMUNICATION DESIGN
MASTER PROGRAM IN GAME DESIGN

FACES OF FEAR: INVESTIGATING PLAYER RESPONSES TO HUMANOID VS. AMBIGUOUS CHARACTERS FOR HORROR GAME CHARACTER DESIGN

MASTER'S THESIS

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MASTER THESIS APPROVAL FORM

Program Name:	Game Design
Student's Name and Surname:	Burak Parlak
Name Of The Thesis:	Faces of Fear: Investigating Player Responses to Humanoid vs. Ambiguous Characters for Horror Game Character Design.
Thesis Defense Date:	26/05/2025

This thesis has been approved by the Graduate School which has fulfilled the necessary conditions as Master thesis.

Assoc. Prof. Yücel Batu SALMAN

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This thesis was read by us, quality and content as a Master's thesis has been seen and accepted as sufficient.

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ABSTRACT

FACES OF FEAR: INVESTIGATING PLAYER RESPONSES TO HUMANOID VS. AMBIGUOUS CHARACTERS FOR HORROR GAME CHARACTER DESIGN

Burak Parlak
Game Design Master Program
Thesis Advisor: Assistant Professor Ertuğrul Süngü

May 2025, 61 pages

Before the thriving world of digital gaming, the Horror genre had already been rich with various works of media. From early depictions of hellish beasts to the monstrous creations by human imagination, literature laid the foundation for cinematic narratives to flourish by drawing from a vast library of pre-existing stories. Cinema brought with it a new experience of horror media while also adding new spine-chilling entities to the list. Similarly in the gaming industry, Survival Horror videogames placed players into immersive worlds where they would now interact with and potentially survive the horrors that awaited them. Across all forms of media, a common theme emerges: There is most certainly a threating entity or entities that wish to ensnare the unsuspecting individuals. So, what type of hostile character in videogames precisely instils fear in our hearts? is it a danger we recognize and are familiar with or is it the inherent mystery of a being that is unknown? I believe this to be a worthy question to explore.

Key Words: Fear, Anxiety, Horror, Videogames, Character Design.

ÖZET

KORKUNUN YÜZLERİ: KORKU OYUNU KARAKTER TASARIMI İÇİN İNSANSI VE BELİRSİZ KARAKTERLERE OYUNCU TEPKİLERİNİN ARAŞTIRILMASI.

Burak Parlak
Oyun Tasarımı Yüksek Lisans Programı
Tez Danışmanı: Dr. Öğr. Üyesi Ertuğrul Süngü

Mayıs 2025, 61 sayfa

Dijital oyun dünyasının gelişiminden önce, korku türü zaten çeşitli medya eserleriyle zengin bir geçmişe sahipti. Cehennemden gelen yaratıkların erken tasvirlerinden, insan hayal gücünün ürünü olan korkunç yaratıklara kadar. Edebiyat sayesinde temelini önceden var olan hikâyelerin geniş kütüphanesinden alan sinema, bu hikayelere sinematik anlatılar geliştirdi. Sinema da korku medyasına yeni bir deneyim sunarken, aynı zamanda listeye yeni tüyler ürpertici varlıklar da ekledi. Benzer şekilde oyun endüstrisinde de hayatta kalma ve korku türündeki video oyunlar, oyuncuları içlerinde dehşet verici unsurlar olan sürükleyici interaktif dünyalara hayatta kalmaya çalışmaları için yerleştirdi. Tüm bu medya türünde ortak bir tema göze çarpar: Mutlaka hepsinde kurbanlarını tuzağa düşürmeyi arzulayan tehditkar bir varlık ya da varlıklar mevcut. Peki, video oyunlarında bize gerçek anlamda korku salan düşman tipi nedir? Tanıdık ve aşina olduğumuz bir tehlike mi, yoksa bilinmeyen bir varlığın içinde barındırdığı gizem mi? Bunun keşfedilmeye değer bir soru olduğuna inanıyorum.

Anahtar Kelimeler: Korku, Anksiyete, Oyunlar, Karakter Tasarımı.

ACKNOWLEDGEMENTS

I would firstly like to thank Assoc. Dr. Güven Çatak for inviting me to BUG Game Lab/BUG Lab TEKMER and motivating me to continue my studies, teach at Bahçeşehir University and other great experiences all together. Another thanks to my advisor Assistant Professor Ertuğrul Süngü for his guidance and encouragements throughout this research. I couldn't have finished without it.

I thank my dear mother and father, Şengül and Şahan Parlak for their endless support, patience and for believing in me, no matter what task or challenge I face.
And a special thanks to my brother and sidekick Onur Parlak for always being there whenever I needed a little more strength and motivation to go on. Together we can exterminate any horrors that cross our path!

Finally thank you to all my professors, mentors and fellow students during my master's studies. It has been an enlightening, very fun and unforgettable experience with you all.

Istanbul, 2025

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LIST OF ABBREVIATIONS

2D	2 Dimensional
3D	3 Dimensional
AI	Artificial Intelligence
ESRB	Electronic Software Rating Board
NPC	Non-Playable-Character
NRS-A	Numeric Rating Scale for Anxiety
SPSS	Statistical Package for Social Sciences

Chapter 1

Introduction

1.1 Statement of the Problem

In the field of video game art, specifically concept art and character design, there are many practices and guidelines artists follow. Laid down by years of art history and theory knowledge. Even if not set in stone they are generally followed as a good foundation to build upon for or break depending on a project's artistic vision or other goals.

Following the various practices an artist may illustrate a creature they believe is terrifying, fear invoking, or simply unsettling. There might be a backstory or visual elements that reveal the origins of the core fear underlying this creation. But how can a creator said creature know if it is scary or what could make it scarier for the viewer. Of course, this question could and presumably would have varied views and answers from many different people. I want to narrow down our question to two factors I believe are interesting: If players find Humanoid and more familiar threats to be scarier or ambiguous threats that induce an unsettling feeling. I believe there to be a lack of guides that have analysed such patterns in horror game enemy designs using the emotional responses of players and later translating it in a way it can be used in the videogame art department. I hope for this research to be of use for other artists like myself in their next survival horror enemy character design process.

1.2 Purpose of The Study

As mentioned in the last sentence of the previous paragraph, this study aims to get player responses as data via a questionnaire to assess emotional reactions and anxiety levels associated with humanoid and ambiguous enemy designs and analyse the patterns we see in our results. To eventually use the acquired knowledge to develop new standards for artists creating their next enemy character design for the survival horror genre.

Some elements of fear and anxiety may stay the same as they are rooted deep in our psyche. Pieces of our understanding and experiences of life, death, and the dangers in between. But the proof is in the many forms of horror media we come across today. We clearly see that even if old stories or themes are adapted, they are constantly changing and either modernized or re-mastered per say to reflect the fears of today or predictions made today of our future. Thus, it is pragmatic to continue such experiments as our lifestyles change with media and technology advancing throughout the course of time.

1.3 Research Questions

In this study there are 3 main research questions regarding character designs in mainline games of the *Silent Hill* Series: Silent Hill (1999), Silent Hill 2 (2001), Silent Hill 3 (2003), Silent Hill 4: The Room (2004).

These titles were selected because of their massive success and following they have gained from many gamers worldwide, especially fans of the survival horror genre. These titles are all created by "Team Silent." The developers responsible for the immensely influential first four games of the series. Though there are currently over 20 titles in the series varying from platforms and spinoffs, the first four are considered part of the core storyline and central to the *Silent Hill* universe.

Question 1: To define key concepts in this study and understand connections between the concepts addressed and how they apply to the character design process.

Question 2: Using a survey to get participants responses to the visual imagery of enemy characters in the mainline *Silent Hill*. With isolated character images from any context of in-game behaviours, scenes, or presentation. To get participants emotional responses to determine whether they find creatures in humanoid form or ambiguous forms to be more frightening.

Question 3: In order to understand which design patterns create the desired impact, we will evaluate the survey results and analyse them to see if there are potentially any correlations and if we can use these results to guide us in the character design process.

1.4 Limitations of the Study

I believe with this research it is crucial to understand that upon discussing the results from our survey we may possibly provide insight into the character design process of enemy characters for survival horror video games. But it is important to also note that there are potentially other factors that affect and create a much more exponential emotional response to the created. As it is no surprise that video games are an interdisciplinary form of media with many principles and acts at play. Animation and scene creation, narrative and player agency may all play into the players fear response. So, while this study will most likely shed light on character design in some way, it will also most likely not provide a definitive answer to generating the most horrific horror experiences. Further discussion on limitations will be in the final chapter of this study.

Chapter 2

Literature Review

2.1 Fear and Anxiety

Fear and Anxiety are natural human emotions. Though at first glance they may seem similar it would be practical to clarify what fear verses anxiety truly is.

Figure 1. The Scream (Edvard Munch, 1910).

Fear is defined as an immediate and automatic response to a specific threat. When met with a direct and present danger, the first response is usually a "fight or flight" reaction. This is thanks to our Sympathetic Nervous System (SNS). It is a key part of the autonomic nervous system which is responsible for activating the body's "fight-or-flight" response to perceived threats. It prepares the body for action by increasing heart rate, dilating airways, and redirecting blood flow to muscles while suppressing non-essential functions like digestion during emergency (Grujičić, 2023).

So how is anxiety different from fear? Anxiety involves a more prolonged and anticipatory worrying feeling the person carries with them or an unease about potential threats or various uncertainties that may or may not come in the future (Abramowitz, J. S., & Blakey, S. M. 2020). While fear is very instant and follows with an action of sudden response, the state of anxiety is more varied. As mentioned, the worrying and

unease can linger in one for an extended duration leading to different responses, and in cases to depression. Barlow mentions the lack of control and vulnerability towards the unknown are both playing factors into anxiety and depression and that anxiety and depression are closely related (Barlow, D. H. 2004).

