Designing Immersive Experience: The Interplay of Audience Experience and Artistic Vision in cross-disciplinary immersive and Interactive Theatrical experience

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Abstract

This study aims to understand the dynamic relationship between artistic vision and audience experience, designed by creators of immersive and interactive theatrical experiences across different immersive formats. Drawing upon nine semi-structured interviews with stakeholders from the Netherlands, the UK, Norway, and the USA, along with two participant observations and document analysis, the research explores five productions. These five immersive productions are distinct in formats and storytelling across/in spatial environments (physical, digital, and hybrid). They are *The Uncanny Thing Trilogy*- Interactive Immersive Opera, *Sleepy Hollow*- XR and Theatre, *Orphée | l'Amour | Eurydice* -Immersive Opera, *Briar and Rose in the Land of Fairytales* -Live Stage Theatre Performance in using AR (augmented reality), and *A Christmas Carol VR*-Virtual Theatre live performance.

Through five case studies and thematic analysis, this study concludes that the relationship between artistic vision and audience experience is not binary or strictly hierarchical; instead, they are multifaceted and interconnected. The interplay is context-dependent and dynamically negotiated through iterative processes, team dynamics, technological and spatial design, and the unique challenges and constraints of each production. Additionally, broader structural conditions such as funding environments, local policy, audience expectations, and infrastructures also influence the sustainability of the practice.

Keywords: Immersive and Interactive Theatrical Experience, AR technology, VR technology, Artistic Vision, Audience Experience, Audience Agency, Interactivity, Storytelling, World Building

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Contents

Chapter 1. Introduction

In recent decades, immersive and interactive theatrical experiences have emerged as innovative performances that invite the audience into fictional worlds, through spatial, narrative/sequential, social/empathic, system (Han, Melissen & Haggis-Burridge, 2023), or bodily immersions Pungpeng & Yodnane, 2023). Live immersive performances today take place across a spectrum of site-specific theatres to fully virtual productions using VR or AR-enhanced performances. While the creators share a common goal is to deepening the audience's sense of presence and emotional connection to the experience.

The term "immersive" remains ambiguously defined, despite this constantly expanding field. Scholars and practitioners have raised concerns that the overuse of this term in broader sectors (Machon, 2013; Warren, 2017) may lead to miscommunication between creators and audiences. Additionally, the term "immersive theatre" has been well debated, practitioners such as Punchdrunk offering their own definitions of this term, while organizations like the Immersive Experience Network also provide their understandings of "immersive and interactive theatre".

This research explores beyond the "traditional" immersive theatre, inquiring into immersive and interactive theatrical experiences. The term "immersive and interactive theatrical experiences" primarily aims to encompass, but is not limited to, the five productions discussed in the stakeholders' interviews in this study. These productions span physical, digital, and hybrid environments, and each takes a distinct approach to audience engagement, from on-site live performer-led adaptive storytelling (non-tech), to location-based hybrid live performances enhanced by VR/AR technologies, to live motion-capture VR theatre performance. Despite their differences in format and technological application (or non), all are grounded in theatrical practices and immersive audiences in the world the makers built. The definitions of the productions are provided by the stakeholders and are applied in the study to describe these productions. The five productions are: *The Uncanny Thing Trilogy*- Interactive Immersive Opera, *Sleepy Hollow*- XR and Theatre, *Orphée | l'Amour | Eurydice* (OAE)-Immersive Opera, *Briar and Rose in the Land of Fairytales* (Briar and Rose shortened)-Live Stage Theatre Performance in using AR (augmented reality), and *A Christmas Carol VR*-Immersive Performance.

This thesis investigates the following central research question:

How do immersive and interactive theatrical experience creators navigate through artistic vision and audience experience across different immersive formats?

In this study, "artistic vision" does not refer to an aesthetic analysis or stylistic evaluation of the work. Instead, it refers to the creator's intentional approach to immersive world-building, narrative structure, integration (or not) of the immersive technologies, and the design of audience experience. The research draws on nine semi-structured interviews with stakeholders from the UK, the Netherlands, Norway, and the US; two field observations (one ongoing project); and document analysis, including industry reports and government publications. This multi-methods qualitative research approach provides insights into the

creative processes, collaboration models, challenges, and structural conditions that shape immersive practices.

This study is also shaped by the researcher's interest in the sustainability of traditional performing arts, such as opera and proscenium theatre. After first experiencing an immersive theatre performance in New York, a lasting curiosity was lit. The researcher is excited about how classical repertoires can be reimagined when audiences are actively engaged or interact with the piece rather than passively observe it. Since then, the researcher has engaged with different formats of immersive experiences and further deepened interest in understanding these interdisciplinary practices. In recent years, more traditional theatres have embraced and explored immersive technologies (AR/VR) on their stages. For instance, Nordland Teater, Teater Vestland, and Teatret Vårt's *Briar and Rose in the land of Fairytales* (Glitch Studios, 2025) combines AR with live performance on a proscenium theatre setting, and the VR experience La Magie Opéra by Paris National Opera (2025). While it is still too early to determine whether the integration of immersive storytelling (non-immersive/immersive technology-driven) in traditional theatre can broaden audience reach for traditional theatre, it opens new possibilities for engagement with the audience. As immersive practices continue to evolve and diversify, this study aims to contribute to a deeper understanding of the interplay between artistic vision and audience experience in immersive creation, based on insights drawn from five selected productions. While the research is limited by available resources and access, it may still provide some helpful perspectives for traditional theatre makers or newcomers seeking to integrate immersive storytelling into their own practices.

Chapter 2. Theoretical Framework

This chapter starts with the historical and etymological definitions of the term *Immersion,* followed by Machon's (2013) framework, which outlines the criteria of immersion as *absorption, transportation,* and *total immersion*. It then briefly introduces immersive technologies, such as virtual and augmented reality, and presents two models that assess immersive experiences from a broader perspective. The following section examines how creators utilize storytelling, world-building, and narrative design to foster audience engagement and explores how interactivity and audience agency are structured differently in immersive environments (physical, virtual, or hybrid).

2.1. Artistic Vision

2.1.1. Immersion: Definitions & Etymology

The term immersion comes originally from the Latin *immersiōnem,* which means to "plunge into" or "submerge" (Online Etymology Dictionary, 2025). According to the Oxford English Dictionary, it was first recorded being used in the Middle English period (1150-1500), initially describing the Christian baptism practice of fully submerging someone's body in water. Over centuries, the term has expanded into diverse fields: liturgy (mid-1600s), alchemy and astronomy (late 1600s), science (1870s), and education (1960s). For instance, in educational contexts, immersion refers to a pedagogical method. It means foreign language

educators or learners engaging with such a language deeply within an environment where all communication is conducted in this language (Oxford English Dictionary, 2025).

The Oxford Learner's Dictionary (2025) distinguishes two meanings of immersion: the literal act of submerging someone or something into liquid fully; the mental state of being "completely involved in something". The latter aligns with the psychological understanding of immersion as a state of cognitive and emotional absorption in an activity or environment (Lexicon of Psychology, n.d.).

2.1.2. Machon's definitions of immersion within the immersive theatre experience contexts:

Josephine Machon's (2013) *Immersive Theatres: Intimacy and Immediacy in Contemporary Performance* presents intensive research with twelve industry stakeholders and their productions. Machon states that in immersive theatre, the audience physically inhabits the created fictional world, in which they physically and noetically respond (p.61). She identified three criteria of immersion in immersive theatre experience: *Immersion as absorption,*[1] *immersion as transportation*[2], and *Total immersion*[3]. She emphasized in immersive performances, these modes can overlap and are experienced to varying degrees, while total immersion is the "most intense state experienced" (pp.62-63).

Machon provides a scale of immersivity as criteria to assess the immersive experience whether it is total/wholly immersive theatre: "in-its-own world', "space", "scenography", "sound", "duration/al", "interdisciplinary/hybridized practice", "bodies", "audience", "a contract for participation", "intention", and "expertise" (pp.93-100). This framework not only serves to evaluate the degree of immersion but also illustrates how immersive practices may blur the boundaries between performers & spectators and fiction & reality.

2.1.3. Immersive Technologies (VR & AR)

Immersive technologies are not limited to Virtual Reality (VR) and Augmented Reality (AR); they also include holography, surround sound, haptic technologies, and audio features, etc. These technologies aim to enhance the sensory experience (Machon, 2013, p.36). In this study, immersive technologies primarily refer to VR and AR. According to Pungpeng &

[1] It refers to when the participant is completely focused and engaged mentally, emotionally, and physically in the performance. Such an event catches their imagination and attention, which creates a deep sense of involvement and interest (Machon, 2013, pp.62-63).
[2] It refers to the audience being mentally and "scenographically" transported into another fictional world which is physically presented. Audiences and performers share the same space. While in games, this usually happens in a conceptual space. Immersive theatre allows real physical interaction between human bodies, "fusing imagination", interpretation, and touch (Machon, 2013, pp.62-63).
[3] It builds upon both mentioned immersions, as absorption and transportation. It allows the audience a heightened awareness of their own presence within the experience. Audience members who are in this experience may have their journey or narrative. Some performances may even provoke emotional or existential reflection through the idea and practice they shared. (Machon, 2013, pp.62-63).

Yodnane, immersive technology is a "continuation of the path to realizing the fullest potential of immersion" (2023, p. 7), rather than replacing traditional formats. Pike (2020) also suggests that integrating VR and AR into immersive theatre will generate a new style and technique of storytelling. Through the integration of these technologies, they can be used to "enhance live, embodied narrative through dramatic storytelling" (Pike, 2020, p. 120).

