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**The Eldritch Portal:** An Analysis of Ludonarrative Immersion & User Experience  
in Interactive Weird Fiction.

An exegesis presented in partial fulfilment of the  
requirements for the degree of

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## Abstract:

This research exegesis functions as a companion piece that contextualises the principles expressed within the creative work, 'Project: Mystic'. In this research I contend that the role of user experience design has not been closely studied or documented when discussing the relationship between atmospheric spatial design and ludonarrative principles inside interactive digital environments. The purpose and aim of this research is to determine how the aesthetics of atmosphere influence the principles of ludonarrative immersion and user experience design in the context of weird fiction and the sublime. Using a pragmatic methodological approach I use interactive demonstrations accompanied with qualitative surveys to determine the effectiveness of atmosphere design in a players experience and engagement. Using these results I form a discussion around the concepts of aesthetic experiences, non-euclidean narratives, and Burke's notions of sublimity and the role of the 'Deity' figure in weird fiction.

**Keywords:** aesthetics, atmosphere, immersion, ludonarrative, user experience, weird fiction



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# Introduction

This research exegesis functions as a companion piece that contextualises the principles expressed within the creative work, 'Project: Mystic'. The project is situated within our own developer co-operative, Studio Witchwood, and is intended to be made available for retail markets as outlined in our business documentation (pages?). 'Project: Mystic' is a low-poly, first-person mystery, with a lo-fi jazz influence and atmospheric, Lovecraftian weird fiction noir world set in a stylised, alternate history version of 1920s Aotearoa. Project Mystic is intended to be the first installment in an anthology series presenting stories that fall beneath the umbrella of 'weird fiction' set in Aotearoa, and functions both as a taster of narratives to come, as well as a self-contained story. Within the capacity of the project I acted as Studio Witchwood's Creative Director, developing and managing the studio as a legal business entity, and directing the overall visual aesthetics and design of the game. This was accomplished through the creation of 3D art assets for environments and characters, animation, programming game logic, and audio and sound development.

The discussions presented in this exegesis respond to previous research into ludonarrative principles, which uses a theoretical or quantitative framework with a focus on definitions and user metrics as they relate to rigid psychological concepts of 'immersion'. Further, the role of user experience design has not been closely studied or documented when discussing the relationship between spatial design and ludonarrative principles. Analysing this area of research through the lens of weird fiction and aesthetic principles of the 'sublime', in this exegesis I explore how

experiencing the sensation of atmosphere influences user engagement and their precipitation to entering a state of ludonarrative immersion.

I use action research methodology critically supported by literary analysis and iterative artifact generation within the creative component 'Project: Mystic' to explore the following research question: "How do the aesthetic properties of atmosphere influence ludonarrative immersion and user experience in the context of interactive weird fiction?". The creative work 'Project Mystic' critically responds to the proposed research question through creating atmospheric design that encapsulates thematic and narrative experiences similar to those generated by Weird Fiction literature; and exploring how this atmosphere affects the player's ability to experience ludonarrative immersion. This exegesis serves as the accompaniment to the creative work, exploring how the game design was informed by critical research and development.

In the first section, I analyse relevant literature related to the areas encompassed by the research question. In this first section, I define the use of ludonarrative principles and user experience in video games, the context through which I then define aesthetic principles, the aesthetics of the sublime as used in weird fiction literature, and how spatial design principles are used typically to explain sensory aesthetics of atmosphere in conventional architecture and experience design. Further, the review also focuses on texts that discuss the intersectionality of weird and gothic fiction, its history within Aotearoa, and its precedent for cultivating and facilitating immersive experiences. This establishes the foundations for the lens through which I view weird fiction as a mode of aesthetic philosophy, and more

specifically, a creative function of the Sublime, explored here via the medium of video games.

This is followed by the second section, a discussion on the methodology incorporated during the project. The creative work was developed through prototyping and action research cycles which informed artefact generation. Throughout this process, demos of the project were given to playtesters along with a survey. Respondents were asked questions related to their experience and interpretation of the project's atmosphere based on visual design and mechanical interaction. Analysing these results in relation to my areas of research I then go on to conclude the theatrical role of atmosphere in the ludonarrative design of user experience in game development.

In the third section, I discuss the ways in which developers can implement the creative framework in order to develop and refine the aesthetic of an atmospheric environment when promoting ludonarrative immersion and user engagement. Through this work I hope to further develop our understanding of the functions of atmosphere as it is involved with audience experience and engagement. This is done through a discussion on the overarching narrative and thematic implications involved with the aesthetics of the sublime and spatial relationships in weird fiction, with particular reference to Burkes (2005) notion of 'deity', and Blacklocks' (2017) theory of spatial relationships and non-euclidean narratives.

# Literature Review

The goal of this literature review is to examine the current availability of academic texts and scholarly sources related to user oriented design, its relationship to ludonarrative immersion, and how this may be critically considered in relation to aesthetic principles of atmosphere and the sublime. The review has a specific focus on the prevalence of research relating to adoption of critical frameworks for the aesthetics of spatial design in relation to weird fiction and the role of audio & sound design in creating immersive environments.

The general findings of this review have been represented through two categories:

- ‘Immersive Interaction’, which analyses texts covering ludonarrative and user experience used in multi model approach to games research.
- ‘Immersive Engagement’, which encompasses literary texts that deal with the subject matter of weird and gothic conventions in literature.

Immersive interaction thus forms a key conceptual entry point for this review. In their work on interaction and textuality in video games, Carr et al. (2003) propose that ‘Interactivity’, as it applies to game-play, describes not just the internal mechanisms of the games functions or the orchestrated environments, but rather focuses on the agents of experiences. The initial starting point of gameplay is thus not when mechanical elements become functional, but rather when the audience decides to engage in this form of play. The representational motivation of the player to engage with games hence encompasses several areas: the dramatic, expressive,

narrative, and performative potential of the games ludic (play) contract (Hocking, 2007).

In the fundamental text on 'Ludonarrative Dissonance'. Hocking (2007) did not base the idea of ludonarrative principles on rigid concepts of 'Immersion' but rather on the innate ability of a player to "feel connected" to the game, and their actions within it. Hocking (2007) decries anti-immersion and alienation from engagement through the illusion of gameplay and choices that leave the player without a ludic contract to fulfil. Pynenburg (2012) further suggests Ludology is only an issue when discussing games and not other forms of interactive media as it is based on the non-diegetic aspects of an object. However, for other theorists, interactivity is simply another state of play/engagement, and through meta-gaming in which the user makes active and dependent choices, interactive experiences are given form (c.f. Carr et al, 2003; Wanders, 2014).

Experiences within games can then be summarised by the complex interplay of different dimensions of narrative, mechanic, and contextual facilitation that enable or inhibit meaningful user experiences in a way unique to the ludonarrative framework. In contrast to non-interactive media, it is not only the narratives, but the mechanical aspects of engagement, that make the game different from static environments ( Elson, 2014). Elson (2014) also notes that the mechanical, narrative and social text of engagement can synchronise to produce meaningful and engaging experiences, a point which Veale (2015) builds on by concluding that even when this engagement is in contrast to the intuitive moral judgments to decisions that have notable consequences, players are still capable of developing the meaningful sense of connection with these interactive narratives. From this it can be argued that

experiences we derive from television and film are typically expected via our engagement with narratives or parasocial relationships alone, while digital games try to provide a harmonic relationship between mechanical and social interaction that drives player experiences.