Figure 2. A panel from Madonna (Junji Ito, 2022)

While both feelings have different triggers, we can see fear is the initial response to a danger and anxiety may or may not follow after. As anxiety is trickier to assume since it could be brought upon by many triggers. It could seem or even be illogical and most likely would change depending on the person in mention, due to past experiences, time, orientation, environment and other psychological responses. “Sometimes when a person with particular worrying feelings of anxiety is told by another person, that the anxiety they’re feeling is irrational, even they may see and acknowledge it.” (Geçtan, E. 1984).

2.2 Uncanny Valley

The Uncanny Valley is another subject that often comes up and is a large topic of discussion when we speak about humanoid designs such as humanoid robotics. Masahiro Mori, a professor of robotics at the Tokyo Institute of Technology, wrote 55 years ago about his expectations for how people will respond to robots that appeared and behaved almost human-like. He specifically theorized that when a human-like robot got closer to, but did not reach a lifelike human appearance, That the people's reactions would suddenly change from empathy to disgust. The uncanny valley is the name given to this plunge into eeriness (Mori, M., & Minato, T. 1970). From this and the consensus of how we describe the Uncanny Valley is, that it is the phenomenon where entities that closely resemble humans but are slightly imperfect and potentially can create feelings of unease or discomfort.

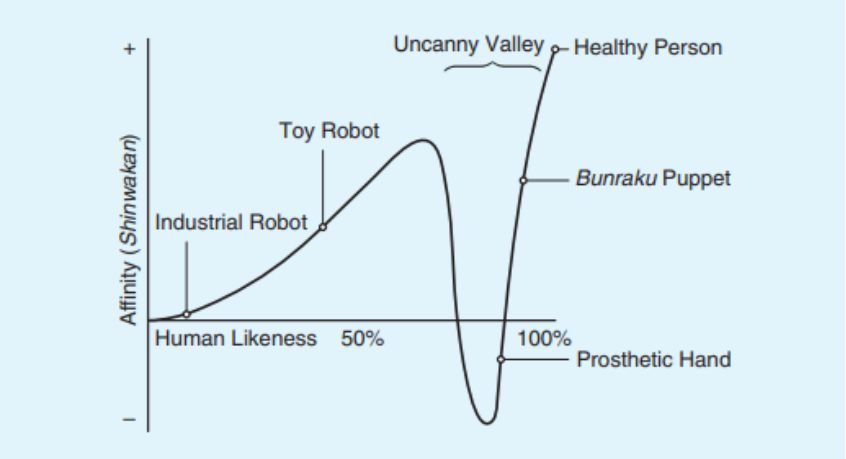

Figure 3. The graph depicts the uncanny valley, the proposed relation between the human likeness of an entity, and the perceiver's affinity for it. [translators' note: Bunraku is a traditional Japanese form of musical puppet theatre dating to the 17th century. The puppets range in size but are typically a meter in height, dressed in elaborate costumes, and controlled by three puppeteers obscured only by their black robes (Mori, M., MacDorman, K. F., & Kageki, N. 2012).

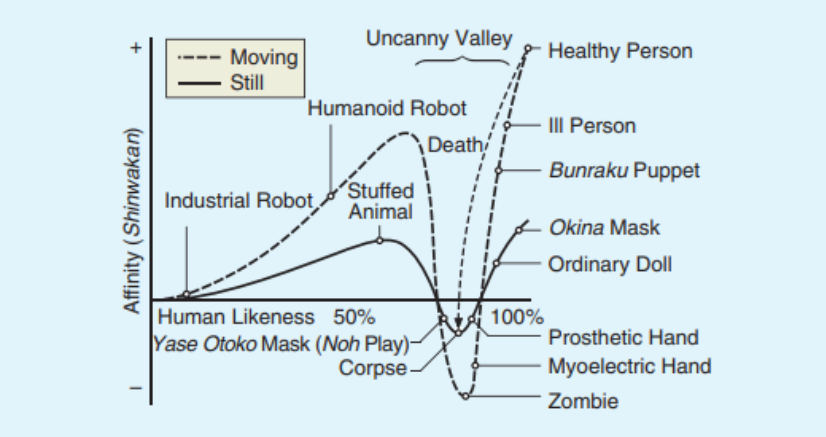

Figure 4. The presence of movement steepens the slopes of the uncanny valley. The arrow's path represents the sudden death of a healthy person. [translators' note: Noh is a traditional Japanese form of musical theatre dating to the 14th century in which actors commonly wear masks. The yase otoko mask bears the face of an emaciated man and represents a ghost from hell. The okina mask represents an old man.] (Mori, M., MacDorman, K. F., & Kageki, N. 2012).

Factors like movement and expression also have a large effect on our affinity towards the being in front of us, it is as crucial to humans as it is to animals. For example, the speed of a creature's movement must follow our expectations of its acceleration and deceleration otherwise it will fall into the uncanny valley. And finally, death. After death, our bodies become immobile and frigid. Our faces turn pale. Our mortality can be viewed as a transition from the second peak (moving) to the bottom of the uncanny valley (stationary), as shown by the arrow path in Figure 4.

The popularity of zombies being in so many video games could be another topic of discussion as one could argue that they are utterly repulsive with all their attributes straying far from what we know a healthy human is. Similarly looking at Figure 4, the graph from Mori's work supports this thought. The disgust we feel towards them causes them to fall into the depths of the uncanny valley.

Figure 5. Resident Evil 4 (Capcom, 2023) a screenshot from the video game with multiple zombies confronting the player character.

Though there could be many other questions and deeper layers of this subject to discover, we could assume it is something innately instinctual that we try to make some sense and search for familiarity or meaning of the eeriness. Mori makes a similar note saying that “The sense of eeriness is probably a form of instinct that protects us from proximal, rather than distal, sources of danger. Proximal sources of danger include corpses, members of different species, and other entities we can closely approach.”.

I want to provide some additional notes from a large review study by Julija Vaitonytė, Maryam Alimardani and Max M. Louwerse that was inspired and motivated by the growing and fragmented neuroscientific literature that investigated the uncanny valley using neural measures. They aimed to summarize studies that investigated the uncanny valley using neural measures, provide an account of the neural measures and the experimental paradigms that have been used and examine how they relate to the observed results, and finally identify conceptual gaps and directions for future research. (Vaitonytė, J., Alimardani, M., & Louwerse, M. M. 2023).

Their work examined research observations on the differences and similarities between “artificial agents” and humans. By “artificial agents” they were referring to Robots, Androids, Virtual Avatars, and other Human-Like artificially crafted entities that were and are still being designed to interact with humans. Ranging from real-world agents like physical robots which are humanoid and used to socially interact

with humans, to computer-generated characters like ai driven avatars in virtual environments. Additionally, this paper explores how these artificial agents are processed by our human brains, especially focused on the context of the uncanny valley. Research comparing artificial agent stimuli that include appearance and action (motion and behaviour) to humans reveals processing differences. “This is true for agents that have a human-like appearance but lack organic movement.” (e.g., a moving android robot, Urgen et al., 2018), the agents that look human-like but are not fully human (e.g., computer-generated virtual agents, Mustafa et al., 2017), as well as the agents that look human-like but have subtle imperfections in their movements (i.e., facial expressions of an android robot, Ikeda et al., 2017).

Several potential causes and factors were discussed in the literature by Wang, S., Lilienfeld, S. O., & Rochat, P. (2015). These include; *(1) evolutionary aesthetics: some entities appear uncanny not because they lack realism but because they are not attractive, with evolution having shaped human preferences for certain characteristics signalling fertility and fitness; (2) pathogen avoidance: imperfections in human replicas engender disgust because the pathogen avoidance mechanism in humans interprets these defects as signals of disease; (3) fear of mortality: human replicas remind us of our own mortality; (4) categorical perception: uncertainty that arises due to the difficulty of categorizing an entity as human or not; (5) violation of expectation: a mismatch between different modalities, e.g., appearance and motion, or face and voice elicit the UV, such that the expectation is elicited but not met, and (6) mind perception: artificial agents can be so realistic that humans attribute mind to them, i.e., artificial beings are unnerving because they prompt us to see mind in them. (Vaitonytė, J., Alimardani, M., & Louwerse, M. M. 2023).*

Finaly, in today’s world of media abundance, since we’ve already stated this is also a topic that appears in the realm of computer-generated graphics. This discussion is bound to emerge around animation, films and video games where create such agents’ the visual imagery of human-like figures and characters all the time! Thus, within the plethora of digital media created till today there is bound to be work that falls into the gap of eeriness and unease.

2.3 Humanoids and Ambiguous Creatures.

The way the human mind perceives, interprets, and processes humanoid and ambiguous figures is quite different. Firstly, lets clarify the meaning of both words.

2.3.1 Humanoids. According to the Cambridge Dictionary the word “humanoid” meaning “a machine or creature with the appearance and qualities of a human”. This could be determined by the physical traits of a being like: A head, torso, arms, and legs arranged with familiar silhouettes that create a form which aligns with our expectations of what a human form is. Additionally other features and details would support this further like similar facial features, gestures and emotions. All together these features enable us to immediately recognize and categorize the figure before us. Humanoid figures evoke clarity and stability in perception. Since their design corresponds to most of the pre-existing schemas in our minds. This distinction is drawn from the role of familiarity and cognitive constructs that shape how we perceive and interpret the world and all visual stimuli around us.