This section introduces the conceptual background for understanding AR and VR as immersive media. In chapter 4, we will further discuss how these immersive technologies are being integrated into theatrical performances.

2.1.3.1. Definitions of VR and AR

The history of *Virtual Reality (VR)* and *Augmented Reality (AR)* can be traced back to 1968. The first VR/AR head-mounted-display (HMD) system was developed by Ivan Sutherland (1968) and his student Bob Sproull. Through this system, users can view "transparent 'wire frame' line drawings" (Sutherland,1968, p. 296). Sutherland's system set a foundation for modern Augmented Reality and Virtual Reality technology development. (Virtual Reality Society, n.d.).

Virtual Reality (VR)[4] is also called *Virtual Environments* (VE). Mazuryk & Gevautz (1990, p. 1) describe it as an interactive participatory environment that creates the illusion of being part of an artificial world instead of simply observing it. They suggest that the future of VR can be used in technological and social aspects. Today, VR technology has been applied in various industries, including creative sectors. VR is characterized by immersive, multisensory experiences, using "three-dimensional, stereoscopic, head-tracked displays, hand or body tracking and binaural sound" (Gigante, 1993, p. 3), which create a sense of presence within a computer-generated environment (Sheridan, 1992, p.1). Virtual Reality and 3D computer graphics are blurring the border. The computer-generated content fully replaces the view of the user, where they can fully immerse themselves in the virtual environment. (Mazuryk & Gevautz, 1999, p. 3).

Users can wear HMDs (Head Mounted (Coupled) Displays) headsets with two small CRT or LCD monitors which are placed in front of the users' eyes (Mazuryk & Gevautz, 1999, p. 45).

Augmented Reality (AR)[5] refers to technologies that apply digital elements such as computer-generated images, sounds, or text overlay on the user's real environment in real

[4] It is important to note that there are different levels of immersion within VR systems, from Desktop VR, Fish Tank VR, to Immersive systems. Desktop VR can be displayed on the "conventional monitor"; no other sensory output is supported. Fish Tank VR is the improved version of the previous; it supports "head tracking," which improves the involvement sensation of the user, while using the conventional monitor as a display. An immersive system is "the ultimate version of VR systems. They let the user totally immerse in computer generated world with the help of HMD that supports a stereoscopic view of the scene accordingly to the user's position and orientation. These systems maybe enhanced by audio, haptic and sensory interfaces" (Mazuryk & Gervautz, 1999, p. 5).

[5] Although the concepts of AR and VR are different, it depends on the devices whether some of them can be used to experience both VR and AR modes. There are different types of AR: "Augmented Reality on markers", "Augmented Reality on surfaces (World tracking or SLAM)", "Augmented Reality for images (image tracking)", "location based Augmented Reality (AR with GPS)", "Augmented Reality on spaces (Spatial Tracking)", "Augmented reality on objects (Object

time (Mazuryk & Gervautz, 1999, p.3; Billinghurst, Clark & Lee, 2015, pp.74-75; Mendoza-Ramírez, 2023). It is different from Virtual Reality (VR), which fully replaces the user's optical view with computer-generated images (Mazuryk & Gevautz, 1999, p. 3). The user can use a see-through Head Mounted Device (HMD) to experience it (Mazuryk & Gevautz, 1999, p. 3).

There are other types of AR devices, such as Smart Glasses, a type of headset (Solomashenko et al., 2020), or a smartphone (with AR software and tracking systems) (Javornik, 2016).

The term XR technology, also called "extended reality", is considered a broad term that includes *Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR)* (Northeastern University, 2023). This is a common definition of XR technology that has been widely used in industry and in academia. While scholars like Rauschnabel et al. (2022) disagree with the common definition of XR as Extended Reality, as they argue that the term "extended reality" is "misleadingly abbreviated as XR". This study does not aim to discuss further the definition. In the following sections, XR refers to both AR and VR technologies in this research.

2.1.4. Immersive experience frameworks

Machon's work set a foundation for the further research of immersive theatre. Building upon her theory, researchers like Agrawal et al. (2019), Han, Melissen & Haggis-Burridge (2023), and Pungpeng & Yodnane (2023) have proposed frameworks for defining "immersion" in a broader immersive experience context. In this section, the immersive experience framework by Han, Melissen & Haggis-Burridge (2023), and complemented by Pungpeng & Yodnane (2023), is selected to provide a broader lens for understanding immersive experiences.

Han, Melissen & Haggis-Burridge developed a theoretical framework to define immersive experience and identified key criteria for designing such experience based on a "multidisciplinary Delphi approach" (2023, pp. 2-3). Their framework identifies four "facilitators" for creating immersive experiences: "System immersion", "Spatial immersion", "Social/Empathic Immersion", and "Narrative/Sequential Immersion" (Han, Melissen & Haggis-Burridge, 2023, pp. 4-8) (See Fig. 1).

Makers can use these four factors identified by Han, Melissen & Haggis-Burridge (2023, pp.4-8) to influence immersion objectively. Along with these four elements, they also provided a detailed list of criteria (See Fig.1). And it is worth noting that one of the factors, "System immersion", stands for "physical and mental engagement in mechanics and activity". Han, Melissen & Haggis-Burridge's definition of "system" goes beyond Agrawal et al.'s (2019); the latter focuses mainly on the technological and "physical property" of the system that delivers the audiovisual experience. For example, makers can use Agrawal et al.'s framework to measure technical elements objectively, such as the volume of the speakers or

tracking)", "face tracking or augmented reality with filters on the face", "body tracking or augmented reality on body parts", "Augmented Reality in open spaces (world mapping)" (Onirix, n.d.).

the degree of the lighting. While Han, Melissen & Haggis-Burridge build on Haggis-Burridge's (as cited on p. 3) definition to explain that it includes both "mental and physical engagement within the activity". They listed fifteen criteria[6] and emphasized that some of the criteria, such as the "system immersion", "only need to be met at a certain level" to achieve the desired effect (2023, p. 12). Han, Melissen, and Haggis-Burridge's definition of system immersion is not just about technology but also about how users interact with and perceive the system mentally. Their framework provides a more comprehensive approach to immersion that applies to various immersive experiences.

Based on Han, Melissen, and Haggis-Burridge's (2023) framework, Pungpeng & Yodnane (2023) proposed a fifth facilitator: *Bodily immersion* (2023, p. 6). They argue that a truly immersive experience emerges with the interaction of all five factors: systems, spatial, social/empathic, narrative/sequential, and bodily immersions. Bodily immersion is activated by engaging imagination, and embodiment sensation, which they describe as a "sensation of bodily transference and illusory ownership over virtual bodies and activating *praesence*"[7] (2023, p. 6). They argue that VR technology can be a key to allow bodily immersion, but they also emphasize it as a "lived experience of the physical body responding within an imaginative, sensual environment, produced with the help of immersive technology" (2023, p. 1).

Pungpeng & Yodnane (2023) used a couple of examples to demonstrate the productions that implement all these five elements to create an immersive experience. One of these examples is Punchdrunk's *Believe Your Eyes*. The production featured four performers, with "sensory special effects", sound design, and a 360-degree film which is synchronizing with the live experience (Harkness, n.d.).

Pungpeng & Yodnane (2023) do not exclude site-specific immersive theatre from the framework; however, they emphasize the use of VR immersive technology as an enhancement of the experience. They acknowledge and discuss site-specific immersive theatre or "designed for specific, already existing spaces, be it an interior or exterior area" (Gezgin & Imamoğlu 2023, p. 3, as cited in Pungpeng & Yodnane, 2023, p. 2) as part of the broader history and landscape of immersive practices. The immersive technology is an enhancement of the current immersive practice (e.g., site-specific theatre); it is a "continuation of the path to realizing the fullest potential of immersion" (Pungpeng & Yodnane, 2023, p. 7)

Immersive Experience Framework

[6] Although in their Figure, they number 16 items; however, they skip number 12

[7] The term "praesence" (presence) has been researched by other scholars. The definition of presence, like "immersion", is still in debate (Agrawal et al., 2019, p. 7). They conclude that the term refers to "the sense of being present in an environment which is not purely the physical environment around us." Presence and immersion can be experienced simultaneously, but also can occur not at the same time; it depends on the setting of the experience (Agrawal et al., 2019, p. 7).