In contrast to Hocking's notion of ludonarrative dissonance, Ludonarrative Harmony emerges as the gateway to Ludonarrative immersion, or at least provides the comparative framework for us to discern when we are dealing with an immersive rather than harmonic state. (Ash, 2016). Dissonance occurs when a game is unsynchronized in its representation of mechanical and narrative interaction, unsupported by the systems resulting in a disjointed experience. Given this comparative framework for accessing ludonarrative principles in game, be they dissonant or harmonious, I am then guided by a definition of 'Ludonarrative Immersion' as the synchronization of player absorption while interacting with mechanical and narrative systems to construct an engaging experience.

In looking to the wider experiential aspects of immersion, Murray (1998) argues for an aesthetic attribution of immersion rather than a purely psychological form. The idea of engagement through the whole perceptual apparatus indicates that to truly 'submerge' is the result of indulgence in a fully atmospheric environment that facilitates the use of as many modes of perception as possible. Along with Murray, McMahan (2003) argues for the aesthetic attributes of immersion rather than a psychological perspective, adopting a categorised immersion method separating diegetic from non-diegetic immersion in the state of play (Pace, 2008). Spatial aesthetics are another important component of generating diegetic immersion: McMahan (2003) uses the terms 'Social Realism' to describe the efficiency in which

objects, ritual, and ceremonies are portrayed to the audience as a system to measure aesthetic immersion.

To translate these concepts into a game context, Ermi & Mäyrä (2005) developed one of the first systems of defining immersion in game, solely related to immersion and user experience. The key treatise of their analyses is the role of the player in socially interacting with the game, where engagement only becomes active once the rules become embedded and 'code/parameters' start generating (c.f. White, 2014; Carr, 2003) The player contextualises their own existence and subjectivity within the game once they start playing. Active participation is what generates strong emotion valence (Bantinaki, 2012). Ermi & Mäyrä (2005) also focus more on states of absorption as a correlate to immersion rather than 'flow'. While flow has been a strong metric of user engagement in states of absorption and thus immersion (Csikszentmihalyi et al. 2014), it has become less utilised over time as we contextualize our ideas on immersion and user experience in favour of more variable immersion models. Such models cover a wider array of aesthetic and psychological participation for the player, such as Pace's (2008) immersion model, which explores the synchronistic state between what they term 'Gameplay Immersion', the harmonic relationship between player interaction and mechanical/social consequences and 'Representational Immersion', and the verisimilitude between the user's environment and their interactions. Representational immersion functions just as effectively as gameplay immersion when issuing absorption, it only differs from the tense of explaining actors, and actions.

Examples of such models emerge in those which consider immersion as a subjective component of player agency that encourages a phenomenological



approach. Rather than focusing on the qualitative aspect of immersion/flow, White (2014) suggests an attitude towards immersion that uses subjective user experience as the metric for analysing the effectiveness of game absorption. This type of play suggests the use of environmental or spatial immersion rather than a physical one, where players experiencing this habitational immersion see themselves as voyeuristic observers of player-generated characters, rather than a simulacrum of themselves. For White (2014), this results in environmental cohabitation where the player works together with their generated character in order to advance narrative and mechanical issues.

Further key concepts for immersion emerge in alienation and ambiguity. Alienation, much like ambiguity, is a sub function of the sublime aesthetic (c.f. Guyer, 1982; Ralickas, 2006). Alienation can also be seen as a system of voyeuristic enjoyment; this intimate distance we experience doesn't just allow for empathy with the player character, but also poses opportunities to analyse the overall media construction (Dunne, 2014). Alienation poses a voyeuristic presence of the unfamiliar partaking in the role of "the outsider" alien to immersion and alternatively true presence (McMahan, 2003) in which the player is made aware, or more cognisant of the larger scope of the meta aesthetics and narrative. Both scenarios, of ambiguity and alienation, involve an active participation from the player constitution, a continuation of absorption and the presence (Ermi, & Mayra, 2005).

As a final consideration, the acoustic ecology of immersion in first person games is based on the principle of relative perceptual immersion, where the dynamic of the player's interactions with the world provide suitable feedback to the player

(Pace, 2008). The poignant nature of these interactions are crucial for developing the bridge between absorption and immersion. The ideal aim of immersive game audio is to override the perception sensation experienced by the player outside of the game world (Grimshaw, 2008). From here I then want to briefly consider the role of audio in ludonarrative immersion, particularly music. The immersive quality of music can be seen in its relative realism to the game world, the effect of immersion is a proponent of perceptual realism where verisimilitude based on the code and conduct of realism proves more effective than emulation (McMahan, 2003).

Much like spatial design methodology, the key to design an immersive music system is not reliant on fully anticipating a player experience, but on creating a foundation of experience since music meaning is interpretative to the audience (Svabo et al, 2013). Game music should ideally be very simple in the background, generating a base in which musical cues are staged in response to the player's interaction with the game world. Critically, the audience's musical literacy is set via relative experience through other media such as film with predefined motifs and characteristics (Elferen, 2015).

### *Affect and Absorption*

As this review of scholarly research seeks to demonstrate, once we can understand the conditions in which player immersion can arise, we can then better design to influence these experiences (Grimshaw, 2011). Since game immersion does not inherently require out-of-body experience or denial of other senses, compared to modern modes of immersion which are reliant on the inheritance aesthetic relationship between players and an interactable subject, flow and its subset of

absorption are a better metric for defining a player's experience and continuous engagement with interactive media (Ermi & Mäyrä, 2005), and the affective qualities of immersion therein. Experiences within game are shaped by an affective response to the modes of engagement presented to the player, with players experiencing the sensations of immersion and investment in a narrative or mechanical interaction, when outcomes of the decision required by a game provide contextual consequence for interaction. (Veale, 2015). Veale (2015) further states that modes of engagement consist of two elements: agency and coherence. Through these elements, Veale (2015) argues, a conceptual timeframe of interaction and consequence can be established, one that is cognisant of the past and anticipatory of the future interaction. The effectiveness of player immersion within these interactive texts can be seen as a 'natural' mode of engagement due to the player's ostensibly inherent need for agency in making decisions in order to progress through the narrative (Carr et al. 2003).

Research in this realm thus suggests that experience design within games primarily functions to augment the players' perceptual view and context of their surroundings, although it should not act as the primary source of information (Katherine et al. 2016). Since video games inherently build upon the visual anticipation of change, as Katherine et al. (2016) suggest, the contextual displays can be used efficiently to show information in anticipated areas of interest. The spatial position and composition of a player oriented heads up display should also be informed by the specific genre contracts and expertise anticipated by players.

*Immersive Engagement and the Aesthetics of New Zealand Gothic*

As our definition of ludo narratives and immersion moves further into a sensory experience (Pace, 2008) we must explore the ways in which sensory emotion of play is interpreted by the aesthetic value of an interaction. At its core, aesthetics is a philosophy on the nature of beauty and taste, and examines subjective and sensori-emotional values. Aesthetics covers both the natural and artificial sources of an experience. Considering the outcome when we engage with such experiences.