2.3.2 Ambiguous figures. In the case of the word “Ambiguous” it is described in the Cambridge Dictionary as “having or expressing more than one possible meaning, sometimes intentionally”. Let’s further define what we understand by the adjective “ambiguous”: to the observer the ambiguous figure’s purpose is to allow for several perceptual interpretations. E.g. to cause a confusion of emotions implying both something recognizable and unrecognizable together creating experiences with various outcomes, as Macpherson (2006) further explains in their work. The ambiguous image creates consistent interpretations from contradicting or insufficient information or obscurity, they show how the human brain intently resolves visual ambiguity (Kornmeier & Bach, 2012).

Three examples that create a simple demonstration of the visual ambiguity that is birthed from insufficient information, or the combination of different information together are "the Necker cube", "the Rubin vase" and illustration called "My Wife and My Mother-in-Law" which all demonstrate the difficulty and changes in perception these various images have our visual system. So, in our case the creature designs we will examine that could be called more ambiguous may also in some examples transition into abstraction or obscurity and could be those that can be perceived as combination of different distinct imagery due to these diversifying features.

Especially in our examples from creatures from the Silent Hill series. This assumption can be backed by the many interviews by Lead Character Artist Masahiro Ito and in The making of 'Silent Hill 2' (2001) documentary where he mentions the many different inspirations of his designs and decisions he made saying he wanted to create creatures that have “…the human aspect, so that in the beginning, the player would think they could be human.” So, most monsters he created had relatively human figures but with distorted and at times obscure features.

To define obscure, I will give two examples from different sources or experiments focused on perception. In a test experiment on cognitive research called “The Obscure Figure Test” (Acker, M., & McReynolds, P. 1965) describes the figures as so “The figures were so drawn that some of them suggest certain objects in a rather obvious way -though they can be given a variety of interpretations -while others are

purposely quite ambiguous and unstructured". So ambiguous and/or unstructured are other adjectives used for such figures. Another study mentions ambiguous figures as "Ambiguous figures are figures that contain two or more different images and therefore can be perceived in distinct ways" (Brouwer, A., Jin, X., Waldi, A. H., & Verheyen, S. 2021). With all these explanations I believe the definitions we have summarized should paint a clear picture of how we will categorize the creatures designs in our survey.

2.4 Character Design for Video Games

Designing characters for video games is one of the fundamental components of game development. Character design is also an interdisciplinary practice and draws from and integrates principles from art, psychology, semiotics and interactive storytelling to create visually and functionally believable and compelling entities. When designing such a character every aesthetic and visual choice also becomes a technical one. Aligning with both aesthetic identity, game mechanics and furthermore playing into the narrative structures of the game, creating a game character is all about having a cohesive design.

2.4.1 Affects and influence of character avatars. Character designs play into areas of roleplay, identity and influencing a player's motives. To give examples, S. Turkay and Charles K. Kinzer's work explores this relationship between avatar customization and player identification, by analysing how players' self-perception was influenced by the appearance of their in-game characters. Their evidence shows that the players who designed their avatars to be more attractive exhibited higher levels of confidence and extraversion during their gameplay sessions compared to their real-world behaviour (Turkay, S., & Kinzer, C. K. 2015).

Another study under the title "The impacts of virtual avatar in video game on users' self-concept" (HENG, S., ZHAO, H., FAN, C., & ZHOU, Z. 2020) examined how by manipulating avatars in video games, the game designers could influence players' self-concept and their in game behaviour. The researchers' findings show that when players chose and embodied their avatars, avatars with specific features and traits such as the following: hostility and aggressiveness, high confidence, or an altruistic personality, the platers exhibited the corresponding behaviour both in-game and to some extent, in real life... Both papers support the idea that digital self-representation CAN alter a player's mindset and their social interactions.

Additionally, it would be good to mention these conclusions reinforce what is called the "Proteus effect", a phenomenon where individuals willingly conform to the traits of their avatars. Both studies conclude with similar results stating that avatar customization is more than an aesthetic choice or cosmetic; and that it also serves as a psychological tool that can shape a player's behaviour and identity within virtual environments.

Before moving I would like to touch on one more aspect of interest: Player Agency. Player agency is a component which differentiates the genre from other passive horror experiences like film and literature. *"In the participative context of gaming, the player experiences the story directly through their avatar and, via what we call 'agency mechanics' embedded in the game design, these experiences oscillate between empowerment and disempowerment even more clearly than in film." (Habel & Kooyman, 2014)*

Bernard Perron (2009) also discusses agency as *"the satisfying power to take meaningful action and see the result of our decisions and choices"*, emphasizing that players are not just observers but active participants whose survival depends on their ability to make strategic decisions in response to the tense and fear-inducing scenarios. The survival horror genre often uses several constraints in agency to heighten tension and vulnerability. Some examples most players of the genre would recall like having limited resources e.g. health items and ammunition scarcity or even a limited inventory space to hold them.

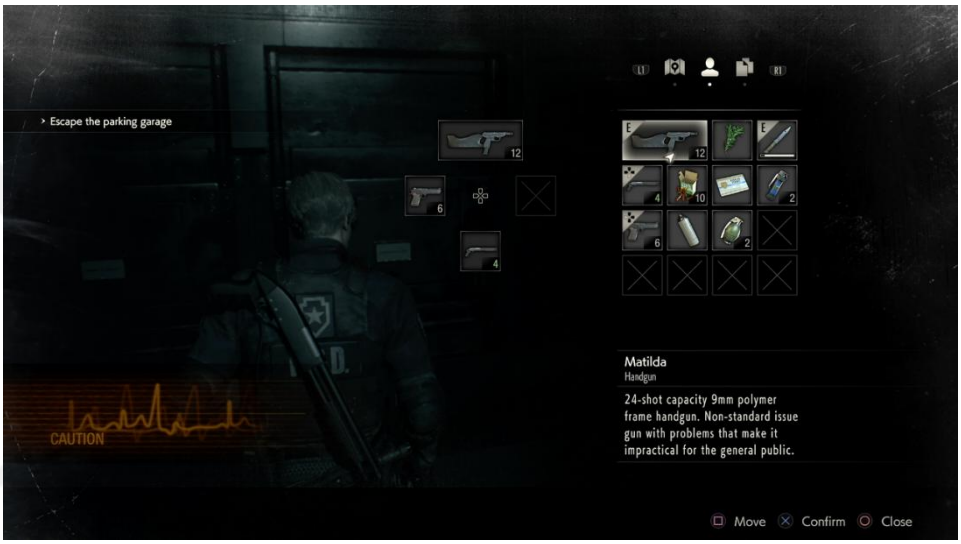

Figure 6. The Inventory User Interface from Resident Evil 2 Remake (2019) Shows a limited inventory space which can be later expanded with new slots upon progression in game.

Fixed and claustrophobic camera angles to make the player more vulnerable and open to the unknown dangers around them.

Figure 7. Disorienting slanted camera angles that follow the player through tight alleyways in *Silent Hill* 1 (Konami, 1999).

Only to top it with restricted movement mechanics e.g. Tank Controls, which can be described as a deliberate design choice aimed at reinforcing player vulnerability and tension in survival horror games. Perron (2009) notes that such control schemes *"limit the player's dexterity and responsiveness, intensifying the sense of helplessness in the face of danger".* All together this controlled disempowerment is integral to the genre's ability to elicit fear, as players must carefully balance flight, fight, or freeze responses to navigate hostiles and hostile environments effectively.

2.4.2 Character design principles and practices. Video games being an interactive medium have specific requirements. So, the game character design process must involve a fine balance of aesthetic appeal and functionality, and the previously mentioned psychological aspects (Isbister, K. 2022). General key design elements in character design generally include considerations of silhouette and clarity/readability, proportionality and stylization, in depth meaning or story telling supported by colour theory and symbolism. Just before we provide further information, these practices, though generally speaking, are those which most designers will follow and have proven themselves to be effective and successful in getting their job done. These rules are never obligated, there are many forms and many paths an art and designs may take. So, in the case there are designs which do not perform as expected according to the said principles, in no way does it mean they cannot or will not be successful as in many cases everyone's tastes and expectations may be different and as the saying goes *"Different Strokes for Different Folks".*

So, without getting sidetracked let's briefly give some insight into these elements:

Shape and Silhouettes: Characters should be designed with distinct and clear silhouettes, this will make them easier to distinguish next to other shapes and figures and will make them more memorable (Look at the silhouettes of any iconic character in videogames and animation surely, you'll

recognize several of them).

Proportionality and Stylization: The proportions in a character figure can be altered to portray features such as age, gender, fitness and body build. While exaggerations can lead to stylization which in self may have other rules depending on the artistic values and vision of the project.

Colour Theory and Symbolism: Colour theory is another subject in and of itself and would take much longer to explain so I'll reference it shortly the framework known as "colour theory" studies the relationships between colours, the aesthetic effects of particular colour combinations, and the psychological effects that colours might have on a spectator. Given that colours can express a character's personality, feelings, and function within a story, knowledge of colour theory is a crucial practice in character design as they portray a lot about a character on the first impression and be used deliberately as a story telling element e.g. cooler colours like blue and green can imply peacefulness or aloofness, whereas warmer colours like red and orange can arouse sentiments of passion, excitement or… violence. Academic research specifically supports the significance of this matter (Henderson, C. 2021). Similarly to colour theory, symbolism in both colour and cultural references can further enrich character designs by embedding them with deeper meanings. Designers can create characters that align with certain views or moralities to show which side or where they stand in their world or context. Helping them resonate more profoundly with audiences, as colours can subtly communicate traits and narratives without explicit exposition (Alieva, S. 2023).