Systems Immersion (Han, Melissen & Haggis-Burridge, 2023)	Definition: Physical and Mental engagement in mechanics and activities of the experience	Design Criteria: 1. Reduction of potential unrelated interruptions 2. Sense of influence in the experience 3. Increasing complexity of task/activity 4. Clarity of purpose and tasks 5. Predictability of the system 6. Ease/convenience to get into the set experience 7. Integrated and clear user interface 8. Content stability and fit to device 9. Technological embodiment 10. Smoothness of interactivity with the system 11. Technological consistency 12. Unambiguous, immediate feedback 13. Audiovisual alignment 14. Functional alignment 15. Matching physical accessibility
Spatial immersion (Han, Melissen & Haggis-Burridge, 2023)	Definition: Transportation into a different environment, creating a sense of presence in the new environment	Design Criteria: 1. Contrast between the current environment and the immersing environment 2. Reduction of potential unrelated interruptions 3. Coherency within the space/environment 4. Content stability and fit to device 5. Verisimilitude of content 6. Smoothness of interactivity 7. Environment that can be explored 8. Sensory alignment 9. Balance between detail and coherence in the environment
Social/Empathic Immersion (Han, Melissen & Haggis-Burridge, 2023)	Definition: Emotional Connection with actors in the experience and relatedness to the user's social context	Design Criteria: 1. Insight into the backgrounds of individuals 2. Individuals who are worth learning about 3. Ability to experience together/share experience with others 4. Meaningful interactions 5. Variety of characters 6. Facilitation of emotional safety 7. Environmental artifacts match the user's social context 8. Relatability of individuals to the user's context
Narrative/spatial immersion (Han, Melissen & Haggis-Burridge, 2023)	Definition: Compulsion to continue the progression of the storyline or sequence of events in the experience	Design Criteria: 1. Clarity of purpose and tasks 2. Individuals who are worth learning about 3. Enticing storyline through narrative arc 4. User involving storyline development 5. Unexpected but logical sequence of events 6. Variety of characters 7. Active engagement with individuals 8. Insight into the backgrounds of individuals 9. Narration matches the user's communication style
Bodily Immersion (Pungpeng & Yodnane, 2023)	Definition: Sensation of bodily transference, generating illusory ownership over virtual bodies, and activating *Praesence*	The participant's imagination and proprioceptive senses must be engaged. A sense of becoming the other body must be created- "VR body illusion"

Fig. 1. Immersive Experience Framework, Adapted from *Immersive Experience Framework: a Delphi Approach* (2023), Copyright 2023 by Han, Melissen & Haggis-Burridge, p. 8, and *The Route to Immersion: A Conceptual Framework for Cross-Disciplinary Immersive Theatre and Experience.* Copyright 2023 by Pengpeng & Yodnane, p. 7.

2.1.5. Artistic Vision: World-Building and Storytelling

In a site-specific immersive environment, Warren (2017) provides practical guides on how immersive creators approach spatial and dramaturgical design, as well as audience engagement within different formats from a practitioner's perspective. He identifies four

types of location-based immersive performances in the landscape: “exploration theatre,”[8] “guided experiences,”[9] “interactive world,” and “game theatre.” [10]Each format emphasizes a distinct logic of spatial navigation, audience interaction, and dramaturgical intention design (pp. x-xiii). For example, the interactive world combines characteristics of both guided experience and exploration theatre. This world is “free roaming,” allowing the audience to move within the designated space at their own choice. There is an underlying “narrative arc” that supports the entire experience, while remaining open to change depending on the audience’s choices, which may lead to different outcomes (Warren, 2017, p. xii). It requires the creator to carefully design spatial elements that provide the audience “a rewarding exploration” and also demands that the actors comfortably improvise in response to various audience choices and fully know the play's plot inside out (2017, p. xii). An interactive world can be linked to a free-roaming interactive “open world” video game. The term “open world” in video games refers to nonlinear gameplay that allows players to explore and interact at their own pace (Anto et al., 2024) within an “expansive” and “immersive” virtual environment. However, in Warren’s interactive world, it has a time limit.

On the other hand, beyond the physical site-specific context, Polydorou (2024) and collaborators developed three immersive experiences that tell stories via multiple mediums. The experiences are “time-limited, location-based”. They require active participation, engaging multiple senses with a fragmented narrative which delivered across various mediums. The experiences adapt to personal choices and employ technology to bridge the narrative spaces (p. 301). They identified three interdependent pillars for designing experience in hybrid environments (digital and physical): “Narrative Architectures”, “Ludo-Body”, and “Transmedia Space” (p.303). Narrative architectures refer to identifying suitable storytelling strategies that allow the audience to experience through participation and interaction. And the signs and cues are deliberately designed, and storylines can be non-linear and player specific. Ludo-Body refers to the audience actively engaging in the interaction and tasks that are given in the experience, while also involving physical movement and presence in the environment. The transmedia space refers to the intentional design of presenting narrative elements across mediums (VR, physical space, physical artifacts, digital diaries, etc.) (pp. 303-318).

Breuleux, de Coninck, and Therrien (2019) adapt the world-building framework concepts by Wolf (2012, as cited in Breuleux et al. 2019, pp. 1-15) and Lukas’ (2013, as cited in Breuleux et al. 2019, p. 15) “Four Worlds of storytelling”[11] model to analyze immersive

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[8] In exploration theatre, as Warren describes, the audience can move freely in a pre-designed space, and he argues that the piece can theoretically exist without the audience’s presence. There are some interactions between audience and performers, however, this does not influence the storylines (2017, p.x.).

[9] In guided experience, Warren argues that this type of production relies entirely on the audience, since they are guided through a storyline which is given to them “(ideally) countless opportunities to interact and make (ideadly) meaningful choices” (2017, p. xi).

[10] Warren argues that Game theatre is different from the other three formats. Although many game theatres are marketing themselves with “immersive”, he considers it does not fall under the umbrella term of “Immersive Theatre”, since it “aims and techniques are entirely different” (2017, p. xiii).

[11] Based on Luka’s four worlds of storytelling, Breuleux et al (2019) further adapt the concept into VR, Full Dome, and Spatial storytelling projects. The first world refers to the material reality, the physical structures and

environments, including VR, Full Dome. Their work emphasizes a “transmedia” storytelling and “transauthor” approach to immersive story worlds building in which is co-constructed by multidisciplinary teams (e.g., director, production manager, engineer, and interaction designer) (2019, p.15).

2.2. Interactivity and Audience Agency

2.2.1. Interactivity

The term *interactivity* has been associated with different sectors, especially in media sectors, including gaming, digital storytelling, and virtual technologies. Riedl and Bulitko (2013) discuss how interactive narrative systems are employed in digital entertainment such as games, which allows users to create or influence the dramaturgical storyline direction via their actions (p.67). This study recognizes the complexity of interactivity within different contexts. This section mainly focuses on the context of immersive experiences, where interactivity is quite often associated with immersive theatre (Biggin, 2017, p.62).

Steven Dixon’s Digital Performance: *A History of New Media in Theatre, Dance, Performance Arts, and Installation* identifies four stages of interactivity: “navigation, participation, conversation, and collaboration” (2007, p.564; as cited in Biggin, 2017, pp. 61-62). Dixon’s system represents a range of interactivity stages rather than a measure of artistic quality. It serves more as a framework for analyzing how an audience member's action may or may not affect the work. A single work can also potentially encompass all four categories of interactivity (pp.61-62). Biggin (2017) argues that certain cases of interactivity may facilitate immersion; however, this does not guarantee that the experience is immersive. Additionally, according to Biggin, Dixon’s model becomes less useful when evaluating immersion itself (p.63).

Biggin distinguishes three types of interactivities in immersive theatre, which are built upon Salen and Zimmerman’s four-mode taxonomy of interactivity (2004, p.69; as cited in 2017, p.74). They are **Cognitive interactivity** or interpretive participation[12](p.80), Functional

built environments where the storytelling experience unfolds, such as a physical stage or an architecture. The second world is the imaginative domain, including literature, fiction, and various forms of visualization, such as models, patterns, language, and maps. The third world is experiential, technological environments, such as a VR system. The fourth world is also called the visitor world and corresponds to the receiver’s perspective. It is the subjective experience of the audience. (Breuleux et al., 2019, p.15).

[12] It refers to “the psychological, emotional, and intellectual participation between a person and a system” (Biggin, 2017, p.80). This kind of interaction is often invisible; it includes how spectators imagine, interpret, and emotionally engage with what they perceive. Such as cognitive interactivity or interpretive participation in immersive theatre occurs when the audience encounters narrative fragments or symbolic environment and must construct meaning.

interactivity[13] or utilitarian participation (p.85), and **Explicit interactivity** or participation with designed choices and procedures[14](p.89).

Biggin also argues that although interactivity may quite often link to immersive experience, many immersive productions are not "interactive" at all, or at least not in the sense defined by the mode of "explicit interactivity". "They may include explicit participation in a navigational sense, but audience members are not invited to influence, change, or complete anything." (Biggin, 2017, p. 90)

Although industry voices like Immersive Experience Network put Immersive and Interactive under the same category of Immersive and Interactive theatre (Immersive Experience Network, 2025)[15]. It is important to recognize that immersive theatres and interactive theatres are not synonymous.

2.2.2. Audience Agency and Participation

According to Murray, this exploration in *Hamlet on the Holodeck: The Future of Narrative in Cyberspace,* Janet Murray (1997) discusses *Agency* in a digital environment context. She argues that "activity alone is not agency". For example, in a "tabletop game of chance," users can click the digital interface to spin dials, exchange money in the digital environment, but it does not necessarily give true agency to the users, as the "actions are not chosen, and the effects are not related to the players' intentions. In contrast, in a chess game, although it does not offer frequent actions, it provides a high degree of agency (P.128). Murray (1997) states agency as "the satisfying power to take meaningful action and see the results of our decisions and choices" (p.126). According to Biggin[16] Murray states, "*Agency and immersion are mutually reinforcing*. When we engage with an immersive world and it responds to us as we expect it to, revealing deeper levels of content, greater detail in its coverage, we become more deeply immersed", and agency occurs when an interactive player engages with a fictional world and experience a mutual response (Biggin, 2017, p.71).

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[13] It refers to "functional, structural interactions with the material components of the system (whether real or virtual). (p. 85). This includes physical interactions like walking upstairs or navigating a dark corridor. And in the digital realm, it includes how the digital image resolution in the monitor, and how the weight feels with the head-mounted device.

[14] This involves "interaction in the obvious sense of the word: over participation [...] including here: choices, random events, dynamic simulation" (p. 89) and other activities designed or programmed in the interactive experience. Such as systems where the audience visibly takes part by speaking with performers, triggering effects, or making choices within a designed framework.