In the context of 'Project: Mystic', I have been particularly influenced by the notion of the 'New Zealand Gothic' as an aesthetic. Jennifer Lawn (2006) sees the gothic appear as an artistic function of aestheticism in the context of Aotearoa - an entirely endemic force, transplanted by time and space to manifest as a distinct attitude toward our surroundings and post colonial identity on Aotearoa. Lawn's discussion centres on Saskai Leeks' untitled presented in the 'Ghost Painting' exhibition where Lawn sees such works as bordering more on the weird than the eerie: their distorted interpretation of the still world, through this stillness of the scene which offers the audience intimacy through engagement, the physical closeness of investigation (Lawn et al. 2006). Such works, for Lawn, are handcrafted idealisms, literary vignettes that the audience is asked to explore within the capacity of the weird and gothic, to immerse themselves within the expected tropes and accept the decadent and the sublime. The audience is asked to compare and contextualise Leeks' works with other imitations of space done in typical Victorian style, piercing through the grim ontological barrier of the world they are present in and the world presented to them that break in traditional Victorian values of balance and form that these paintings mirror.

This notion of the New Zealand Gothic has, in my work, been further informed by aesthetic discussions of the 'sublime' with Burke (2005, originally 1792) having perhaps the most concise appreciation and articulation of the sublime aesthetics and their function related to human experiences.

"Whatever is fitted in any sort to excite the ideas of pain and danger, that is to say, whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror, is a source of the sublime."

Burke's ideas of sublimity and aesthetic value is not viewed as a binary but rather artistic ideal built upon individual perception and contextualisation of what is painful and pleasurable to the audience (Huszar, 1945). It is through Huszar's ideas on positive sublimity that we can contextualise why we experience joyful engagement with fear based media, specifically video games and film within the horror genre. While fear operates in a manner analogous to the apprehension of pain and death, it still can function as a source of positive emotional response in the audience, this is due to Burke's assertion that whatever is terrible is sublime too. Bantinaki (2012) re-enforces this idea with the concept of fear as a positive aesthetic for emotions, since the emotional responses it inhibits are a by-product of the human relation to agency and control. We surround ourselves with these horrible stimuli because objectively we have the contextual knowledge around it, and thus the control to mediate our experiences. The root of this connection with terror and control is the subject of power in relation to the self:

"Besides those things which directly suggest the idea of danger, and those which produce a similar effect from a mechanical cause, I know of nothing sublime, which is not some modification of power." (Burke)

We regard power as being a neutral character arising from the idea of control, indifferent from pain and pleasure. In reality the affection of power is removed from this neutral characteristic as it is devoid of form within our conventional hierarchy of power and position; wild and chaotic. When discussing the vast sublime powers outside of the 'natural world' Burke postures the idea of 'Deity' as an abstract as they require no predominant features yet they create striking figures within our imaginations, as we contextualize our existence relevant to their elevated position we find it harder to contemplate the vastness of such an object due to its hypothetical potential to over take us.

### *The Ambiguous Function of Weird Fiction*

In 'Project:Mystic', I became particularly interested in the ways in which the principles of 'Weird Fiction', built on these ideas of the sublime and the gothic, and how it could be represented in the immersive atmosphere of the game. The position and legitimacy of the 'weird' as a unique genre is contested within the literary and academic spheres, with some locating its parentage in spectral, and folkloric fantasy, while others see Weird Fiction as a quasi science fiction (Joshi, 1990). H.P Lovecraft emerges as a key figure here: who defines the weird tale as:

"something more than secret murder, bloody bones, or a sheeted form clanking chains according to rule. A certain atmosphere of breathless and

unexplainable dread of outer, unknown forces must be present; and there must be a hint, expressed with a seriousness and portentousness becoming its subject, of that most terrible conception of the human brain—a malign and particular suspension or defeat of those fixed laws of Nature.”(Lovecraft, 1974)

The basic understanding of aesthetic values within weird fiction involves the interplay between the subjectivity, self representation, and contextualisation of an object (Ralickas, 2006). Contrary to the more aesthetically-driven writer of the gothic, Lovecraft subjectivism is the consequence of differences between people and the limits of our cognitive and sensory capabilities. Lovecraft synthesizes the aesthetic influences of his predecessors into weird fiction’s pessimistic mode, which focuses on dissolution of the self and the ontological categories that the world has never been distinct from (Shepard, 2020).

Lawn argues that we can see a subtle recurrence of what Lovecraft calls the ‘sly vignette’ across texts analysing the weird and gothic traditions (Lawn, 2006). Lovecraft (1973) maintains that in order to create believable supernatural literature, one should have a familiar setting in the ‘modern’ period, in order to approach the reader’s sphere of experience. Its spectral phenomena moreover, should be malevolent rather than beneficent; since fear is the emotion primarily (although not singularity)be excited by such narratives.

Joshi built upon Lovecraft’s identity of the ghost story, where supernatural aspects of horror can only exist where the ordinary world of our daily lives is presupposed as the norm. The fantastic elements of these narratives exist in the impossible spaces between the subject speculation and objectively familiar (Joshi,

1990). The weird tale offers the wholly unique principal mode of speculation which frequently asks the reader to address the fundamental state of the universe and their identity within it.

Pulp and weird fiction are unique as a genre or mode of expressing horror because they are predominantly based on ideas of the post-rationalist gothic and modernist science fiction (Crowley, 2015). Gothic typically is obsessed with an aesthetic imagination of the past of ancient and abominable empires that rule over the dark and lurid places of the earth (Newell, 2020); in contrast the weird is incredibly banal and mundane in surface level appearance, carrying with it a pastiche of realism created to give paratextual credence to the core thematic concepts of the 'weird', particularly as references to arcane and occult texts become more prominent across various authors works, building upon this shared imagined history. The grand mythos of the weird tale is no mere Eldritch beast or abominable space horror, but rather the cultural aesthetics of the weird tale itself. Machin (2017) suggests that the lure of the weird tale is the external interaction and engagement with the physical mode of the weird with the reader, where through these familiar tales of philosophers and antiquarians the reader can feel connected to these imagined worlds as if they (or someone from their past) could be supplanted into the scenarios presented, granting the opportunity for themselves to contribute to the grand mythos.

Behind all instances of the weird, eerie, and gothic, is a central enigma; the concept of relative agency – namely, when we suspend disbelief are we unwittingly allowing for these ideas of weird and eerie to manifest and take control (Fisher, 2016)? The primary function of this eerie mode is to create a sense of uneasiness, to make the audience uncomfortable and alert. Works in this mode thus ask the



audience to engage with the subject in a more meaningful capacity, analysing the fiction through their own interpretation. This uneasiness provoked by the weird and eerie has two functions in relation to games and interactive texts; firstly through alienation of the player. As seen before in Dunne (2014) alienation of the user is used to augment the player relationship to mechanical immersion and interaction by forcibly changing their perspective from a narrative absorption to reliance on mechanical immersion to systems.

The second function returns to Pace's (2008) notion of representation immersion in which the forced analysis of the players surrounding deeper suspicion and criticism acts as a form of immersive engagement. Presented with these states of weirdness, they are encouraged to alter their play experience into a more intimate model that relates less on passive interpretation of events but more on the active participation through their interaction in the world.

These questions of agency and interpretation offer further dimensions to scholarly considerations of the weird, the eerie, and the gothic. The weird often manifests as disgust due the feeling of engineered encounters that confuse the area between certain ontological states. Shepard (2020) posits this as 'Substrate', the middle section between the awe of the sublime and the negative effect of disgust, suffused by anxieties and contamination of unstable boundaries that separate humans and nonhuman.