2.4.3 Character designs in the survival horror genre. In the context of survival horror games, character design plays the crucial role in evoking fear and tension towards the player. Whether our focus is the player avatar of the enemy characters. They both have different effects and impact towards the game experience and perception several factors can contribute to this and is well explained in this study about the effects of design patterns: *The visual and behavioral attributes of a character—including movement, animation, silhouette, and responsiveness—determine how players relate to and interact with them. For instance, in Gears of War, the protagonist's animations and effects create a sense of weight and impact, reinforcing the feeling of controlling a "human-shaped wrecking ball." The deep, resonant sound effects, camera shakes, and environmental interactions further enhance this perception, making the character feel physically grounded in the game world. By contrast, in Dawn of Sorrow, the protagonist moves with an almost ethereal lightness, supported by fluid animation and a constant visual trail that conveys speed and agility* (Årnell, T., & Stojanovic, N. 2020).

Similarly for enemy characters', the movement, posture, and responsiveness of a creature can significantly impact how threatening it appears. Effective horror character design leverages players' instinctual reactions using small design choices such as elongated limbs, eerie facial expressions, or extraordinary and erratic movements, these can all instil a sense of fear and/or discomfort. The way a character moves in relation to its surroundings, combined with level design and environment design and art elements like lighting and shadows will intensify feelings of vulnerability and suspense. Other factors like perceived weight, texture, and motion speed play a key role in shaping how a character is perceived, whether as a defenceless protagonist or a powerful, menacing entity. Finally, with all the considerations mentioned, we clearly see how the many principles and aspects of character design along with other game design practices to support them affect game experience, immersion and overall ensure their work is done to serve their ludo-narrative purpose.

2.5 A Brief Retrospective on Horror Media's Villain Characters

From the dawn of time, Humans have been sharing stories. Folklore, fairy tales, myths, and legends, many of these stories are of the Supernatural or the Other… the things that are incarnations of our emotions, our fears. These deeply psychological expressions are seen throughout all cultures across the globe. From early Abrahamic and Egyptian mythology with tales and creatures of a world beyond the physical realm we know of. Stories of heroes, gods, monsters and ghostly spirits in Ancient Greek and Roman Myth. Depictions of evil spirits, demons, devils, hell… and countless more exist in every culture from the east to the west, each with their unique flair.

All narratives with manifestations of our anxieties and fears. In the words of the legendary writer of horror fiction H. P. Lovecraft: *"The oldest and strongest emotion of mankind is fear, and the oldest kind of fear is the fear of the unknown."(Lovecraft, 1927)*. Much so in the mentioned works, these creations of human imagination do certainly include a theme of an unknown danger or entity, and many are attempts of understanding or illustrating specific concepts in the human psyche and experiences through life. *"Dark fiction ushers in what could be termed an 'aesthetic of the unwelcome', a discourse concerned with the ways in which we react to, conceptualize and represent the murkier facets of our bodies and psyches." (Dani Cavallaro 2002).*

It is still of great importance to note that though the horror genre does have a plethora of supernatural beings and elements, Horror itself is not bound only to the supernatural. As mentioned by Gina Wisker: *"Horror is both an everyday occurrence—terrorism, the cannibal next door, torture—and a way of dramatizing our hidden fears and desires through fantasy that takes the everyday that few steps further." (Wisker 2005).* So, it's easy to say that even humans can take a necessary dark twist to become as frightening as the supernatural or arguably even more.

Horror literatures inception was with the first gothic novel "The Castle of Ortanto" by Horace Walpole in 1764 marking the establishment of the gothic fiction genre. Early works in the gothic horror subgenre the villains were most often living metaphors for the many sorts of human temptation. The next step in the evolution of

villains in gothic fiction began in 1818, with Mary Wollstonecraft Shelley's Frankenstein. The now evil human or supernatural being became an actual physical embodiment, a creation made with the power of science. Frankenstein's monster also introduces a topic on the concept of ugliness and its potential to heighten the fear factor of monsters, which could be added as questions in our survey.

Another famous Villain was created by Bram Stoker in his novel Dracula (1897). Dracula is undoubtedly one of the most influential villains in gothic fiction inspiring countless adaptations in other forms of art and media. Many discussions ever since have been done on Bram Stoker's Dracula from cultural context to sexuality and eroticism and others. The concept of eroticism has ever since been another trope that has stuck with vampires in many cinema films and videogames. This brings up another question, like: How much could suggestive themes alter the viewer's emotions towards a creature normally hostile or evil in nature?

HG Wells' work is considered to be more science-fiction than horror but themes that may upset or disturb the audience were also prevalent in his works and his works were later adapted many times into the new storytelling medium coming to life… cinema.

Horror cinema initially began with very short films more as a novelty to wow the audience than a horror storytelling. Following those numerous films were released all drawing inspiration from the extensive catalogue of horror fiction that preceded them. Thus, classic universal monsters we re-born in films like Nosferatu (1922), Frankenstein (1910) and Dracula (1931). Thereon from the 1950s till today the film industry has explored endlessly with new stories and new characters from "Psycho" to "Night of the Living Dead".

With the revolutionary technology of personal computers and with the rise of the Digital Gaming era we find ourselves both witnessing both entirely groundbreaking innovative works of media, alongside a new wave of resurrected, reimagined and sometimes re-mastered terrors.

Chapter 3

Methodology

3.1 Research Design

This study will follow a quantitative survey-based structure. For the survey scale we will use the Numeric Rating Scale for Anxiety (NRS-A) to measure participants responses. The NRS-A scale is a clinically and academically accepted psychometric tool that is widely used in psychological research, to measure an individual's subjective level of anxiety. It is typically represented as a scale with discrete numbered dots from 0-10 with each end of the scale having the descriptions "No Anxiety" at "0" and "Extreme Anxiety" at "10". Participants indicate their levels of anxiety accordingly by marking a dot on the scale. It is preferred because of its ease of use for participants while still providing measurable data. A comparative analysis will be done between these responses of humanoid vs ambiguous enemy characters, and our findings will be statistically analysable with this approach. Giving us clearer insight into what designs influence fear perception.

3.2 Participants

Firstly, it is mandatory that all participants of this survey are 17 and above years of age due to the age rating of the games' images in mention all having a M (Mature) +17 ESRB rating.

For the research we've reached out to potential participants via social media posts on platforms like Instagram, Reddit, Linkedin and Discord. 176 Responses were recorded, and I will share further details under the "Findings" heading of this study.

3.3 Procedures

3.3.1 Data collection tools. For the convenience and ease of use for both our participants and I, the survey in this study will be conducted online using Google forms. The survey will incorporate a Numeric Rating Scale for Anxiety accompanied by images on every question, allowing participants to indicate their anxiety levels towards the images they are shown and will be prompted to respond upon their immediate responses to what they see. The online form is split into two sections:

Section 1 – Demographics: participant information.

Section 2 – Feedback: participant responses to imagery on a NRS-A scale.

3.3.2 Data collection procedures. Initially and before we ask our participants for any responses, I have prepared an excel spreadsheet of all the enemy characters in the mainline *Silent Hill* games. The spreadsheet follows a set of rules, so character categorization and elimination are executed suitably for our survey requirements.

Survey Requirements and Notes:

- All suitable characters are organized under the game title in which they appear.
- For characters to be deemed suitable for the survey they must fall under the two categorization descriptions provided and explained in this study under "Humanoids" and "Ambiguous Figures".
- For characters to not fall under said requirements they must clearly and heavily resemble or already be documented as another being. E.g. a dog,

moth and/or any clear animal inspiration etc. and be noted with the necessary reason of exclusion of this survey.

- Creatures that are just human NPCs will also be excluded from the list due to them already being human and not altered in any way to still be categorized under humanoid.
- Creatures with several variants will have both variants shown in the selected images.
- Larval Stalkers in *Silent Hill 1* are normal character models shown in game with a certain visual effect to make them both transparent and coloured in black and white contrary to the character model which is in hues or red and orange. To avoid confusion and so in-game images match the shown image of this character model is shown with no colour saturation.
- The Mandarin from *Silent Hill 2* is only seen in game behind metal grating. So, its in-game photograph has a layer of grating over it. Thankfully it is not obscured and is visible, but it is important to make note of.
- There are two odd entities from the series Third and fourth instalments *Silent Hill 3* & *Silent Hill 4: The Room* one called the Glutton and the other Eileen Head. The Glutton is a strange tall looking monster caged in a cylinder cage with various other visual features. It is categorized online as an enemy creature but serves the role more of an obstacle rather than an enemy that is openly hostile to the player. Nonetheless the Glutton is an obstacle the player must interact with in order to proceed in the game and qualifies as an ambiguous figure from its silhouette resembling both humanoid and other features that blend into obscurity. And for the other oddball, Eileen's Head. It is an enlarged and seemingly scarred and diseased-looking head model of the NPC character Eileen Galvin. It is categorized as an enemy character in online wikis but serves no mechanical purpose of obstacle or hostility in any sense. The game model is only a human head that does not have the silhouette of a humanoid or an ambiguous figure it is clearly an enlarged head. Functionally it is just an environment asset in the game level, we could assume it's intention and purpose in the game would be a part of the ambiance and level design to serve as an entity that could potentially create unease as the player walks by. The reason it is an odd addition is that the

model does interact with the player other than its eyes following the player avatar as they move around the level and can only be interacted by being electrocuted via an in-game called a stun gun only to produce a flashing light effect on Eileen's eyes. Overall silhouette and model is not one that falls under our categories, neither does it through functionality.

- There are several ghosts that are normal enemy characters in the series fourth instalment Silent Hill 4 and share heavy resemblance in all visual features and attributes with the 4 major bosses in the game. To avoid confusion and expose participants to seemly identical enemy types, the normal enemy type ghosts will be excluded from the survey.

- Five characters' models from the fourth instalment were not available online in image or downloadable model forms: Wall Man, Victim 17 (Jasper Gein), Victim 18 (Andrew Desalvo), Victim 19 (Richard Braintree), and Conjured Beast/True Walter. Thus, for the lack of 3d models for the mentioned characters we are using an extra image from in-game footage.