[15] Immersive Experience Network's "Immersive and Interactive Theatre" definition can be found here: https://immersiveexperience.network/articles/immersive-and-interactive-theatre/

[16] The book *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* is provided anonymously in books.Google.nl. The book is not fully accessible via this source. https://books.google.nl/books?id=bzmSLtnMZJsC&printsec=frontcover&hl=nl#v=onepage&q=reinforcing&f=false

Warren (2017) proposed critical questions for makers to consider asking themselves when designing immersive theatrical experiences: to what degree is freedom given to the audience, how is the audience's free will enabled, whether they interact with the cast members, whether the audience's choices affect the narrative, and whether every audience member will have the same or a unique experience (p. 69-70). Warren (2017) advocates for "hidden rules" with "elegance" in designing the site-specific immersive piece; he introduces the concept of "Living Choice." This "Choice Architecture" (Thaler & Sunstein, 2008) reflects the tension between empowering the audience and control by the makers. At the same time, creators must carefully manage the degree of audience freedom by establishing clear protocols to prevent incidents such as harassment of performers (Soloski, 2018).

The study recognizes the complexity of the concept of "agency"; here, it mainly focuses on agency within the environment, where the audience makes choices to explore through spaces, and agency with narrative, so that the audience's decisions and actions may influence the story.

2.2.2.1. Spatial Navigation and Agency: Physical and Virtual Space

In a site-specific immersive and interactive experience. Warren (2017) conceptualizes the site-specific immersive theatrical environment as a "Living Space". He identifies four elements within the spatial layout: *void, zones, boundaries,* and *the funnel.*[17] (pp.21-33). These spatial cues could be used to influence audience movements in the physical space and invite the audience to navigate through the spaces. In some productions by Punchdrunk, such as *Sleep No More,* if the audience decides to follow performers by moving through places or makes a decision to explore the spaces without following the plot, both give a sense of agency to the audience.

Han, Melissen & Haggis-Burridge (2023, p.4) define the environment not only physical environment, but also includes the virtual environment. They describe immersive experience as "transportation into a different environment, creating a sense of presence in the new environment". In virtual environments, even when users/audiences have limited control or few interaction options, the continuous sensory input, such as visual, sound, and movement, may infuse immersion in the experience, as the user mentally engages with this experience and physically controls the device.

In virtual environment/virtual reality space, users can respond to, engage and interact with a digital generated environment via a device (e.g., a computer screen with speakers, headphones/speakers, and keyboards or controllers for motion, or a head-mounted display (HMD) and motion tracking of body movements) (Burgess & King, 2001). In such a space, users may have a virtual body (Avatar), can interact with digital objects, settings, or pre-

[17] *Void* refers to a space normally may cause a problem to the audience's experience or can use it for example to "slow a piece down" (2017, p.33) and in music we can understand it as a brief silence to build up tension; hence, he suggests to either smash the void, predict, or create it) (2017, pp.21-33). *Zones* are areas of the space that share boundaries. *Boundaries* include physical boundaries, light boundaries, and action boundaries. And *the funnel* is one special type of zone, to "keep the audience moving and propel them through it" (2017, p.35).

programmed storylines in real time (Burgess & King, 2001). Users might have the freedom to roam around and interact with the pre-programmed characters, or influence the progression of the pre-programmed dramatic storyline through provided choices by the designers. However, the range of interaction is shaped by the design of this system.

Interactivity may give a certain degree of agency and can help support immersion, but Biggin argues interactivity alone does not guarantee immersion (2017, p.72). And it is important to note that interactivity and agency are not synonyms.

2.2.2.2 The Narrative and Audience Agency

The narrative of the immersive theatrical experience can be linear and non-linear. As Biggin illustrates, in *The Crash of the Elysium* (Salford Quays, 2011, as cited in 2017, p.114), the audience was following a single path, which was led by guides. It can be seen as a guided experience according to Warren's (2017) framework. In contrast, non-linear productions like *Orphée | l'Amour | Eurydice* is a multi-narrative experience*,* which will be further discussed in chapter 4. Punchdrunk's *Sleep No More,* the experience is also multi-narrative and unfolds across physical spaces. Audience members move through spaces, choose whom (character, or multiple characters, or switch among characters) to follow, and which room to explore. Their experiences are individual and unique, which affect their own narrative path. As their actions do not influence the overarching narrative carried by the performers, everyone (performers) ends in the same grand finale[18]. (Biggin, 2017, pp. 20-28).

Warren (2017, p.72) talks about "cast the audience". It means the audience is positioned as participants, which may further blur the line between the audience and performers. In some immersive work, especially in interactive media, audience/user agency can shape the outcome of the narratives through an adaptive storytelling system. These are usually rooted in pre-designed interactive media such as video games. These audience/users influence a dramatic story in real time while the system still manages to respond to the user's input to ensure coherence. While pre-scripted narrative branches are designed to support flexible outcomes and dramatic variations (Douglas and Gratch, 2001, p.104). In contrast to pre-scripted narratives, branches are human-involving in adaptive storytelling in interactive theatre, such as *The Uncanny Things Trilogy*, which will be elaborated in chapter 4.

2.3. Audience Experience in Immersive and Interactive Theatrical Performances

Audience experience in immersive and interactive production extends beyond the performance itself. As Machon (2013) argues, in immersive theatre, experience begins at the moment of first encounter (marketing, pre-show communication, etc.) and continues until the audience stops thinking and talking about it. At every stage of the work, it "evolves, exists and lasts beyond the immersive moment," and participants are the co-authors of their

[18] It depends on the audience whether they follow the performers to the end finale. For this sense, they made their own decisions and influence their own experience and perspectives.

experience (p.23). This aligns with Brown et al.'s (2012) arc of engagement, which identifies five stages: "build-up" (e.g., website-based contextual content), "intense preparation" (e.g., 24 hours in advance media reach emails, program reading, pre-performance talk, onboarding), "artistic exchange" (onboarding, live experience, offboarding), "post processing" (e.g., post-performance discussions, feedback), and "impact echo" (long-term resonance and impact on audience) (pp.7-21).

While this study primarily focuses on the "artistic exchange" phase, which is the live delivery of the events, it recognizes that audience experience is shaped across all stages. This section discusses the impact of immersive experience on the audience.

2.3.1. Cognitive and Embodied Experience

In an immersive experience, engage audiences both cognitively and bodily. It involves not only intellectual interpretation and emotional engagement but also physical interaction with the fictional world (Machon, 2013; Biggin, 2017).

In Biggin's case studies of Punchdrunk's productions, she found that the intentional design of their productions is seeking "a primarily *emotional* phenomenon, a product of instinctive emotional response" (2017, p.4). These emotional responses are not incidental but deliberately designed by the makers to have "psychological" and "cognitive' effects on the audience.

The concept of *immersion* has often been connected to Csikszentmihalyi's (2004) *flow* theory. Michailidis et al (2018) argue that immersion and flow in video games "do not appear as conceptually distinct and their proposed differences are not compelling enough to set immersion apart as a different mental state". However, Agrawal et al (2019) critique this view. They argue that although there are similarities between "Flow" and "Immersion", these two concepts should not be considered synonymous. They argue that "flow" requires specific conditions such as a balance between skill and challenge, clear goals, immediate feedback, etc. Watching a show and listening to music can be a passive activity, which may not qualify as a "flow" experience, but may still "induce" immersion (2019, p.9). Additionally, Agrawal et al, emphasize the idea of "flow" as "an extreme experience" (Sanders and Cairns, 2010; Jennett et al, 2008; Brown and Cairns, 2010, as cited in Agrawal et al, 2019, p.9) and "all or nothing" phenomenon (Cairns and Nordin, 2014, as cited in Agrawal et al, 2019, p.9). In contrast, immersion can be experienced in various degrees (Brown and Cairns, 2004, as cited in Agrawal et al, 2019, p.9), allowing for more flexible conceptualizations. And this flexibility makes immersion facilitate varied formats of immersive experiences. Biggin connects characteristics of "flow" and "aesthetic experience" theories with the experience of enjoying immersive theatre and argues "aesthetic experience" can also be developed and refined as a "skill" to enjoy the activity (Biggin, 2017, p.30).

Biggin assesses beyond flow theory, adopting the *conceptual blending* theory (Turner and Fauconnier, 2003; McConachie and Hart, 2006, as cited in Biggin, 2017, p.30). She interprets that conceptual blending is an "additional space that actors and audience share".

She also draws on the theory of *embodied realism* (Lakoff and Johnson, 1999; as cited in Biggin, 2017, p.30) and argues that our understanding of the world is fundamentally connected to our physical bodies and how they have evolved.

Conclusion:

This chapter has brought together a range of studies to support the research design across three aspects: artistic vision, interactivity and audience agency, and audience experience. These concepts guide the development of interview questions, observation guidelines, and provide a foundation to interpret the five cases in Chapter 4.

The first section outlined how immersion has been historically and psychologically defined, and immersive experience is not a binary state, but a varied and layered experience. Machon's (2013) criteria of immersion (absorption, transportation, and total immersion) provide a foundation for understanding how participants engage both cognitively and noetically with immersive worlds. Building upon this theory, the immersive frameworks: system, spatial, social/empathic, narrative (Han, Melissen, and Haggis-Burridge, 2023), and bodily immersion (Pungpeng & Yodnane, 2023) offer broader criteria that can apply to broader immersive practices across different formats, from physical site-specific theatre to digital VR works. These frameworks do not serve as fixed evaluative tools but provide a foundation for observation and interview analysis to understand how creators articulate their immersive intentions. The aim is for understanding their artistic decision, rather than assessing artistic quality or completeness of immersion.