*Atmosphere and Immersion in Spatial Environments*

Having examined the wider principles of aesthetics as they relate to the gothic, the sublime, and weird fiction, I now turn to atmosphere and its role within gameplay. When discussing the role of atmosphere, Burke contends we must first look towards the aesthetic values of an environment ( 2005). The concept of fear or fright in the media is predicated on the notion of self-indulgence and personal agency to experience and control emotional stimuli as they wish. Fear can be seen as a retractive and conductive source for immersion depending on the creator's propensity for staging these interactions (Bantinaki, 2012). When personal agency to engage with horror is taken away via 'cutscene' or loss of controls, the player will become despondent to the narrative immersion as they've lost the ability to develop an immersive/affective atmosphere where their choices are recognised (Dunne, 2014).

Spatial Design functions as a means of emotional experience through escapist design that offer corporeally immersive experience, Svabo et al (2013) argue this form in the pastiche facades of Las Vegas Architecture. Similar to the idea of 'Sly Vignette' proposed earlier by Lawn (2006) and Lovecraft (1973) spatial design is the transition and performative state of themes and situations of engagement as aesthetic atmosphere is curated for specific functions. However it is noted that design cannot be predicted for linear experience as it is co produced by the users own agency and engagement. Incorporate a holistic design principle within a linear structure.

Wanders (2014) explores how the ability to habitate a first person narrative allows the player to transpose their will and understanding of the environment onto the player character with representational or not. Through this mode of play, the player contextualises the horror and negative emotion they see with their own information about said horror or fear diluting its potency (c.f Fisher, 2016, Bantinaki, 2012) Voyeuristic approaches through third person views can affect empathy with player character and choices, so we associate consequential actions with our choices in this player/character relationship. (Veale 2015)

To return to the concept of ambiguity, I consider this not necessarily a mode of the weird or eerie, but rather a parallel to such ideas. This ambiguity is a source of interest for Rebelo and McKnight,(2019), who ask what happens when the state of the unknowable is subjective and contextual? Since ideas around the atmosphere become so nebulous, it can be hard to define what it truly is in the context of interaction. One method of deducing this relation is by exploring how players become co-authors of their experiences within spatial environments (Svabo et al. 2013)

Dalsgaard (2006) believes interactions based on spatial environments, whether physical or digital, must be designed and developed to function with interaction and usability in mind, in order to understand the space of which actors and artifacts synergise. Dalsgaard (2006) argues that interactivity is based on habitation and social relation to environments and thus functional architecture is key to main streaming user engagement and interaction within a spatial environment.

Blacklock (2017) suggests that narrative experiences can be viewed / designed outside of the linear functions used by Svabo et al. (2013). Multiple dimensions of experience are inherited traits of intertextuality, and occupy a strange bridge between typical ideas of subliminal aesthetics which weird fiction is predicated upon and sublimity(?) as a source of atmosphere encompassing a spatial ritual / culture.

### *Conclusion*

While the existing research into the broad topics of my research are quite lengthy and vary in academic density, in this review I have attempted to establish the general themes and motives of these different categories of practical and philosophical design. From this review, I suggest that a clear gap in research emerges via a lack of engagement in 'Atmosphere', in relation to the design and production of user experiences in games. Specifically, the aesthetic scenery and emotional value of atmosphere has not been a well developed area of study or debate. This is likely due the often unstable nature of the term atmosphere as it encompasses a wide variety of different design principles and theatrical structures. As shown before in my analysis of spatial design principles, we see that the sensory values of aesthetics are the key value in which designers have previously used to develop the foundation of user experience. I see it necessary to further define and test the links between aesthetic values of atmosphere and how these properties can be used to further develop a framework for developing media which stimulates states of ludonarrative immersion and engagement.

# Methods

Using action-oriented research as a foundation, methodological approaches of iterative artifact generation were implemented within the creative component 'Project: Mystic' to explore the effects of atmosphere on player experience and immersion, measured through two surveys and playable demos. Within the context of my research and the creative project, action research, which emphasises transformative change through the simultaneous process of taking action and doing research, was accomplished through the simultaneous process of researching the theoretical frameworks on game design, such as the ludonarrative principles, and user experience. These texts would go on to inform iterative designs of player interaction and engagement throughout the demonstration.

Through crafting this playable demo, the research incorporated areas of artifact generation and analysis into the project. Artifact generation was enacted through the physical (digital) evidence of creation and documentation, both through the direct construction of the visual game elements such as the 3d models, and less directly through the development of the game levels as iterative design space that focus on the aesthetic and sensory sensation of interaction within a visual environment, aimed at inducing steps of user absorption and ludonarrative immersion .

Since the stated aim of my research was to move away from previous endeavours into quantitative based research on the stations of immersion, particular flow and absorption as user generated metric, I required a pragmatic approach that

would allow for the collection of user orientated data, but would also allow for critically reflective interpretation and analysis of said data sets. The data sets for Survey 1 would go one to influence the iterative design of interactions in the environment in the creative works, focusing more on User Experience Laws, and how they could be incorporated into the project to create more engaging and aesthetically gratifying situations.

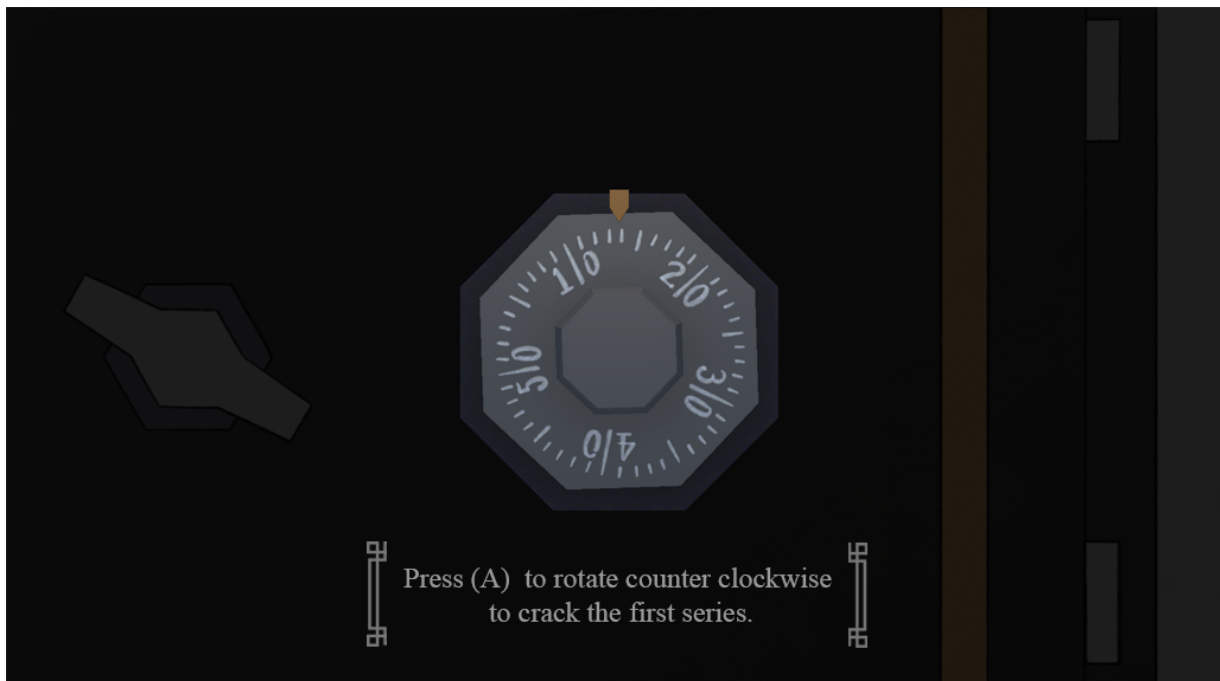


*Playable Demo Level 2: Office*

In particular reference to Koeffel (2010) and Pace (2008), I wanted to focus on the aesthetic sensations of immersion and how it could manifest in different forms of ‘mechanical’ and ‘representational’, depending on the contextual state of the player's actions. This would require empirical evidence of players' experiences and engagement with binary puzzles, and social interaction stages around a linear narrative of ‘Project: Mystic’. After gathering qualitative data from participants I would be able to analyze their experience and create a series of descriptive markers.