3 images of each creature from the following tables will be shown to participants. Each image has a neutral grey background with the hex code #828382 to exclude any colour or high contrast to distract the viewer. The three images for each creature are a concept art image, a game model and in-game image of the character cropped away from other in-game elements as they can affect and alter the responses and make them unmeasurable for this study.

Table 1

The Suitable and Categorized Enemy Characters Spreadsheet

Games	Monster	Enemy Type	Body Type
Silent Hill 1	Split Head	Boss	Ambiguous
Silent Hill 1	Incubus	Boss	Humanoid
Silent Hill 1	Mumbler	Normal	Humanoid
Silent Hill 1	Parasite, Puppet Nurse & Doctor	Normal	Humanoid

Table 1 (cont.d)

Games	Monster	Enemy Type	Body Type
Silent Hill 1	Romper	Normal	Humanoid
Silent Hill 1	Larval Stalker	Normal	Humanoid
Silent Hill 1	Hanged Scratcher	Normal	Ambiguous
Silent Hill 1	Grey Child	Normal	Humanoid
Silent Hill 1	Night Flutter	Normal	Ambiguous
Silent Hill 2	Pyramid Head	Boss	Humanoid
Silent Hill 2	Abstract Daddy	Boss	Ambiguous
Silent Hill 2	Flesh Lip	Boss	Ambiguous
Silent Hill 2	Mary (Boss)	Boss	Humanoid
Silent Hill 2	Lying Figure	Normal	Humanoid
Silent Hill 2	Mannequin	Normal	Ambiguous
Silent Hill 2	Bubble Head Nurse	Normal	Humanoid
Silent Hill 2	Mandarin	Normal	Ambiguous
Silent Hill 3	Glutton	Normal	Ambiguous
Silent Hill 3	Split Worm	Boss	Ambiguous
Silent Hill 3	Missionary	Boss	Humanoid
Silent Hill 3	Leonard Wolf	Boss	Humanoid
Silent Hill 3	Memory of Alessa	Boss	Humanoid
Silent Hill 3	The God	Boss	Humanoid
Silent Hill 3	Closer	Normal	Ambiguous
Silent Hill 3	Insane Cancer	Normal	Humanoid
Silent Hill 3	Numb Body	Normal	Ambiguous
Silent Hill 3	Nurse (Silent Hill 3)	Normal	Humanoid
Silent Hill 3	Pendulum	Normal	Ambiguous
Silent Hill 3	Scraper	Normal	Humanoid
Silent Hill 3	Slurper	Normal	Ambiguous
Silent Hill 3	Valtiel	Normal	Humanoid

Table 1 (cont.d)

Games	Monster	Enemy Type	Body Type
Silent Hill 4	Victim 16 (Cynthia Velasquez)	Boss	Humanoid
Silent Hill 4	Victim 17 (Jasper Gein)	Boss	Humanoid
Silent Hill 4	Victim 18 (Andrew DeSalvo)	Boss	Humanoid
Silent Hill 4	Victim 19 (Richard Braintree)	Boss	Humanoid
Silent Hill 4	The One Truth	Boss	Ambiguous
Silent Hill 4	Conjured Creature/True Walter	Boss	Humanoid
Silent Hill 4	Bottom	Normal	Ambiguous
Silent Hill 4	Gum head	Normal	Humanoid
Silent Hill 4	Patient	Normal	Humanoid
Silent Hill 4	Twin Victims	Normal	Ambiguous
Silent Hill 4	Wall Man	Normal	Ambiguous

Table 2

The Excluded Enemy Characters

Excluded	Reason
Air Screamer	Doesn't fall into our categories. Its design is very similar to a smaller looking flesh skinned Pteranodon.
Twinfeeler	Doesn't fall into our categories. Its design is easily recognizable as a giant centipede.
Floatstinger	Doesn't fall into our categories. Its design is practically a giant moth with a stinger on its tail end.

Table 2 (cont.d)

Excluded	Reason
Groaner	Doesn't fall into our categories. Its design is easily recognizable as a rotten flesh dog.
Wormhead	Variant of the excluded Groaner.
Stalker	Basically, because they are an invisible version of the Mumblers in the selected list. Adding an almost identical variant may skew data.
Creeper	Doesn't fall into our categories. Its design is easily recognizable as a giant cockroach.
Bloodsucker	Doesn't fall into our categories. Its design very much resembles 3 leaches fused together at the base.
Incubator	Though she falls under the category of enemies she is only presented in the non-canonical Bad endings of the game.
Eddie Dombrowski	is visually just a normal human with no visual alterations, so he won't be included for this study.
Walter Sullivan	is visually just a normal human with no visual alterations, so he won't be included for this study.
Double head	Doesn't fall into our categories. Its design is easily recognizable as a dog covered in bandages over its wounds.
Unidentified sewer monster (Silent Hill 3)	Doesn't fall into our categories. Its design is practically a large worm with markings on its flesh.
Sniffer dog	The Silent Hill 4 variant of the excluded Groaner.
Eileen Head	This is a giant version of Eileen's (protagonists neighbour) Head but it is a non-combative and non-obstructive NPC its plays a symbolic role in the environmental design more as a game prop rather than a NPC character in game.
Ghosts (bosses not included)	There are many ghosts in Silent Hill 4 all similar in design that are mostly the same adding too many humanoids may skew the overall results
Greedy Worm	Doesn't fall into our categories. Its design is practically a giant worm with a with a mouth similar to that of a leech.

Table 2 (cont.d)

Excluded	Reason
Toadstool	Doesn't fall into our categories. Its design is very similar to a tall white tentacle-like fungus and fall too obscure of an enemy design and can be interpreted rather as a trap or dangerous plant.
Tremers	Doesn't fall into our categories. Its design is very similar to a large leech-like creatures and serve role more as a nuisance like the toadstools.
Wheelchairs	Literal wheelchairs that ram into the player as an attack pattern.

3.3.3 Data analysis procedures. The data collection process for this study begins with exporting and handling the data from our online survey. The export data is in the form of a .CSV Spreadsheet and is analysed with IBM®'s SPSS® software. I will then summarise results and create a comparative analysis of fear responses to humanoid and ambiguous character designs. Furthermore, I will make notes which character designs had the highest and lowest scores on both categories of characters and add upon the findings by sharing similarities and patterns in the final discussion of the results.

Chapter 4

Findings

176 participants contributed to this study with their responses to our online survey form. The survey was made up of 5 demographic questions and 42 feedback questions for participants' emotional responses, and 1 last optional additional feedback question.

4.1 Demographics

The first 5 questions in the survey where the demographic questions. The results are in the following tables.

Table 3

Question: What Is Your Gender (Select One)

	Frequency (N)	Percentage (%)
Female	70	39.8%
Male	100	56.8%
Other	5	2.8%
Prefer not to say	1	0.6%

Note. All participants (N = 176) responded to this question.

Table 4

Question: Your Age (Select One)

	Frequency (N)	Percentage (%)
17-24 years	83	47.2%
25-34 years	77	43.8%
35-49 years	12	6.8%
50+ years	4	2.3%

Note. All participants (N = 176) responded to this question.

Table 5

Question: How Often Do You Play Video Games (Select One)

	Frequency (N)	Percentage (%)
Daily	102	58.0%
Monthly	12	6.8%
Never	2	1.1%
Rarely	16	9.1%
Weekly	44	25.0%

Note. All participants (N = 176) responded to this question.

Table 6

Question: What Is Your Preferred Video Game Genre? (Select All That Apply)

Genre	Frequency (N)	Percentage (%)
Action/Adventure	123	70.7%
Role-Playing Games (RPGs)	120	69.0%
Horror	67	38.5%
First-Person Shooters (FPS)	72	41.4%
MMORPG	35	20.1%
Puzzle	41	23.6%
Sandbox	34	19.5%
Simulation	47	27.0%
Sports	17	9.8%
Survival	61	35.1%
Stealth	35	20.1%
Strategy	68	39.1%
Story-Driven	105	60.3%

Note. All participants (N = 176) were able to select multiple genres that apply. The percentages reflected are of those who answered this question (N = 174). 2 out of the 176 participants did not answer this question.

Table 7

Question: Are You Familiar With The Silent Hill Videogame Series (Select One)

	Frequency (N)	Percentage (%)
No	30	17.0%
Somewhat	59	33.5%
Yes	87	49.4%

Note. All participants (N = 176) responded to this question.