The section on storytelling and world-building draws from Warren (2017), Polydorou (2024), and Breuleux et al.'s (2019) theories to highlight how creators use spatial design and transmedia storytelling to collaboratively work across disciplines and create a world that promotes audience engagement and participation. These theories help analyze how makers design environments that allow audiences to navigate, co-create, or experience fragmented narratives across physical and digital media. This section supports interview guidelines and analysis.

In the discussion of interactivity and audience agency, Biggin (2017) distinguishes three types of interactivities in immersive theatre (site-specific): cognitive, functional, and explicit interactivity, which helps to identify different levels of audience participation. It further discusses how agency is offered or restricted within both site-specific and digital environment practices (Murray, 1997, as cited in Biggin, 2017), (Biggin, 2017), (Warren, 2017). Douglas and Gratch's (2001) discussions help understand the adaptive storytelling structure in digital environments such as video games. This set a foundation of understanding a human-driven, interactive, and adaptive storytelling immersive world built by interviewee Doulton. This section supports both interview guidelines, analysis, and field observation.

3. Methodology

3.1. Research Question

This study aims to answer the following research question:

"How do creators of immersive and interactive theatrical experiences navigate through artistic vision and audience experience across different immersive formats?"

Sub-questions:

1. How do creators balance interactivity and audience agency with artistic control?
2. What constraints and challenges have the stakeholders faced, and how did they solve them?

To explore such complex and context-dependent topics, such as artistic vision, audience experience, creative process, how they work as a team, challenges they face, and how they negotiate artistic control with interactivity and audience agency in immersive and interactive theatrical practices, qualitative research method is employed to understand different practitioners' perspectives and practices. According to Bryman (2012), qualitative research helps in understanding the meaning, experience, and perspectives from the participants, focusing on "words rather than quantification in the collection and analysis of data" (2012, p.80).

This qualitative method combines semi-structured interviews, participant observation, and content analysis to capture the richness and complexity of these processes from multiple angles.

3.1. Semi-structured interviews

Semi-structured interviews were conducted with nine stakeholders in the immersive experience field. According to Bryman, semi-structured interviews allow interviewees to share insights into what the interviewees see as important and relevant and provide rich, detailed answers (2012, p.470). This also allows the researcher to adapt the guide to each participant's role.

Nine interview participants were selected using purposive sampling to ensure a diverse range of roles and experience, while they all share a commonality in using theatrical expression and immersive techniques to engage with the audience:

Interviewees with full identity:

1. Producer, Danny van Zuijlen, from Studio Immersief in the Netherlands.
2. Interdisciplinary Director, Thomas Brand, from Studio Brandkracht in the Netherlands.
3. Audience Researcher, Kim van den Brink, from Ask Your Audience in the Netherlands.

They are all associated with the production of *Sleepy Hollow.*

4. Director and Producer, Robin Coop, from Coop & Co. in the Netherlands

Associated with the production of *Orphée | l'Amour | Eurydice*.

5. Creator, Director, Actor, and Producer, Leo Doulton, from Virtual Opera in the UK. Associated with the production of *The Uncanny Thing Trilogy.*

6. Director, Researcher, XR Creative Director, Performer, David Gochfeld, from the Royal Central School of Speech and Drama in the UK. Associated with the Production of *A Christmas Carol VR.*

Anonymous interviewees

7. Immersive Technology Developer, code name ACC, associated with the production of *A Christmas Carol VR* from the US.
8. Creative team member, code name BRLF

Associated with the production of *Briar and Rose in the Land of Fairytales* from Norway

9. User Experience expert and XR creator, code name UEE from the US.

Data collection instruments align with theoretical frameworks through three aspects: artistic vision, interactivity and audience agency, and audience experience. The theme of interdisciplinary teamwork, challenges and constraints developed through the artistic vision section discussions in chapter 2. The interview guideline was tailored to each stakeholder's role and production. The core theme of the interviews included artistic visions, audience experience, audience agency, challenges, and what technologies the makers applied (not limited to XR technology).

Sample questions related to the core theme:

> **Artistic Vision**: What is your vision for creating an immersive theatrical experience? What is your aim, and how do you translate your vision into performance?
>
> **Audience Experience**: How do you define the overall audience experience in your work, and how do you ensure that this experience is achieved throughout a performance?
>
> **Interactivity and Audience Agency**: Immersive theatre sometimes involves giving the audience room to interact or actively engage instead of passively observing. How do you determine the right level of audience participation, and how do you balance that with your artistic vision?
>
> **Challenges:** Could you share an example of a challenge or constraint you faced during the process of realizing your vision?
>
> **Interdisciplinary Collaboration**: Given the interdisciplinary nature of immersive and interactive experience productions, how do you and your team work together?

All interviews were conducted in person or virtually, with a duration between 30 to 90 minutes, and were audio-recorded with participants' consent. There are nine interview guidelines which adapted to each interviewee's role, background, and productions they are

associated with. All questions revolve surrounded these five core themes. Sample question guidelines can be found in Appendix A.

3.2. Participant Observation

Participant observation allows the researcher to directly experience and document the embodied, spatial, and social dimensions of performance and analyze fellow audience behaviors and reactions, which are essential aspects of immersive experience. The “prolonged immersion” in immersive productions allows the researcher to develop an understanding of the experience from the audience’s perspective and notice the intentional design by the maker (Bryman, 2012, p.432). This also serves as a valuable insight to supplement the missing perspectives from the general audience experience related to these interviewees’ productions.

Due to the limitations in time, geography, resources, and the availability of relevant productions during the related to research period, only two productions could be selected for observation: *The Uncanny Things Trilogy* in the UK and play tests of *Sleepy Hollow* in the Netherlands.

The participant observation guideline is developed based on the framework by Han, Melissen & Haggis-Burridge (2023) and Pungpeng & Yodnane (2023). Warren's (2017) theory was incorporated to support identifying production forms.

The theme of the observation aligns with the core interview theme:

The Immersion Approaches were observed through the System, Spatial, Social/ Emphatic, Narrative/ Sequential immersion (Han, Melissen & Haggis-Burridge, 2023), emotional design for actors and audience, embodied realism, and conceptual blending (Biggin, 2017).

Audience experience is observed through observable audience engagement and behaviours and active participation (Biggin, 2017).

Interactivity and Audience agency were observed during the participation through theory supported by Murray (1997) and Biggin (2017).

Technologies applied by the makers (non-immersive technology) were observed during the participation.

While the challenges faced by the makers and navigation through artistic visions and audience experience were not observable; data from interviews complemented these aspects for the *Uncanny Things Trilogy* and *Sleepy Hollow*.

These observations were conducted as short-term, one-time visits. The duration of the experience is close to seven hours. Full field notes were taken during each observation to document as much information as possible.

3.3. Content Analysis

Content analysis is employed in this study to analyze a range of materials that provide important contextual background to support a broader understanding of immersive practices across the four countries represented by the nine interviewees. These include industry reports, funding policies, and documents published by government and cultural institutions. As Bryman (2012) notes, content analysis helps generate information about certain social groups that is difficult to access (p.305). In this case, analyzing publicly available documents such as audience research, industry reports, and funding policies published on industrial, government platforms allows the researcher to explore how immersive practices are across contexts and countries.

3.4. Multiple case study

The case studies are focused on five productions: *The Uncanny Things Trilogy, Sleepy Hollow, Orphée | l'Amour | Eurydice, Briar and Rose in the Land of Fairytale,* and *A Christmas Carol VR.* Each case is examined individually to explore the process and experiences from the perspective of makers and collaborators. The aim is not to test theory, but to generate an in-depth, contextual understanding of how different makers approach immersion through artistic, technical, and organizational decisions. This multiple case study design allows for comparative analysis across different immersive formats and production contexts. As Mills et al. (2010) explain in their "conceptual overview and discussion" in *Sage Research Methods*, a carefully selected multiple case study is used to develop a better understanding of the "issue or to theorize about a broader context.". It allows examining processes and outcomes across multiple cases, and identifying how environments, specific conditions might affect individual cases. Compared to single case studies, this approach may provide more extensive descriptions and explanations of the issues that are developed (Mills et al. 2010).

3.5. Data Analysis

The data analysis for this study adopted both a deductive and an inductive approach to identify patterns across interviews and field observations. Following the general principle of thematic analysis (Bryman, 2012), thematic analysis aims to identify, analyze key themes relevant to the research question: How immersive and interactive theatrical creators navigate artistic vision and audience experience across different immersive formats.

A deductive approach was initially applied; the analysis was guided by core themes from the conceptual framework and applied in interview guidelines and participant observations, as outlined in sections 3.1 and 3.2. These pre-set themes help the analysis remain closely aligned with the study's research questions and conceptual framework.

At the same time, the analysis remains open to inductive analysis for emerging new themes and codes from the data, which were not anticipated by the initial design of the

interview guidelines. This allows a more nuanced interpretation of the data. Initial codes were developed from the interview transcripts and field notes, then grouped into broader thematic categories.

The analytical process includes open and axial coding, first to identify initial codes for interview transcripts and field notes, then grouping these codes into broader themes that reflect the theoretical constructs. Last, comparing the data across interviews, observations, and the case study to form a comprehensive understanding of how immersive theatre makers balance artistic vision with audience experience, which is the research question of this study.

The Coding Book can be found in Appendix B.