### Survey 1

Using a 'Google Form' survey tool, a series of generalist questions were sent out to a number of participants within overlapping social circles. Since the first stages of research took place during the Covid-19 lockdown we were unable to conduct physical surveys,



*Intractable Safe Puzzle: Office*

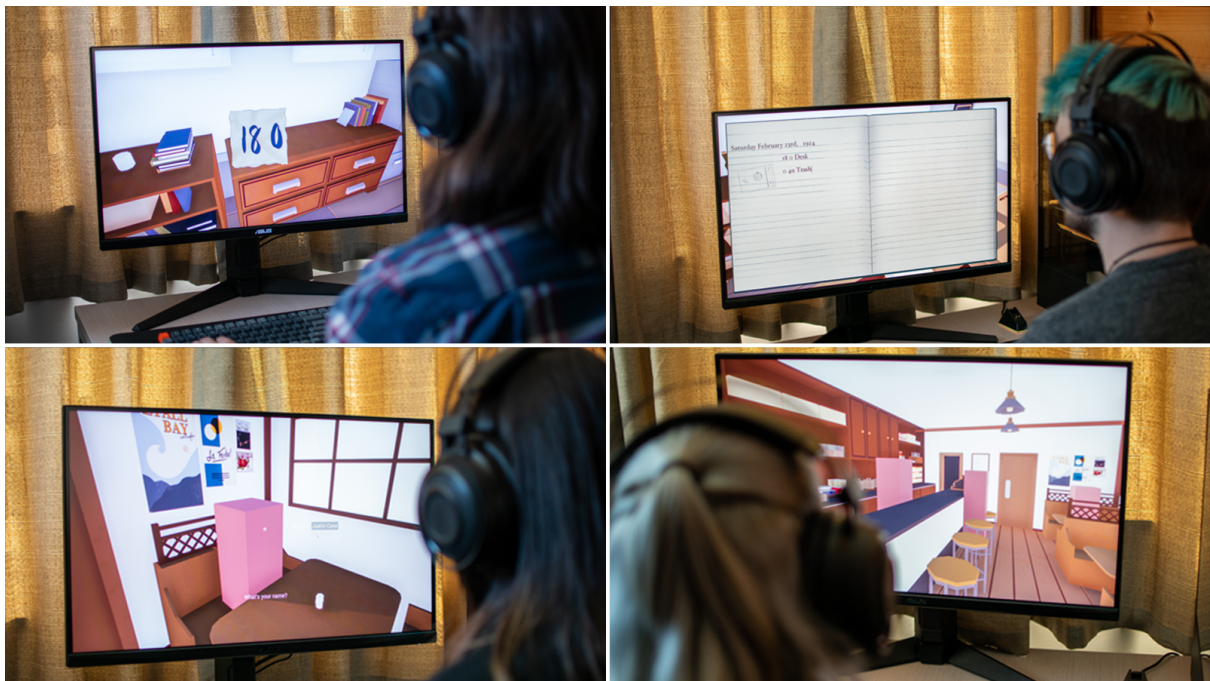
Through this survey participants were asked to solve both abstracted and visual image puzzles. This involved correctly deducing the code to a safe via the distinctive marking on the edges of two pieces of torn paper. Secondly, the participants were asked to deduce the owner of a luggage bag based on the initials found on the bag's tag. Before development of visuals could commence we wished to gain a base level understanding of player to game interactions, seeing the myriad of

ways the average person, not just gamers, would approach similar puzzles since the project was marketed as a casual anthology that anyone could enjoy.

During this survey the participants were also asked if they preferred pre-rendered reminders or if they preferred a blank notebook aesthetic in which the player would be able to write down any of their own musing and ideas, as they work through puzzles. This information would go on to inform the principles of user experience design we use to develop puzzles and interactions, with particular use of heuristic design principles such as Aesthetic Usability, Miller's Law, and the Von Restorff Effect. (Shugen, 2012) (Miller, 1995) (Hunt, 1994).

### *Survey 2*

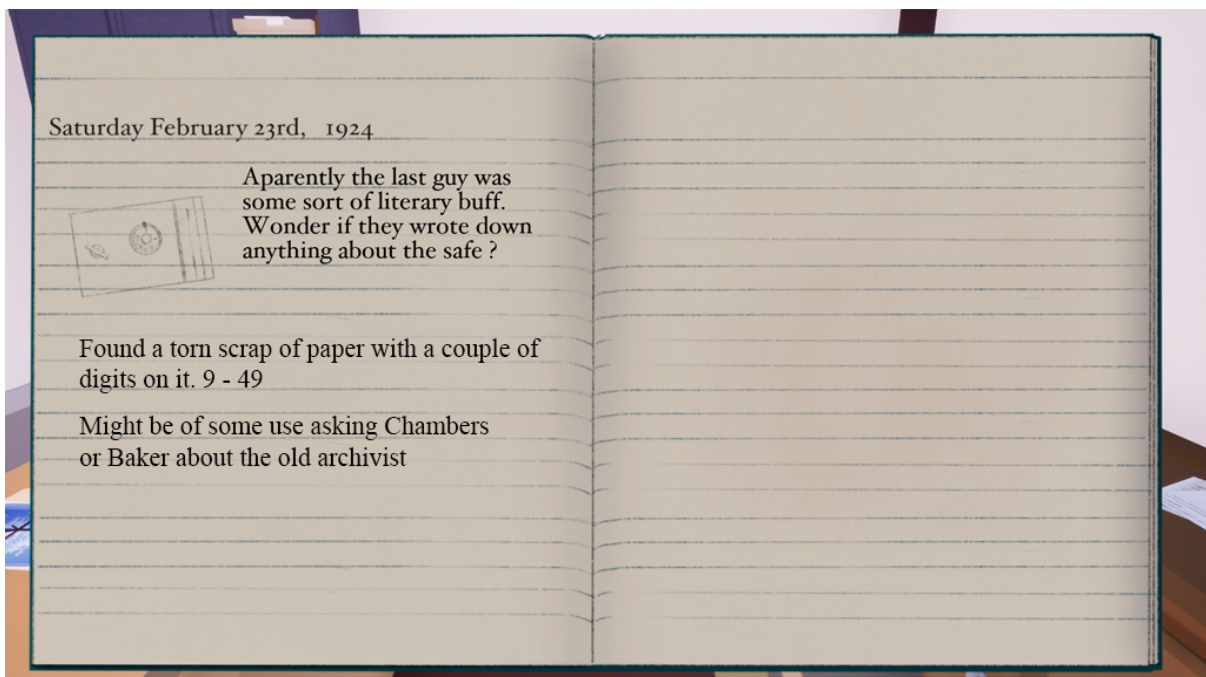
Taking the data for the first survey, we developed a demonstrative level of the games core ludic contract, and narrative loop. With this demo coinciding with the lifting of Covid-19 gathering restrictions, we were finally able to advertise the conducting of an in person survey and playtesting session.