4.2 Feedback

Feedback from the participants

Table 8

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1.1	176	0	9	3.12	2.455
Q1.2	175	0	10	3.21	2.288
Q1.3	174	0	10	3.86	2.581
Q1.4	176	0	10	3.95	2.811
Q1.5	176	0	10	4.25	2.813
Q1.6	176	0	10	4.18	2.676
Q1.7	175	0	10	4.10	2.737
Q1.8	174	0	10	3.63	2.779
Q1.9	175	0	10	4.38	2.892
Q2.1	175	0	10	4.79	2.933
Q2.2	175	0	10	4.81	2.888
Q2.3	175	0	10	3.58	2.672
Q2.4	174	0	10	4.37	2.821
Q2.5	174	0	10	4.75	3.063
Q2.6	174	0	10	4.76	2.998

Table 8 (cont.d)

	N	Minimum	Maximum	Mean	Std. Deviation
Q2.7	174	0	10	4.29	2.921
Q2.8	175	0	10	5.02	2.926
Q3.1	175	0	10	4.95	3.075
Q3.2	174	0	10	4.21	2.798
Q3.3	175	0	10	4.36	2.889
Q3.4	174	0	10	5.39	2.900
Q3.5	175	0	10	3.46	2.747
Q3.6	175	0	10	4.89	2.831
Q3.7	174	0	10	3.83	2.767
Q3.8	174	0	10	4.86	2.848
Q3.9	175	0	10	3.70	2.776
Q3.10	174	0	10	5.22	2.960
Q3.11	171	0	10	3.62	2.697
Q3.12	175	0	10	3.87	2.774
Q3.13	175	0	10	2.78	2.546
Q3.14	175	0	10	5.02	2.895
Q4.1	173	0	10	5.13	2.852
Q4.2	173	0	10	4.61	2.871
Q4.3	175	0	10	3.68	2.804
Q4.4	174	0	10	5.97	2.777
Q4.5	173	0	10	4.40	2.899
Q4.6	174	0	10	3.55	2.780
Q4.7	175	0	10	2.74	2.646
Q4.8	174	0	10	2.79	2.658
Q4.9	174	0	10	2.55	2.518
Q4.10	173	0	10	4.24	2.814
Q4.11	173	0	10	6.09	2.857
Valid N (listwise)	156				

4.3 Data Analysis

Our survey contained 42 enemy character designs and out of all of them, the character receiving the highest score was the Conjured Creature also known as True Walter (Mean = 6.09) and the lowest score was Victim 19 (Richard Braintree) (Mean = 2.55).

The top five highest anxiety scores are as the following:

1) Q4.11 – 6.09 – Conjured Creature (True Walter) (Humanoid)
2) Q4.4 – 5.97 – Twin Victim (Ambiguous)
3) Q3.4 – 5.39 – Numb Body (Ambiguous)
4) Q3.10 – 5.22 – Split Worm (Ambiguous)
5) Q4.1 – 5.13 – Bottom (Ambiguous)

The top five lowest anxiety scores:

1) Q4.9 – 2.55 – Victim 19 (Richard Braintree) (Humanoid)
2) Q4.7 – 2.74 – Victim 17 (Jasper Gein) (Humanoid)
3) Q3.13 – 2.78 – Memory of Alessa (Humanoid)
4) Q4.8 – 2.79 – Victim 18 (Andrew DeSalvo) (Humanoid)
5) Q1.1 – 3.12 – Mumbler (Humanoid)

The top five highest standard deviations (variables with the most variation in responses):

1) Q2.5 – 3.063 – Pyramid Head (Humanoid)
2) Q3.1 – 3.075 – Glutton (Ambiguous)
3) Q2.6 – 2.998 – Abstract Daddy (Ambiguous)
4) Q2.8 – 2.926 – Mary (Boss) (Humanoid)
5) Q3.4 – 2.900 – Numb Body (Ambiguous)

Table 9

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Humanoid Mean NRSA Score	3.91180592094	176	2.022955650598	.152486019558
	Ambiguous Mean NRSA Score	4.68244549569	176	2.197861606000	.165670052005

Table 10

Paired Samples Correlations

				Significance	
		N	Correlation	One-Sided p	Two-Sided p
Pair 1	Humanoid Mean NRSA Score & Ambiguous Mean NRSA Score	176	.876	<.001	<.001

4.3.1 Paired samples test. A paired-samples t-test was conducted to compare NRSA scores between the Humanoid M. and Ambiguous M. conditions. There was a statistically significant difference in scores, $t(175) = -9.60$, $p < .001$. The mean difference between the conditions was -0.77 (SD = 1.07), with a 95% confidence interval ranging from -0.93 to -0.61. These results indicate that participants rated the Humanoid M. condition significantly lower than the Ambiguous M. condition.

4.3.2 Effect size. The effect size for the difference between conditions was calculated using both Cohen's d and Hedges' g. The estimated Cohen's d was -0.72, with a 95% confidence interval from -0.89 to -0.56, indicating a large effect size. Hedges' g, which adjusts for small sample bias, was also -0.72 (95% CI [-0.89, -0.55]). The standard deviation of the paired differences (SD = 1.07) was used as the denominator in these calculations.

4.3.3 Findings from the paired samples test. A Paired Samples T-Test was conducted to compare the anxiety ratings between humanoid and ambiguous character designs. The mean NRS-A score for humanoid creatures (M = 3.91, SD = 2.02) was significantly lower than the mean score for ambiguous creatures (M = 4.68, SD = 2.19), indicating that participants reported higher anxiety when viewing ambiguous designs.

The paired samples correlation was strong ($r = .876$, $p < .001$), suggesting a consistent relationship between the two rating sets—participants who rated humanoid designs higher also tended to rate ambiguous designs higher.

The t-test results showed a statistically significant difference between the two groups, $t(175) = -9.599$, $p < .001$, with a mean difference of -0.77 (95% CI: -0.93, -0.61). The negative mean difference confirms that ambiguous creatures were rated as more anxiety-inducing than humanoid ones.

The effect size was large, with Cohen's $d = -0.724$ and Hedges' $g = -0.720$, reinforcing the strength of the observed difference.

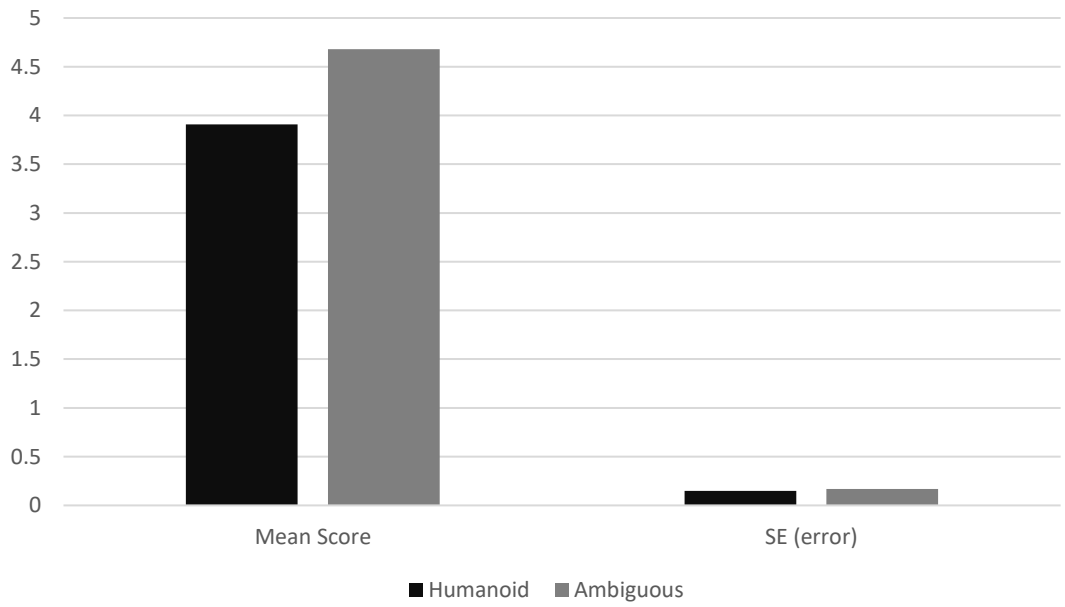

Figure 8. Mean anxiety scores for humanoid and ambiguous enemy designs. Participants rated ambiguous designs as significantly more anxiety-inducing. Error bars represent standard error.

Chapter 5

Discussions and Conclusions

With the results analysed, here are the final readings. Participants' anxiety reactions to humanoid and ambiguous enemy designs in survival horror games clearly differed statistically significantly, according to the results of our Paired Samples T-Test. Participants' anxiety levels were significantly higher for the ambiguous designs ($M = 4.68$, $SD = 2.20$) than for the humanoid designs ($M = 3.91$, $SD = 2.02$) ($t(175) = -9.60$, $p < .001$). The effect size, as determined by Cohen's d ($d = 0.72$), this suggests a quite significant difference in the psychological impact between the two design categories and is large by conventional standards.

These findings imply that ambiguity in character design contributes significantly to players' feelings of anxiety. The results support the theory that beings with less distinct human-like features might cause more intense fear reactions, possibly as a result of the brain's inability to classify them, which heightens discomfort. Individual sensitivity to disturbing imagery was consistent across categories, as proven by the strong positive correlation ($r = .876$, $p < .001$) between participant scores for both design types. These results are consistent with previous research in cognitive psychology and other research on horror game design, which emphasizes the unnerving impact of strange or ill-defined visual stimuli. Again, as a reminder the limitations of our study are known and once again state that other factors may apply to the anxiety one my feel towards in-game characters during a gameplay session. But the focus of this study is on the initial character design process and creation of these character assets.

5.1 Design Insights – Patterns in Highest and Lowest Scored Designs

Beyond the statistical difference between humanoid and ambiguous enemy designs, some notable patterns emerged in the specific characters rated highest and lowest in terms of anxiety induction. Which I believe may provide guidance and insight into a survival horror enemy character creation process.

Here are the traits and predominant features in the highest and lowest scored character lists.

Highest Anxiety Scores:

1) **Conjured Creature (True Walter) - Humanoid:** This monstrous, humanoid figure is draped in grey, rotten flesh that doesn't fit its body properly. It almost seems to be tearing apart as its head tries to protrude outward. Suspended from the ceiling by chains and umbilical cord-like tubes, only its upper half is visible, with black feathers around its back.

2) **Twin Victim - Ambiguous:** This creature features two small, childlike heads fused together atop a large body. It stands on oversized, human-like hands and has no visible legs, giving it an unsettling, ambiguous form.

3) **Numb Body - Ambiguous:** Resembling a large, deformed tadpole, the Numb Body has a featureless, bipedal form with purplish, cracked skin. It lacks arms and has a single hole for a face, contributing to its ambiguous appearance.

4) **Split Worm - Ambiguous:** A gigantic worm-like creature with a protective lavender-coloured outer layer. This thick skin splits vertically to reveal a fleshy head without eyes or nostrils, featuring massive, very human-like teeth.