3.6 Use of AI

Overall, this research was conducted without the assistance of AI. Nevertheless, three of the programs used have AI-powered tools. First, Microsoft's dictate function was employed to transcribe the interviewee's raw materials. After that, the researcher reviewed all the recordings and raw transcripts and made modifications. Second, Atlas.ti is used for analyzing interview data. Following that, the researcher examined the data and made adjustments. Lastly, Grammarly is integrated into the computer system to correct spelling and grammar errors.

Chapter 4. Results

4.1. Introduction

This study aims to answer the following research question:

"How do creators of immersive and interactive theatrical experiences navigate through artistic vision and audience experience across different immersive formats?"

When the researcher first embarked on exploring how immersive makers balance their artistic vision with audience experience, it was based on past show participation experiences and primary assumptions of immersive theatre's characteristics, which have been widely circulated on the internet. For example, a Google AI Overview (2025) identifies several common themes: blurring the boundary between audience and performers, placing audiences in the story, granting audiences agency, non-traditional spaces, multisensory experiences, allowing audiences to have a personalized experience, and transforming them from passive spectators into active participants.

However, along with the research progress, the study faced conceptual and practical challenges. One major issue was the lack of a universal definition of immersive theatre. While more efforts are carried out by industry platforms and leading practitioners, such as the Immersive Experience Network and Punchdrunk, which have proposed more structured

definitions. The concept remains relatively fluid and open. Looking at it broadly, the field of immersive practices has been expanding its spectrum continually. The interdisciplinary nature of such practices, in addition to different preexisting overlapping forms and tools of expression (e.g., game design, live performances, immersive technologies, and experimental theatres), has been blooming on the market. As mentioned, the term “immersive” is frequently overused or misapplied across fields, which was discussed by scholars such as Machon (2013) and immersive makers like Warren (2017) already. While nowadays, many creators are using this term with great care, the broader marketing ecosystem, including promoters and social media influencers outside the immersive field, continues to use it consistently, which adds further layers of confusion to the public.

This led to a question: How to communicate with these audiences who are not fluent in the “immersive languages” or hold rigid expectations about immersive experiences? Although this is not the aim of this study, it is worth further investigation.

On the other hand, the openness and fluidity of the field are also a strength. Without rigid definitions, artists are able to push through boundaries, engage with even wider disciplines, and develop new forms of audience engagement. As Machon (2013, p.67) stated: “it is the artists’ ability to succeed in this intention that underpins whether an experience is both ‘immersive’ and ‘theatre’”.

To address the stated research question and challenge the assumption that the artistic vision and audience experience have a complex relationship in creating an interactive and immersive theatrical experience, the following sub-questions are asked:

1. How do creators balance audience agency and artistic control?
2. What constraints and challenges have the stakeholders faced, and how did they solve them?

Given the interviewees' (correlated) productions are in various formats, the researcher decided to broaden the research question, beyond site-specific immersive and interactive theatre, extending the exploration of formats which include interactivity, non/low-tech immersive techniques, performance, theatre, and immersive technology elements. All nine stakeholders contribute to productions that are different in their approaches to immersion but share the same element: theatrical performance.

This chapter begins in section 4.2 and provides a contextual overview of the immersive practice ecosystem across the four countries where the interviewees are represented. In addition, four industry reports support the analysis of audience segmentation, industry context, and audience expectations between the UK and the US. Section 4.3 then proceeds with an in-depth thematic case study analysis of five productions, structured around five key themes which align with the theoretical framework and applied in interview guidelines in Chapter 3. These five themes merged as four: 1). Artistic Vision, 2). Audience

Experience[19], 3). Interdisciplinary Teamwork 4). Constraints and Challenges. And one emerged theme: 5). Iterative Development.

4.2. Contextual Overview

Holden (2015) in *The Ecology of Culture* suggests that cultural production is best understood not through economic linear models, but through a dynamic cultural ecosystem, "seeing culture as an ecology is congruent with cultural value approaches that take into account a wide range of non-monetary values" (p.2). In a cultural ecosystem, in different from hierarchical systems, "one part does not exist to serve another." All elements of the cultural system, such as actors, institutions, audiences, and infrastructures, coexist and are equally important (p.12). Holden also emphasized that all the values in culture cannot and should not be measured in financial terms (p.7).

Although the focus of this study is not on ecosystem or policy analysis, broader structural conditions, such as funding systems, audience trends, and industry contexts, may indirectly impact the sustainability of immersive practices. This section provides a selective contextual overview of broader conditions that influence general immersive practices (both non/low-tech and with immersive technology) across four national contexts: the United Kingdom, the Netherlands, Norway, and the United States. It does not seek to explain the adaptation of certain formats but to illustrate the current landscapes of public funding ecosystems and audience preferences, which may drive or constrain the practices of immersive experience.

4.2.1. Funding Systems

Across the four countries in this study, the United Kingdom, the Netherlands, Norway, and the United States support for immersive practices varies. The United Kingdom and the Netherlands both offer structured public schemes to fund the development of immersive technologies in the creative sectors. Such as XRtists and Immersive Arts programs (UK Research and Innovation, 2024) from the UK funds artist-led XR productions with direct awards, along with training and access to infrastructure. And the Netherlands' ADRIE (Creative Industries Fund NL, 2025) scheme supports immersive media and design innovation. In the Netherlands, they also provide support for cross-disciplinary projects, including non-tech interdisciplinary practices (Mondriaan Fund, n.d.)[20]. However, both countries face policy changes: in the UK, cultural funding cuts[21] (House of Lords Library, 2024) have raised concerns over long-term sustainability, while in the Netherlands, a planned

[19] Theme Audience Agency is merged into the theme Audience Experience.

[20] Mondriaan Fund, Creative Industries Fund NL, Cultural Participation Fund, Netherlands Film Fund, Dutch Foundation for Literature, and Performing Arts Fund NL provide support for cross-disciplinary projects. (Mondriaan Fund, n.d)

[21] Arts Council England budget cuts: Funding reductions raise concerns over the viability of venues and projects; the Society of London Theatres warns that 40% of venues may face closure within five years. Between 2009/10 and 2022/23, local government revenue funding for culture services per person fell by 29% in Scotland, 40% in Wales, and 48% in England (House of Lords Library, 2024).

VAT increase and grant reductions[22] (Government of the Netherlands, 2024) may weaken future support for cultural sectors.

In Norway, by contrast, there is a relatively stable public funding environment. Arts and Cultural Norway provides funds to all arts disciplines. There are also international collaborations that are supported by EU-funded projects such as *PlayOn! New Storytelling with Immersive Technologies* [23](Kulturdirektoratet, 2024) allow national theatre makers to explore and create immersive storytelling experiences. Meanwhile, in the United States, immersive practice is supported by a few grant programs such as the National Endowment for the Arts (National Endowment for the ARTS, 2025) and Villa Albertine (Villa Albertine, 2025)[24]. But immersive practices mainly involve business-oriented models, and the funding structures, including crowdfunding and community investments, marketing and brand activation funding, presenter and commissioner investment, etc. (Gensler Research Institute, 2025, pp.12-15). This market viability creates barriers for non-commercial or experimental immersive projects, especially those small-scale productions that cannot secure large private support.

One interesting pattern across European public funding focuses is for production, with limited support for distribution. This gap was discussed by immersive practitioners at the Venice Immersive Think Tank (2024). Several European practitioners expressed the need to shift from heavily relying on public funds to entrepreneurial and business-oriented approaches, like the U.S models. As the XR combines different design disciplines, there are different financing and distribution networks that can potentially delve into (pp.20-21). Additionally, Gensler Research Institute suggests exploring more hybrid models of funding within immersive practices (2025, p.80).

While the funding differences across these four countries do not directly determine which immersive experience formats creators choose, the structural context influences broader working conditions, access to resources, and sustainability of overall immersive practices.

4.2.2. Audience Demographics and Preferences

Two major industry reports, the Immersive Experience Network (2024) from the UK and the Gensler Research Institute & The Immersive Experience Institute (2025) from the US, provide comparative insights into the demographics and preferences of immersive experience audiences. While these reports only offer a partial view from these two countries, they provide insights into the socio-demographic and value orientation of the audiences.

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[22] Planned VAT increase (2026): From 9% to 21%, affecting ticketed cultural events such as concerts, festivals, and theatre. Estimated annual impact: €200–350 million (Dutch News, 2024). Planned €1 billion grant cut over five years (starting 2026): Although not directly aimed at arts funding, this cut in development grants raises uncertainty for long-term planning in both tech and non-tech immersive sectors. (Government of the Netherlands, 2024)

[23] Initiated by nine theatres across Europe to investigate how to integrate immersive technologies could be applied in live performance and blend physical and digital storytelling. https://play-on.eu/

[24] National Endowment for the Arts (NEA): Provides grants for media arts, which may include immersive formats. (National Endowment for the ARTS, 2025). Villa Albertine, the French Institute for Culture and Education, is a division of the French Embassy in the United States that provides grants to U.S. cultural institutions and venues that exhibit XR and immersive experiences (Villa Albertine, 2025).

In the UK, nearly 2000 immersive experience attendees were surveyed by IEN, and found that 75% were under the age of 44. The survey shows a broader ethnic diversity of the participants than the traditional cultural activities. The attendances span across urban and regional areas, and attending immersive experiences is still considered an occasional activity. While a significant number of respondents in London attend such activities monthly. And the most influential factors in decision making are "quality of performance", "engaging storytelling", "something that can be done with friends", and "value for money" (Immersive Experience Network, 2024, pp.7-11).