*Playable Demo Prior to Survey 2*



During this session we had 9 participants play through the demonstration as far as they could without us (the organisers) having to intervene. Directly after this, the participants would fill out another 'Google Form' survey, this time asking them questions pertaining to their overall experience within the demo, e.g. if they were able to solve the initial puzzle, if the control scheme was clear, if they could guess the overall aesthetic genre of the project, and if they had any notable interactions with the environment or non-playable characters. During the development of the demo levels, we relied on the development heuristic mechanics for the players based on previous survey results, particular aesthetic useability, Miller's law, and the isolation effect.

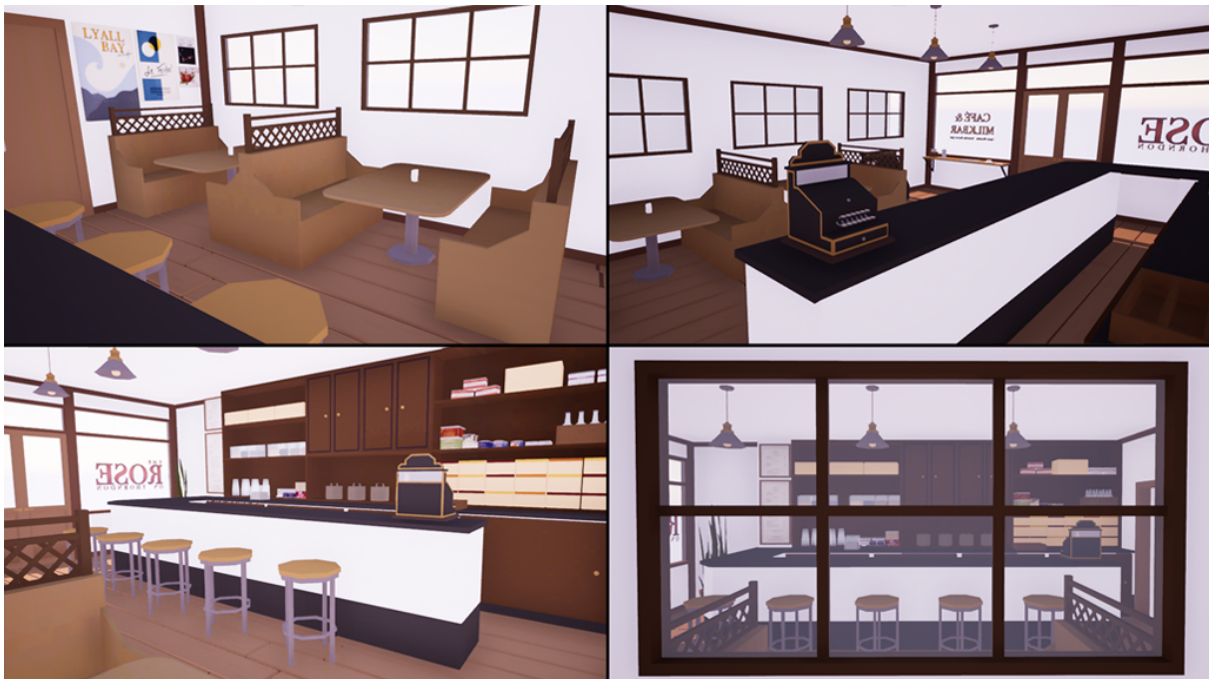


Player Journal Being Used to Deduce The Safe Puzzle

The isolation effect, commonly known in User Experience Design as the 'Von Restorff Effect, consists of the essential feature of which is that one item in a list or group that differs from the remaining items. Hunt (1995) notes that the source of differential attention is the perceptual salience or continual incongruity of the isolate. Thus it can be convinced that for our design purpose in developing an immersive

experience, that interactable items become visually distinct and isolated compared to surroundings. This was done primarily through variant textures, either prominent displaying large patches of red, for example, or through the application of a unique texture.

When designing for the player's retention of information pertaining to and motivation for solving puzzles, and the contextual information for such a task, we took note of Miller's (1994) proposal that there is clearly a definite limit to the accuracy with which we can identify the absolute magnitude of non-dimensional stimuli. calling this limitation the 'absolute judgement'. Adopting this principle we would initiate the level with one directed task to the player, i.e. to open the safe, instructing them through dialogue with the first non-playable character they meet, to make use of their journey to record any information they might suggest is pertinent to the task.



*Playable Demo Level 3: Cafe*



Project: Mystic's Non-Playable Characters



Environmental Assets Used Throughout The Game

## Results and Discussion

In this section, I discuss the results of ‘Project: Mystic’ in relation to my research question. I divide the results into three key sections: the game itself, the results of the surveys, and the limitations of the research. Following this, I discuss potential applications for the lessons learnt from this process for future works in the Studio Witchwood pipeline, as well as the uses of these principles for studies of game and immersion.

### *Results: Project: Mystic*

Entering an area of undeveloped research like this I initially set out to answer the proposition, or at least gain a better understanding of “how the aesthetics of atmosphere influence the relationship between ludonarrative immersion and user experience in the specific context of interactive weird fiction?”.

To clarify my position, this initial position could not have consisted as an empirical effort into establishing research in the area, more a generous early report on key theoretical concepts and potential uses in their applications. I believe we have had early advancements in the theoretical schools of ludonarrative immersion and spatial weird fiction. While presently I cannot say if we have developed an empirical answer to the question, or have been able to signify a direct correlation between the effectiveness of sensory aesthetics on a player experience and ability to indulge in immersive play states, I can state that a player's ability to become critically engaged in ludonarrative immersion is based on how effective an experience is presented to the player, with a note on the aesthetics of representation environments.

We can hold this position of advancing the research due the credibility of the research demo versions presented to research participants prior to surveying. Unlike other demonstrative survey testing in ludonarrative research such as grey box testing implemented by Ash (2016), our research focused on the aesthetic and sensory values of the player experience within a spatial environment, and such required visual environments and interactions in order to critically assess player engagement and motivation.

Throughout the research process more thought and resources could be allocated to user based testing. An established / refined parameter or index of descriptive markers should be created to better identify qualitative user description on the influence atmosphere as it relates to the engagement and the effects of representational immersion on experience. This would allow us to better understand the initial stages of a player's interactions and how their early impression could later affect their ability to enter into more complex states of mechanical immersion, absorption, or alienation.

### *Results of Surveys*

These experiments were used to obtain qualitative data on how participants used logical processes to solve abstract puzzles when presented with only visual stimuli (survey 1), and how participants engaged with ludonarrative mechanics to solve these abstracted puzzles when in an atmospheric environment (survey 2). The final prototype emphasised atmospheric conditioning and user experience

implementing further aesthetic, mechanical, and narrative attributes in order to enhance player immersion and narrative engagement.