5) **Bottom - Ambiguous:** Naked with horribly deformed faces, Bottoms have lumpy, cancerous flesh and a face dangling from the bottom of their torso. They stand on a pair of giant hands, lacking normal legs.

Common Features of Highest Scored Character Designs:

Many of these creatures possess distorted or non-human anatomical features, such as fused heads, lack of limbs, or deformed anatomy (e.g. oversized body parts). An unnatural combination of elements is also predominant on all designs. The

blending of human and non-human elements or multiple human elements on a single character (e.g., human-like teeth in the split worm's mouth, two baby heads standing on 2 adult arms as seen on the twin victim character). Combinations that create a sense of the grotesque. So even when human elements are present, they are often exaggerated, misplaced enhancing the eerie and anxiety-inducing effects on the viewer.

Lowest Anxiety Scores:

1) **Victim 19 (Richard Braintree) - Humanoid:** Though in ghost form, Richard retains a human silhouette. He appears with blackened, charred skin and burned clothing. Overall, his design does not seem to be obscured and is recognizable.
2) **Victim 17 (Jasper Gein) - Humanoid:** Jasper's ghost is perpetually on fire, with a charred body and visible embers, especially on his face. Despite the burning, his human form remains easily recognizable.
3) **Memory of Alessa - Humanoid:** This entity closely resembles Heather Mason (the third title's main protagonist), maintaining a completely human appearance with an addition of sickly burnt and charred looking skin.
4) **Victim 18 (Andrew DeSalvo) - Humanoid:** Andrew's ghost is characterized by his large physique. His appearance remains largely human, aside from ghostly attributes and sickly-looking grey skin.
5) **Mumbler - Humanoid:** These small, humanoid creatures have a hunched posture and clawed hands but retain a generally human-like form, making them less visually unsettling than more grotesque monsters.

Common Features of Lowest Scored Character Designs:

One thing as clear as day is all the lowest scoring characters predominantly have human appearances and recognizable traits. These entities largely retain human forms, even when exhibiting ghostly, supernatural traits or sickly-looking skin. According to

our results features ended up evoking recognition and familiarity rather than revulsion. Characters in the lower end of the scale also feature fewer grotesque alterations compared to the higher scored characters. Any modifications to their appearance (e.g., burns, ghostly auras) do not drastically distort their human anatomy.

5.2 Theoretical Comparison

The preference we observed for creature designs heavy with ambiguity and associated with greater anxiety aligns with various findings in cognitive psychology and horror aesthetics. Macpherson (2006) and Kornmeier & Bach (2012), for example, describe how ambiguous figures “visuals that lack clear categorization” and require a greater cognitive effort for interpretation, thereby eliciting feelings of discomfort and uncertainty. This observation supports the idea or argument per say that the design vagueness contributed to the enhanced experiences of fear and heightened fear responses.

Viewing these findings and other previously mentioned work from a design perspective, Mori's Uncanny Valley Theory (1970/2012) maintains its place and has further potential scaffolding to hold up the framework. Because we see here when enemies approach to but do not meet the standards of a human likeness, they evoke feelings of eeriness and disgust/revulsion. Some of these characters were rated by participants as less anxiety inducing because they were either too recognizably human (additional feedback left but some participants also support this) to be threatening or too little ambiguous to bring deep unease. This reinforces research done by Urgen et al. (2018) and Vaitonytė et al. (2023) which links the uncanny and distorted human features to increased brain activity in fear and prediction-related regions.

Furthermore, our findings correspond with the themes of Barlow's (2004) work on anxiety that emphasizes the perception of unpredictability and uncontrollability of a stimulus is central to the fear experiences. Ambiguous designs lack clarity of form and intention. They are less predictable than humanoid enemies and therefore are more anxiety-provoking.

5.3 Additional Participant Feedback

In addition to quantitative ratings, participants provided a variety of open-ended insights that helped deepen the understanding of how character design influenced their anxiety responses. This qualitative feedback brings into focus that indeed, the emotional responses toward the design of a horror character are quite complex and reinforces the notion that anxiety itself is a multifaceted response determined by factors like design, surroundings and context, memory, and individual psychology. From the data gathered several key themes emerged from participants comments:

- **Uncanny Valley / Human-like Discomfort:** Participants frequently mentioned anxiety increasing when a design was almost human, but not quite referencing "uncanny," "familiar but wrong," and "distorted human forms."
- **Ambiguity & Incomprehensibility:** Creatures that participants couldn't understand or "make sense of" elicited more fear. Especially when they lacked a recognizable human anatomy.
- **Motion / Animation Context:** Many responses emphasized that movement (e.g., twitching, crawling, sudden speed) is a key anxiety trigger, and that static images fall short in provoking full emotional reactions.
- **Environmental Influence / In-Game Context**: Some participants noted that sound, setting, and interaction in games are essential to feeling fear. Designs alone, outside the game, often did not evoke strong anxiety.
- **Personal Experience / Desensitization:** Prior exposure to monsters (like Pyramid Head) or certain tropes reduced fear, while first-time impressions or disturbing anatomical features increased anxiety.
- **Disgust vs. Anxiety:** Several noted they felt disgust, pity, or even fascination more than anxiety. Thus implying horror responses are very multi-dimensional.
- **Fear Triggers (Body Horror / Primal Fears)**: Creatures with mismatched limbs, exaggerated proportions, gore, or features evoking

predation (e.g., large mouths, sharp tools) were repeatedly cited as anxiety-inducing.

- **Gender & Power Perception:** One participant noted analysing whether they could “win in a fight” affected how anxious they felt. Hinting at identity, strength, and vulnerability perception.

5.4 Summary

To finish off with our summary I want to note once more the focus of this study and limitations that are present before summarizing our results. While our research does shed useful light on the matter of the psychological impact of character creation for survival horror games. The limitations which we predicted and other which were shared by participants are important to mention just for a general thought practice. Above all, this research is interested in the visual presentation of characters in a vacuum from the broader gameplay experience. It never tries to test a player's overall fear reaction to a horror game, but rather their fundamental emotional reaction to static depictions of enemy designs. As such, other primary factors significantly impacting the experience of horror e.g. environmental storytelling, narrative context, sound design, animation, interactivity, and player agency, were excluded for the purposes of this experiment in order to focus solely on visual design as the lone variable.

All character images were shown on a neutral grey background colour (#828382) to eliminate distraction by lighting, contrast, or any environmental context. Three images were shown to each participant for each character: concept art, game model, and in-game screenshot version of the character, each cropped and stripped of in-game details. This controlled approach, however, means that participants responded to static, de-contextualized, images, as opposed to the full emotional range that dynamic, interactive experiences like videogames can evoke. Lack of movement or animation is also a constraint as the subjects repeatedly mentioned the point that fear stems from a character's movement and behaviour, such as unnatural or random animations which cause unpredictable actions and create an unsettling sight. Furthermore, some of the character poses in the example images may have unintentionally added to the extent to which threatening or harmless an animal appeared. Since images of the characters

where limited to the official concept artwork shared online or were clipped out of the games themselves so posing the characters wasn't possible. The most neutral poses came from the 3D models of characters themselves.

One other subject that is of importance in this instance is since we've worked with designs from a videogame series like the *Silent Hill* series which is undoubtedly a very famous franchise many videogame titles on multiple flatforms, has several cinema films released, comic books etc. and users of social media platforms could come across the imagery or see video essays on previous titles on YouTube, I believe history with a certain enemy or horror series could also have been an influence on how they reacted. Anyone who has experienced any older media of the franchise would have viewed creatures over and over and become used to them or be under cultural meme-ification (e.g. Pyramid Head, which as evidence to this received first place in the top five highest standard deviations), thus receiving lower marks even with initial character impact.

Another reason is the cultural and temporal evolution of horror aesthetics. What was horrific or scary in previous media may not be as much now with the evolution of genre standards, improvements in technology, and variations in cultural norms of horror. Players across different generations or gaming experience may therefore view specific designs differently.

Despite these limitations, this study offers a focused examination of the particular effect of visual design on the feeling of fear in horror game characters and offers a sound foundation for subsequent studies involving broader game mechanics.

So, to finally summarize these findings of ours, we can say that creatures that elicit higher anxiety tend to have *more ambiguous, deformed*, or *contain grotesque features* that distort the familiar human anatomy, creating an uncanny and unsettling effect. Participants generally rated such designs as more disturbing, most likely because they were unknown and psychologically uncertain.

Conversely, those with the lowest-ratings shared *more familiar human-like qualities* or lacked aggressive or more-aggressively grotesque visual traits. These designs tended to be either *less detailed*, or more neutral than expressive in design. Although sometimes illustrating wounds, rot, or supernatural features, these alone did not always create fear or anxiety. Their easily recognizable shapes and *surface-based designs* perhaps cancelled out their emotional impact, particularly for those participants who had been exposed to horror aesthetics in the past.

This juxtaposition implies that it is not so much the existence of the frightening features but the distortion of familiarity and not being able to mentally categorize a figure as such that it becomes psychologically striking. The evidence lends credence to long-hypothesized beliefs in horror aesthetics, specifically those related to the uncanny valley, where beings that walk the line between the familiar and the unfamiliar call forth stronger emotions in the viewer. It also of course notes that visual design is only one part of a greater interplay of fear mechanics. But isolated as it is, exercises great control over how players emotionally respond to characters in horror games.