In the US, 350 surveyed respondents from ten countries[25], who live in the US and attended immersive experiences. Their primary immersive experience attendance locations are: 78.9% attended in the USA, 14.9% in the UK, and 1.1% in Canada. The most popular cities are New York City and London. The Gensler Research Institute report describes that typical immersive experience participants are highly educated, mainly middle-aged Caucasian women, with a household income between $100,000 and $250,000. While the demographic was less ethnically diverse than the UK sample, the US audience demonstrated a high willingness to pay for an immersive experience. However, honest marketing, emotional resonance, and experience quality play important factors in their decision making (Gensler Research Institute, 2025, pp.65-69)

Due to data limitations, this section does not include Dutch or Norwegian-based audience participation data. However, one of the interviewees, van den Brink, is currently conducting ongoing audience research with the three immersive production companies in the Netherlands. Although the data cannot be shared by the time this study is completed, there are some early insights which has been learned, particularly from the ongoing production of *Sleepy Hollow*, which van den Brink has been researching for and will be further elaborated in the findings section.

In summary, these two industry reports indicate the need for more comparative audience research across multiple countries, cultural, and regional contexts. For stakeholders who have the ambition to scale the productions and aim to bring them to different cultural contexts, for instance, from Europe to Asia, it is crucial to understand the local cultural habits, audience expectations, and local policies.

4.2.3. Industry Context

Beyond structural funding and audience demographics, the way industry stakeholders label immersive work and how audiences understand these terms also shape the external environment in which creators operate. Due to data limitations, this section will focus on industry reports from the UK and the US.

In the evolving cultural and commercial landscape, the term *Immersive* has become widely used across disciplines, artistic and commercial sectors. However, as several scholars mentioned, this term is being widely used and often inconsistently (Machon, 2013, p.59).

[25] Ten countries are Australia, Canada, Germany, Israel, Italy, Switzerland, South Korea, The Netherlands, The United Kingdom, and the United States (Gensler Research Institute, 2025, p. 65)

Machon refers to Gordon Calleja's concern that applying the term “immersive” across different disciplines such as gaming, cinema, literature, and theatre without considering the contexts in which this term is being used will lead to conceptual confusion (Machon, 2013, p.59). She further critiques the uncritical use of “immersive” in “marketing discourse, arts criticism, and performance studies”, where such a term is employed lacking a clear or consistent definition (2013, p.59).

4.2.3.1. How Industry Practitioners Label Immersive Work (the UK & the US)

In the UK and the US immersive sectors, industry practitioners have adapted a variety of terms and categories to define and promote immersive experiences.

The UK sector

The Immersive Experience Network (IEN), a London based industry network, proposed a definition of genres of immersive experiences; they identified nine different immersive experiences: “Scare Attractions”, “Immersive and Interactive Theatre”, “Escape Rooms”, “Experiential Art”, “Location Based VR and AR”, “Immersive Audio”, “Theme Attractions”, “Live Action Role-Playing (LARP)”, and “Transmedia & Alternate Reality Games (ARG)” (Immersive Experience Network, 2024).

Immersive Rummers, one of the UK immersive experiences’ disseminating websites, features different immersive experiences information (upcoming and past) along with reviews. Currently, the website categorizes different immersive experiences as: Immersive shows, Dining/Cocktail Experience, VR Experiences, and Immersive Art Experiences (Immersive Rummers, 2025).

The US sector

This earlier industry report, “2020 Immersive Entertainment Industry Annual Report” by Everythingimmersive.com (2020), covered both practices in the US and London. They categorized immersive entertainment as Theme Park, Haunted Attractions, Escape rooms, Immersive Theatre, Themed Bars and Restaurants, Experiential Marketing, Virtual Reality-Home, Virtual Reality-Location Based, Augmented Reality and Mixed Reality, Experiential Museums, Transmedia, Alternative Reality Games, and Live-action role playing. (Immersive Entertainment Industry Report, 2020, p. 57)

4.2.3.2. What is the Audience’s understanding of “Immersive”?

The Immersive Experience Network (IEN), in their 2023 reports, echoed Machon’s (2013) warning that “immersive” has been widely used in marketing language. In their 2023 report (as cited in 2024), they have conducted interviews with immersive makers and asked for their understanding of immersive experience. A producer said to IEN 2022 (2023): “everything wants to list itself as immersive” (2023, p.5). It shows that the term *Immersive is* still remaining ambiguous and overused. The sector practitioners back in 2023 (as cited in 2024) mainly use “immersive”, “interactive”, and “experiential” to describe their works (Immersive Experience Network, 2024, p.5).

In IEN (2024) surveyed 2000 participants who attended various immersive experience "*What do you think when something is described as immersive?"*, the most frequently mentioned words are: interactive, experiential, game, storytelling, design, puzzles, multi-sensory, engaging, dynamic, and creative (Immersive Experience Network, 2024, p.6).

As IEN noted (2024), the audience emphasizing multisensory and participatory forms shows their understanding of this term immersive beyond its meaning; however, IEN is concerned, these data show the potential "risk of inertia when productions market themselves outside these definitions". (Immersive Experience Network, 2024, p.6)

Signaling to the audience is setting expectations and engaging with them in advance, which is a critical part of running immersive experience production. The concern that was raised by IEN shows a potential mismatch between audience expectation and actual experience (of production falling out of the audience's current general definitions in the UK) may potentially harm the production. And for regions that are recently starting to develop immersive practices, it is also worth considering surveying their audiences to understand how they perceive the term "immersive", which may help their communication strategies.

Conclusion:

This section discusses broader conditions (funding, audience demographics, industry labelling immersive productions, and how the audience understands the immersive term). These conditions do not directly determine which immersive formats and expressions are chosen; however, they influence creators' access to resources, expectations from audiences, and how to position themselves on the market within national and international creative ecosystems. These dynamics will be further explored in the following sections of this chapter.

4.3. Artistic Vision

Artistic vision in immersive and interactive performance involves decisions on worldbuilding, narrative structure, and the role of technology. This section explores how the interviewed creators build the five distinct formats of immersive worlds, supported by selected interview quotations to illustrate their diverse approach to immersive world-building. Their artistic visions are dynamically resonant and shaped by intended audience experience design, innovative storytelling, and/or technological implementations (when necessary). The analysis draws on Machon's (2017) description of immersion, Han, Melissen & Haggis-Burridge's (2023) and Pungpeng & Yodnane's (2023) frameworks of facilitators of immersion to support the understanding of these creative approaches. These theoretical perspectives are not applied to assess or measure artistic quality, but to illustrate how world-building and experience design function within each creator's practices.

4.3.1. Five Formats of Immersive World Building

These five formats do not serve as a taxonomy; they simply show different ways makers craft experience and leverage (or not) technologies. The study recognizes that immersion is a spectrum and emerges dynamically throughout the performance. (Brown and Cairns, 2004, as cited in Agrawal et al., 2019, p.9; Biggin, 2017, p.83). Audience may experience different levels and layers of immersion during the performance.

4.3.1.1. The Uncanny Thing Trilogy

The Uncanny Thing Trilogy is a series of on-site interactive and immersive operas created by Leo Doulton from Virtually Opera: *Come Bargain with Uncanny Things* (Come Bargain)*, Come Worship Our Uncanny King* (Come Worship)*,* and *Come Murder an Uncanny Thing* (Come Murder). These works can be experienced as three individual shows separately, or can be experienced as "a trilogy in a day". Doulton and fellow performers invite the audience into a "wyrd world" in which the community (audience members) makes decisions and interacts within the world. The decision made by the audience may directly influence the outcome of the three shows.

Doulton describes the production as "interactive immersive operas". The performers interact, adapt to the audience's choices, and improvise in a fairly free structure narrative arc. Participants can make "offerings", "invoking", and "Wyrd gazing". The performers improvise in characters and constantly guide and interact with the audience members.

"I would tend to say it (the trilogy) is interactive, immersive […] it is immersive, you come into the world, and it is interactive because you are part of the world."

(Interview with Doulton, 2025)

The Trilogy although does not use technologies, its immersive impact is achieved through narrative, social/empathic, spatial, and system immersion (Han, Melissen, and Haggis-Burridge, 2023), it absorbs the audience into the world through mentally, emotionally and physically interaction within the world (Machon,2013, p.61).

4.3.1.2. Sleepy Hollow

Sleepy Hollow- XR and Theatre is an ongoing project developed by Studio Immersief in collaboration with Studio Brandkracht and VRROOM. This piece is inspired by the American classic *Sleepy Hollow*. The production combines live theatre performance, immersive technologies (AR/VR), and multi-sensory stimulations (including haptic, smell, sight, etc.). It tells a mysterious and eerie story of Icha Kraan's disappearance by transporting the audience between physical and digital realms.

It combines physical scenography with both AR and VR scenes and digital characters. The production provides layered experiences in transmedia spaces (Breuleux et al., 2019) where guiding and shifting the audience between physical and digital realms. The immersive

digital components do not solely serve as visual effects but are also used to evoke emotions, enhanced by external stereo sound systems, and aim to enhance the overall immersive experience. At current stages, it is designed as a guided experience, where the audience moves through physical spaces with actors' subtle guidance through narrative, while also transporting to the virtual space with subtle cues. The experience creates an ambiguous sensation of telling apart physical and digital realms.

4.3.1.3. Orphée | l'Amour | Eurydice (OAE)

This immersive opera was created and directed by Robin Coops from Coops & Co.; it was adapted from the classical myth of Orpheus & Eurydice. It combines live theatre, VR technology, Audio systems (noise-cancelling headphones and spatial sound overlays), and multiple narratives. The hybrid design places computer-generated content delivered through the VR headset, while the audience is divided into groups in shared physical theatre spaces.