Analysing participant responses, we look specifically for written descriptive markers that had the potential to indicate a players' propensity for experiencing game specific states of mechanic immersion and representation immersion. When testing for user experience, anticipation of atmosphere, and the engagement of ludonarrative interactions, we used fully rendered test environments to simulate the typical advancement of the game upon its theoretical release. This was done to familiarise the test subjects with the stylised representation of the game world and become adjusted to the aesthetic sensation interaction and affective response

Based on the qualitative and relative experience of survey participants we tested, analysing the datasets, and highlighting key descriptive factors that imply the partition predisposition to experience a function of flow, representational immersion, and or emotional engagement within an immersive atmosphere. It can be concluded that the atmospheric staging of a scene positively affects the user's experience with ludonarrative immersion. The results indicate that users become more precipitable to enter states of ludonarrative immersion when interacting with an objective stimulus, if atmospheric cues are employed that aid in the players adjustment to the spatial facility presented to them.

#### *Limitations of the research*

There were several limitations when gathering quantitative data during this research. A primary issue was the number of player participants during the second

round of surveys. Having a larger playtesting data set could provide greater objective results and provide further qualitative information regarding user engagement and experiences. Our primary limitation in the sourcing player participation is informed by the fact, our periods of user testing took place amidst widespread lockdowns in response to the Covid-19 Pandemic. This restricted the ability to conceive large groups locally and safely without implicating preconscious measures that could add variant to the player test conditions.

Playtesting sessions had an average engagement time of 8-10 minutes, with a larger majority of this time spent solving the first suite of puzzles and reading character dialogue. These prolonged periods of interaction and purposeful active participation were done at the behest of objective based markers which quickly bridged the transition from the first area of testing to the second without much time for natural exploration. Additionally the limited range of explorable experiences offered to the participant most likely hampered their ability to become immersed within such a restrictive world space with limited interactions. The overall scope of the project was also hindered by workplace obstacles resulting from the departure of our third team member amidst the projection of the project. Their responsibilities within the project include general writing, narrative design, and 3d animation. Without this production assistance, I was forced to take up further development responsibilities: this ultimately resulted in asset gaps, and lack of development 'polish' anticipated by this time in development.

Future studies could investigate the implementation of critical / theoretical frameworks for the collection and analysis of qualitative data. Certain methodological materials could also be augmented to allow for the collection of

further qualitative player data, such as biometric insights into the psychological effects of atmosphere on user engagement i.e facial measurement, eye tracking, and bpm. Although these tests primarily functioned as a means of obtaining qualitative data in relation to user experience and atmosphere, fleshing out player participation could have provided more insight into the ability of atmosphere to enhance long form ludonarrative immersion.

## Discussion

As I did not set out to amass a qualitative data set in which to interpret, I have few statistical modes of analysis to frame what particular lessons have been learnt. In this project I relied heavily on theoretical models and philosophical frameworks, backed by engagement with scholarly literature. Through this I have three theoretical arguments that aim to contextualise and link thematic similarities across different areas of my research.

What follows here are a series of critical reflections, made as journal notes throughout this project, that I hope to take forward in my research. While these points could be used by others within the creative framework to build upon aesthetics ideals, these points are likely to lay the foundation for further research by myself into the aesthetics atmosphere in weird fiction, predominantly focusing on; atmosphere of spatial design, the transitive mode of weird fiction, and the aesthetic valence of power and control in sublimity.



*On the Atmosphere of Spatial Aesthetics*

Atmosphere refers to the sensorial qualities that a space or spatial object emits, an immediate form of physical perception, and is recognised through emotional sensibility. As such aesthetics within the context of atmosphere and spatial design can be viewed as the metaphysical properties of 'form' and 'feel'. Form is the visual personification of beauty, but to its ardent extent; the sublime. While 'feel' is concerned with the sensory perception of spaces and how we experience them.

Since experience can be fully controlled by a designer, as it is reliant on the participation of its audience, we are essentially the co-authors of our existence within a given space. So we create sublime experiences to feel grounded, present, and immersed in these vast and oppressive expanses, so we might know our place within the universe and contextualise our surroundings.

If Kant's interpretation views the sublime as a neutral surface for culture to act on, then the atmosphere can be seen as the templated method through which we cultivate moods of expectation and control when engaging with the media, and the inherent aesthetic values it should possess. Through this interpretation the atmosphere would involve the practical application of flow and user absorption in experiential control. As we lose control over our ability to mediate experiences we subsequently become complacent, either willingly or unwilling, becoming less critical of this atmosphere presented to us.

Breaking the illusion of conscious control we pierce the barrier of the liminal sublime and are able to touch the alienating force of the unnamable, the Eldritch

form. We have cultivated the experience to a point where it is based on our own experience that we have unwittingly written the rules of engagement so that they may be easily disrupted by us. This is an attempt to toy with the notion of agency and power in the face of the sublime and the unfathomable forces that control our surroundings. Once we have had our fill we retreat and claim a solemn victory of the stranger and eerie sensation, of this immense presence.

We call this false victory over the weird and eerie; ambiguity' the false narrative, or the false sensation. The resplendent feeling that nothing is quite right and we are stuck in the Substrate between the ontological barrier of objective and subjective, returning to the enigma of the self, the initiating force on which all ideas of aesthetic atmosphere are based upon.

#### *On The Aesthetic Nature of Weird Fiction*

Ultimately the true purpose of the weird and weird fiction is not to articulate any innately horrible or terrible sensation but is to set a reference against itself; which is then imitated by spectral forces, monstrous beings, and heretical curses.

Our experiences with weirdness are then contextualised and based on our pre-exposure to ideas of horror, and aspects of the macabre. Ancient Eldritch beings like Yog Sothoth and The King in Yellow wouldn't pose such terrible figures without the magnanimous titans of terror like H.P Lovecraft and Robert Chambers behind them. When removed from this contextual relationship of author and creation these beings are no more dreadful than any other averous avaricious apparition, malevolent monster, nefarious necromancer, or other literary humbugs.

Either through the transvaluation of pain and pleasure, and of human nature or the logical parameters of a games mechanical interactions the oscillating force of what is knowable and unknowable ultimately frames our experiences within the world of fiction, elucidating the relationship between ourselves and praetor natural entities which we cannot categorise into our conceivable hierarchy of power and control.

*The Aesthetic Valence of Control and Power in Eldritch Deities.*

With the identity of the aesthetic sublime rooted in Burke's notions of control and positions of power, we can use spatial and atmospheric aesthetics of weird fiction to expand ideas of the 'Deity' figure as a non-natural function of the sublime.

Nietzsche sought to empower man by emulating the dualistic nature of the godly Apollonian and naturalist Dionysian figure (erf??); he insinuates that their aesthetic valence is a form of cosmic tragedy made to stratify our base aesthetic sensation of ritual power through piety and struggle in the face of the natural and postnatural sublime.

Burke maintained the aesthetics of ritual submission as a natural byproduct of sublimity, he did not view it as a negative valence of the sublime but rather a positive terror analogous with pleasure through its functions to create desire and control. As the aesthetics of the weird evolved through the ages of post gothic rationalism the relationship between man and otherworldly forms power shifted from desire to control to imitation; ritual crates perception, creates reality.

The Eldritch deities were not created so that would feel small and minute as an aesthetic performance of submission to the sublime; Rather these entities were created so that we might feel powerful when we defy them and their immensity. If they did not exist we would need to create them as the contextualised point from which we base the sublime in weird fiction and the aesthetics of atmosphere.

## Conclusion

This research aimed to respond to the following question: how do the aesthetics of atmospheric game design influence ludonarrative immersion and user experience in the context of weird fiction and the sublime? Underpinning this goal was the desire to further develop a theoretical understanding through which findings could be transposed, and applied to other projects within the realm of Studio Witchwood.