The results of this study offer game developers and character artists in the horror genre practical advice. The results show that the most psychologically successful characters are those that warp standard human anatomy in subtle but successful ways without succumbing to outright total abstraction, realism and/or hyper-realism. Designers can possibly benefit from adopting more liminal forms, asymmetry, unintelligible silhouettes, or exaggerations of flesh and anatomy to create a sense of unease. Also, designs that avoid blatant categorization. Beings neither fully human nor fully monster were always more disturbing. What that means is that horror character design is most effective when it breaks visual expectation and instils repressed doubt rather than relying on outright gore or any standard trope. Blending these observations at an early point in the concept art process and later in the 3D modelling phase could allow for a more intense emotional impact when and if those characters do appear in the game world.

5.5 Future Studies and Explorations

While this study separated visual elements of character design, future studies could benefit from including multisensory elements such as sound, motion/animation, and environment. Adding these elements may yield other forms of valid representation of how fear processing takes place during play. For instance, using the same character designs in interactive in-game combat or video stimuli may be informative about the temporal evolution of fear or work on how early judgments change over prolonged exposure would be another interesting subject to explore. In addition, how cultural context, personal vulnerability to horror influence responses could further explain how character construction is conceived across diverse groups.

REFERENCES

Abramowitz, J. S., & Blakey, S. M. (2020). Clinical handbook of fear and anxiety: Maintenance processes and treatment mechanisms (pp. xiv-399). American Psychological Association.

Acker, M., & McReynolds, P. (1965). The Obscure Figures Test: An instrument for measuring “cognitive innovation”. Perceptual and Motor Skills, 21(3), 815-821.

Agoston, G. A. (2013). Color theory and its application in art and design (Vol. 19). Springer.

Alieva, S. (2023). The Language of Colour in Character Design.

Arnheim, R. (1954). Art and visual perception: A psychology of the creative eye. Univ of California Press.

Årnell, T., & Stojanovic, N. (2020). Horror game design–what instills fear in the player?: A study on the effects of horror game design theories and level design patterns on player behaviour in a horror environment.

Bang, M. (2016). Picture this: How pictures work (Revised and expanded).

Barlow, D. H. (2004). Anxiety and its disorders: The nature and treatment of anxiety and panic. Guilford press.

Bleicher, S. (2012). Contemporary color: Theory and use. Cengage Learning.

Brouwer, A., Jin, X., Waldi, A. H., & Verheyen, S. (2021). Age biases the judgment rather than the perception of an ambiguous figure. Scientific Reports, 11(1), 8627.

Browning, T., & Freund, K. (1931). Dracula. Universal Pictures.

Cambridge Dictionary | English Dictionary, Translations & Thesaurus. (2025). Retrieved from https://dictionary.cambridge.org/

Capcom. (2019). Resident Evil 2 [Game]. Capcom.

Capcom. (2023). Resident Evil 4 [Game]. Capcom.

Cavallaro, D. (2002). Gothic Vision: Three Centuries of Horror, Terror and Fear. Bloomsbury Publishing.

Davis, M. (1992). The role of the amygdala in fear and anxiety. Annual review of neuroscience, 15(1), 353-375.

Dawley, J. Searle. (1910). Frankenstein. Edison Manufacturing Company.

Geçtan, E. (1984). İnsan olmak: varoluşun bireysel ve toplumsal anlamı. Adam Yayıncılık.

Gigante, D. (2000). Facing the Ugly: The Case of" Frankenstein". Elh, 67(2), 565-587.

Gombrich, E. H., (1995). The story of art (Vol. 12, pp. 155-159). London: Phaidon.

Google Workspace. n.d. “Google Forms: Online Form Builder | Google Workspace.” Google Workspace. Retrieved (https://workspace.google.com/products/forms/)

Habel, C., & Kooyman, B. (2014). Agency mechanics: gameplay design in survival horror video games. Digital Creativity, 25(1), 1-14.

Halberstam, J. (1995). Skin shows: Gothic horror and the technology of monsters. Duke University Press.

Henderson, C. (2021). The use of shape and color theory in interpreting character traits (Master's thesis, University of Missouri-Columbia).

HENG, S., ZHAO, H., FAN, C., & ZHOU, Z. (2020). The impacts of virtual avatar in video game on users' self-concept. Advances in Psychological Science, 28(5), 810.

Ikeda, T., Hirata, M., Kasaki, M., Alimardani, M., Matsushita, K., Yamamoto, T., ... & Ishiguro, H. (2017). Subthalamic nucleus detects unnatural android movement. Scientific reports, 7(1), 17851.

Isbister, K. (2022). Better game characters by design: A psychological approach. CRC Press.

Ito, J. (1996). Madonna. Asahi Sonorama.

Konami. (1999). Silent Hill [Game]. Konami.

Konami. (2001). Silent Hill 2 [Game]. Konami.

Konami. (2003). Silent Hill 3 [Game]. Konami.

Konami. (2004). Silent Hill 4: The Room [Game]. Konami.

Koffka, K. (2013). Principles of Gestalt psychology. Routledge.

Kornmeier, J., & Bach, M. (2012). Ambiguous figures–what happens in the brain when perception changes but not the stimulus. Frontiers in human neuroscience, 6, 51.

Kunttu, S. (2018). Creation of Concept art for a horror game.

Lovecraft, H. P. (2013). Supernatural horror in literature. The Palingenesis Project (Wermod and Wermod Publishing Group).

Macpherson, F. (2006). Ambiguous figures and the content of experience. Noûs, 40(1), 82-117.

Mori, M., MacDorman, K. F., & Kageki, N. (2012). The uncanny valley [from the field]. IEEE Robotics & automation magazine, 19(2), 98-100.

Munch, E. (1893). The Scream [Painting]. National Gallery, Oslo, Norway.

Murnau, F. W. (1922). Nosferatu. Film Arts Guild.

Mustafa, M., Guthe, S., Tauscher, J. P., Goesele, M., & Magnor, M. (2017, May). How human am I? EEG-based evaluation of virtual characters. In Proceedings of the 2017 CHI conference on human factors in computing systems (pp. 5098-5108).

Perron, B. (2009). The survival horror: The extended body genre. Horror video games: Essays on the fusion of fear and play, 121-143.

Poore, H. R. (1903). Pictorial Composition and the Critical Judgment of Pictures: A Handbook for Students and Lovers of Art. Baker & Taylor Company.

Poore, H. R. (1976). Composition in art. Courier Corporation.

Resident Evil Village | CAPCOM. (n.d.). Retrieved from https://www.residentevil.com/village/en-asia/

Schell, J. (2008). The Art of Game Design: A book of lenses. CRC press.

Shelley, M. (2012). Frankenstein. Penguin Classics.

SILENT HILL 2 Official website. (n.d.). Retrieved from https://www.konami.com/games/silenthill/2r/gate

Simpson-Housley, P. (1997). Bram Stoker's Dracula: Sucking Through the Century, 1897-1997. Dundurn.

Solis, C. (2024). Designing unnerving animations for enemy characters in a three dimensional horror game.

Spielberger, C. D. (1972). Anxiety: Current trends in theory and research: I. New York, N.Y.: Academic Press.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). Manual for the State Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Stang, S. (2018, January). Body Horror as Body Shaming: Fatness and Monstrosity in Video Games. In Abstract Proceedings of DiGRA 2018 Conference: The Game is the Message.

Stoker, B. (1997). Dracula. Broadview Press.

Sympathetic nervous system. (2023, November 2). Retrieved from https://www.kenhub.com/en/library/anatomy/sympathetic-nervous-system

Tian, P. X., & Seo, G. (2019). Study on the design of game Horror character-Focused on the graft design Method of creatures. 디지털콘텐츠학회논문지, 20(2), 231-239.

The Making of Silent Hill 2 : Fun TV : free download, borrow, and streaming : Internet Archive. (2001). Retrieved from https://archive.org/details/TheMakingofSilentHill2

Turkay, S., & Kinzer, C. K. (2015). The effects of avatar-based customization on player identification. In Gamification: Concepts, methodologies, tools, and applications (pp. 247-272). IGI Global.

Urgen, B. A., Kutas, M., & Saygin, A. P. (2018). Uncanny valley as a window into predictive processing in the social brain. Neuropsychologia, 114, 181-185.

Vaitonytė, J., Alimardani, M., & Louwerse, M. M. (2023). Scoping review of the neural evidence on the uncanny valley. Computers in Human Behavior Reports, 9, 100263.

Valley, T. U., Mori, M., & Minato, T. (1970). The Uncanny Valley. Energy, 7(4), 1-2.

Walpole, H. (1972). I. THE CASTLE OF OTRANTO. In The Romantic Novel in England (pp. 27-42). Harvard University Press.

Wang, S., Lilienfeld, S. O., & Rochat, P. (2015). The uncanny valley: Existence and explanations. Review of General Psychology, 19(4), 393-407.

Wells, H. G. (Herbert George), 1866-1946. (2005). The invisible man. London ; New York: Penguin.

White, A. W. (2011). The elements of graphic design: space, unity, page architecture, and type. Skyhorse Publishing, Inc.

Wiegers, T., Langeveld, L., & Vergeest, J. (2011). Shape language: How people describe shapes and shape operations. Design studies, 32(4), 333-347.

Wiki, C. T. R. E. (n.d.). Resident Evil village. Retrieved from https://residentevil.fandom.com/wiki/Resident_Evil_Village

Wiki, C. T. S. H. (n.d.). Silent Hill 2 (2024 video game). Retrieved from https://silenthill.fandom.com/wiki/Silent_Hill_2_(2024_video_game)

Wisker, G. (2005). Horror fiction: an introduction. A&C Black.

Wolpe, J., & Lang, P. J. (1964). A fear survey schedule for use in behaviour therapy. Behaviour Research and Therapy, 2(1), 27-30.

Yi, Q., & Chung, J. (2022). Research of Character Design in Side-scrolling Horror Puzzle Games. International journal of advanced smart convergence, 11(2), 77-82.