In order to respond to this question, a creative work was developed which acted as a demonstrative testing environment of critically engaged users in the ways they interact representational environments with linear narrative in interactive media. The work was developed alongside engagement with scholarly literature from which the following key themes emerged. The Aesthetics of sublimity directly and subconsciously relate to the core concepts of interaction and experience in spatial environments through their use of power, and abstracted ritual control, based on gothic post rationalist narratives. Weird Fiction provides the best narrative and thematic frameworks for testing aesthetically derivative concepts such as immersion, and atmosphere, and the use of traditional immersion based research have fundamentally become obsolete as we further refine the analytical framework in which we assess the state of immersive operation in media; No longer are we content with ideas of absorption and retention, rather we are focussed on the aesthetic versimulated of sensory representation and mechanical feedback as an inherently immersive mode of engagement.

This research incorporated an iterative game design criteria influenced by theoretical concepts such as ludonarrative principle, affective narrative interaction, user engagement/experience design and an iterative design analysis informed via questionnaire results. These methods established guidelines for the players' interactions within a stage composition that aimed to facilitate the theoretical state of atmospheric ludonarrative immersion. We focused on the aesthetic principles of atmosphere and spatial design to encourage visual familiarity with the game environments. Adopting the mode of a first-person camera was intended to allow for seamless habitation of the player character, to encourage exploration and interaction with the environment.

Project: Mystic is on track to wrap up development in Q3 2021 with most of the programming and a large quantity of the assets being finished. The Project's Kickstarter campaign will close in early July, and the goal is to launch Project: Mystic in Q3 2021 on Steam and Itch.io. Giving me to allow development of assets by third party contractors and make the final polishing touches on the game while working towards a successful fulfilment of Kickstarter goals

If there is a positive reception to the story and characters in 'Project: Mystic', we plan to develop other games within the alternate history 'Weird Aotearoa' These will be released as an anthology, working alongside audience reception. the use of extended play duration and long form media engagement could be used to more effectively measure the prolonged effects of character bonding and immersive habitation.

Ultimately, this project has been an interesting opportunity to explore the key theoretical frameworks around the aura of human experiences in a digital age where our interaction within digital environments become more intertwined with our societal productivity. Specifically, this project has made a contribution in the advancement of ludonarrative immersion as a definable principle of design and analysis. With the further development of atmospheric design principles in relationship to user experience, this research can hopefully be used as a framework to help design better user interaction in a wider context outside of interactive media. Ideally this discussion can help inform designers on the critical foundations of spatial design and its relations with the aesthetics of atmosphere to create better and productive spatial environments that function in conjunction with our aesthetic and sensory experiences.

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# Appendix A: Survey 1



## Note Mechanic, Project: Mystic

The goal of this form is to understand how people interactive with objectives and information provided to them in our game. It will feature a few questions based around preliminary concepts for puzzles, and will be used to inform decisions regarding the development of Project: Mystic and surrounding university research. Project: Mystic is a narrative game with a few short puzzles, all of which are intended to be solved by engaging with the environment. The note mechanic is intended to allow the player to engage the player though encouraging them to write down things they think are important.

Thanks from James, Liam, and Mathias for taking the time to fill it out!

\* Required

What is your full name? \*

Your answer

Do you play a lot of narrative-driven games?

Yes

No

Would you like your name mentioned in the credits? \*

Yes

No



---

## Note Mechanic, Project: Mystic

### Puzzle one

For this puzzle you are trying to find the missing pieces of a three-number code for a safe. The pieces of paper shown below are what the player finds.



What do you think the code to the safe is?

Your answer \_\_\_\_\_

Would you write this information down / want it to appear in an in-game journal when you find each piece of the code?

Your answer \_\_\_\_\_



## Note Mechanic, Project: Mystic

### Puzzle Two

For this puzzle you are trying to identify the owner of a briefcase that you have found, to do this you ask around.

#### Information you receive:

The initials JF are on the bag

And the following responses from people you talk to:

"looks similar to the bag that I helped Jennifer put away"

"It looks like something Flemming would own, pretty sure they they have a matching suitcase"

"I think a man in a red coat was carrying that"

"A woman with a suitcase that matched that walked by just before"

"Edward's bags look just like that"

Who do you think this bag belongs to?

Your answer \_\_\_\_\_

Would you write this information down / want it to appear in an in-game journal when you receive each piece of information?

Yes

No

Other: \_\_\_\_\_



## Note Mechanic, Project: Mystic

### Final thoughts

Given the questions focused on manual input, this last section is to determine how you felt about the mechanic and what alternatives you might want to see instead

Which of these would you prefer?

- Manual - all text is typed by the player
- Automatic - text appears in the journal when you receive the information
- Automatic with a sketch - text appears in the journal when you receive the information alongside a relevant sketch
- Manual - all text is typed by the player but it appears beside a relevant sketch

Do you have anything else you'd like to add that wasn't addressed by the questions in this survey?

Your answer

---

## Appendix B: Survey 2

### Project: Mystic play-testing feedback, April 2021

The goal of this session is to test out some of the mechanics a recent build of an early section of the game we are developing for the Master of Creative Enterprise, Project: Mystic. Project: Mystic is a narrative driven mystery game, as character interactions and environmental storytelling drive the progression of the game. This is an early build, so many assets aren't final; for this survey we are more interested in understanding how players react the different parts of the game loop. We also have a couple questions for market research - all questions are optional and you may stop at any time.

Thanks from James, Liam, and Mathias for coming along today!

What is your full name?

Your answer \_\_\_\_\_

Do you want to be mentioned in the credits?

Yes

No

#### Safe Puzzle

For the first puzzle, the safe in the office, your goal was to find the two parts of the missing code to the safe.

Were you able to unlock the safe? \*

Yes

No

Other: \_\_\_\_\_

What was your experience with this puzzle? Were the instructions clear about what your goal was?

Your answer \_\_\_\_\_

## Narrative

This section covers primarily the dialogue elements of the game, the interface is currently a work in progress but let us know if that gets in your way of playing the game.

Was the flow of conversations clear?

- Yes
- No
- Other: \_\_\_\_\_

Did the dialogue options feel like something you would ask in the same situation?

Your answer \_\_\_\_\_

Were there any particular characters you enjoyed talking to? If so, what was it that you liked about this character?

Your answer \_\_\_\_\_

Did you return to characters to exhaust their dialogue trees (i.e. choose the answers you had not before)?

- Yes
- No
- Other: \_\_\_\_\_

## Gameplay

Here are a few questions related to the general vibe of the game

Understanding that it's design is not final, how do you feel about the current design of the UI for the dialogue interactions?

Your answer

---

Were the objectives clear? Did you use the journal?

- Yes
- No
- Other: \_\_\_\_\_

Were the controls confusing? Was there anything that you thought you should / shouldn't be able to do?

- Yes
- No
- Other: \_\_\_\_\_

Did you find using the character creator intuitive?

- Yes
- No
- Other: \_\_\_\_\_

## Project: Mystic play-testing feedback, April 2021

### Market research

When answering these questions, keep in mind that we are developing this project as a small indie studio, even if you are unfamiliar with indie games we would still appreciate answers to this section.

Do you often play mystery games?

- Yes
- No
- Maybe

Do you have a preference for the length of indie games?

- 30 minutes
- 1 hour
- 2 hours
- more than 3 hours

How much would you expect to pay for an indie game?

- \$3
- \$5
- \$10
- Other: \_\_\_\_\_