The hybrid environments of digital and physical environments are not limited to the spatial context but also serve as a multi-layered storytelling medium and provide layered experiences in transmedia spaces (Breuleux et al., 2019). Audience can select two (or three) narrative paths and experience different emotional perspectives of the characters through spatial and audio sound, movement, and immersive technologies-driven content. Coops creates shared experiences for different audience groups, also giving them space to explore and interact with the environments and create their individual experiences.

4.3.1.4. Briar and Rose in the Land of Fairytale

The collaboration behind *Briar and Rose in the Land of Fairytale* (Briar and Rose) involved Teatre Vårt, Nordland Teater, Teater Vestland, and Glitch Studios. A live stage theatre performance using augmented reality (AR) to enhance the overall experience to create "a magical realm" that supports narrative clarity, interaction, and emotional connections for the audience, especially the young audience.

This production takes place in a traditional theatre setting while having the audience wear AR headsets with given moments that enable them to experience a live performance enhanced by far-throw AR technology. Different from traditional AR, which only allows interaction at close range, far-throw AR allows the actors to interact with the virtual 3D animated character, such as the digital dragon Dragora[26]. And these digital characters are placed on the stage beside the actors (Glitch Studios, 2025).

4.3.1.5. A Christmas Carol VR

The production is a reimaging of Dickens' classic virtual reality storytelling theatre piece. This ongoing project began in 2021, was initiated and produced by the XR creative studio

[26] More information can be found here: https://www.glitchstudios.co/projects-archive/the-theatre-reimagined-introducing-ar-to-the-stage/

Agile Lens. It was originally produced in association with Actors Theatre of Louisville. The VR version is adapted and directed by David Gochfeld. The project has been continuously evolving over the years. Since 2023, the show has been delivered entirely live in a virtual theatre during the Christmas holidays[27]. Two actors perform live through their digital avatars, using facial tracking[28] and body tracking technologies [29](Raindance Immersive, 2025).

During the live virtual performances, the Agile Lens team manages the "backstage" in real time (The (Unofficial) Unreal Engine Podcast, 2024) to provide technical support for both performers and the audience. The audience can join the live virtual performance through VR headsets from any location where they can access the platform and the performance during the showtime.

Han, Melissen & Haggis-Burridge (2023, p.4) describe spatial immersion as "transportation into a different environment creating a sense of presence in the new environment"; this definition is broader than Agrawal et al.'s (2019) definition of "environment". This definition is central to understanding the fully virtual productions like *A Christmas Carol VR,* as audience and actors are in different geographic locations but co-*presence* and immersed in a virtual environment.

"The key affordance of virtual reality is the sense of space, of presence in this virtual space… Which is basically what theatre is about. It's about creating this virtual space in the physical space around the audience, and then telling them the story." (Interview with Gochfeld, 2025)

4.3.2. Storytelling Intentions

4.3.2.1. Interactive Storytelling in Non-immersive Technology Environment

In *The Uncanny Thing Trilogy*, according to Doulton, while the performances are in "fairly free form," three distinct frameworks guide the shows.

"The (trilogy) show is fairly freeform, and particularly for Come Murder and Come Worship. Those shows are fairly loose. […] all have a narrative structure to them: in Come Bargain is based on a dendritic, the kind of structure you'd find in the epic, the Mahabharata or the Ramayana, Indian epics. In Come Worship Our Uncanny King the structure is loosely based on a Church of England service. And in Come Murder an Uncanny Thing it is based on a Norse structure. All of which are ritualistic forms, very different traditions of ritualistic form." (Interview with Doulton, 2025)

Each part of the trilogy invites the audience to participate collectively and perform self-chosen tasks in a different ritual context. Each show presents a different relationship and

[27] In June 2025, users can select a showtime and experience it via Meta Quest 3 series headsets in North America, Asia, Europe, and Australia (Raindance Immersive, 2025).
[28] More information about what the "facial tracking" system is can be found here: https://www.youtube.com/watch?v=uEWQl8xw1ZA
[29] More information about what the "body tracking" technology is can be found here: https://www.youtube.com/watch?v=QjxS35QdWdQ

emotional tones between the community (the audience) and the supernatural "Uncanny Things," who are all performed by Doulton.

The element of three (or a triangle structure) appears throughout the trilogy from narrative design, spatial setting, to the visual staging of the ritual that binds the Uncanny Thing. For example, in "Come Bargain," the community is presented with requests for help from fictional residents of Southwark who are having supernatural problems. Audience members choose one of the three requests to assist, and there are three rounds. To make this decision, audience members hum[30], and the request with the loudest humming response will be selected to assist. To carry out the chosen tasks, audience members voluntarily divide into three groups: one creates offerings to the "uncanny thing", one crafts and performs ritual invocations, and one solves riddles to mix potions that change the temporary form of the Uncanny Thing (Immersive Rummer, 2025)[31]. These collaborative actions influence the Uncanny Thing's responses, who may grant favours if persuaded well.

The narrative structures of "Come Worship" and "Come Murder" are looser. In "Come Worship", audience members act as loyal subjects in a royal court to praise and entertain the Uncanny King through self-crafted creative offerings and improvised performances with given guidance in the tasks. The tone is comedic. And in "Come Murder", the tone shifts to moral deliberation. The audience holds significant power over the captured Uncanny Thing. They need to debate, evaluate, and vote to determine how to use the Uncanny Thing's power within the fictional world and decide its fate.

Doulton refers to the show's structure as adaptive narrative (or adaptive storytelling). In contrast to pre-programmed interactive media, the audience/user's choices, which are pre-scripted, will influence the pre-written outcomes (Douglas and Gratch, 2001, p.104). While in Doulton's world, it is entirely human-driven. The audience actively takes part and influences the outcome of the shows, where the performers improvise their dialogues and responses through an operatic singing style throughout the shows. They use *leitmotifs* to signal the mood shifts and the narrative changes (e.g., supernatural, wyrd, or rational) (Interview with Doulton, 2025). While the narrative is flexible, it is not limitless. This structure allows greater flexibility due to the nature of human adaptation; however, the audience's agency must still align with the world's logic.

4.3.2.2. Storytelling with Integrating Immersive Technology in On-site Performances

4.3.2.2.1. Realizing Fantasy and Mystery Through Immersive Technologies

Sleepy Hollow and *Briar and Rose in the Land of Fairytale* both use XR within real-world storytelling to enhance the dramatic effect and emotional impact on the audience, while also serving as a dramaturgical storytelling medium. The use of XR technology was to create a

[30] During the onboarding, the two characters Guidlmaster McCall and the Wyrd Gazer explain to the audience the decision mechanism through singing.
[31] I did not attend this task of solving riddles and mixing potions.

cohesive experience, where every XR moment was grounded in the world-building logic (Breuleux et al., 2019, p. 5) with clear narrative logic.

The producer of *Sleepy Hollow***,** Danny van Zuijlen, developed the concept from a desire to present genres often difficult to stage in traditional theatre, such as horror; however, with immersive technologies, it shows great potential.

"Horror appeals to young audiences but is hard to stage. […] My colleagues in New York told me that if you want to make a big production, stay by yourself, take something from your culture. […] So, I chose Sleepy Hollow, an American story, but it connects to the Dutch culture and history." (Interview with van Zuijlen).

Van Zuijlen states that immersive XR technologies allowed them to build moments that were used to be not possible to directly construct on the traditional stage, such as scenes of time travel and frightening moments were intentionally designed to use XR as a medium. Instead of using traditional script, they use a flexible scene-by-scene structure that determines the continuing unfolding of the story in physical and virtual environments.

"You make a play sheet from a scene-by-scene play sheet rather than a traditional script, deciding which scenes are live and which are digital [...]." (Interview with van Zuijlen, 2025).

The live theatre performances serve an informative and interactive purpose to anchor and build emotional connections with the audience. VR is used to heighten the moments of horror or time travel. While the AR, as the director Brand describes it, serves to blur the line between reality and fiction.

"The VR headsets serve as a device for imagining… and the augmented reality part is where these two realities blend". - (Interview with Brand, 2025).

Brand and van Zuijlen deliberately design moments of audience movements and decision making while aiming to maintain narrative coherence. At the same time, there are spaces for the performers to improvise and interact with the audience.

"We call our master document the script 'Bible'. It contains whole world-building, language, style story beats. By following the script, actors move from A to B to C, and some lines are very difficult with information; they can also improvise to keep scenes. Everything is timed: each scene lasts about twelve minutes; a clock in the corner tells them when to move on and how much they can improvise." (Interview with van Zuijlen)

Although the play sheet is different from a traditional script, a storyline and direction are set. As stated by the interdisciplinary director, Brand:

"And we do need to set a very clear tone of voice, a very clear basic narrative, […] What is the audience going to experience? What is the storyline that they're going to follow?" (Interview with Brand, 2025)

In ***Briar and Rose in the Land of Fairytale****,* the actors perform on traditional theatre stages, on which they interact with AR characters in real time and interact with the audience within the narrative. BRLF shared the early stage of choosing narratives, after considering technical, practical constraints, and the coherence of storytelling. Eventually, after testing with two fairytale, they chose *Sleeping Beauty* and adapted it into Briar and Rose.

"They can't have them (headsets) on for two hours, because you will get a headache, you will get nauseous. It will be too heavy. You can't do that. You need to find a story where you can take them on and off, and that is logical."

(Interview with BBLF representative, 2025)

The BRLF team designed transitions logically:

"Every time we travel through time and space, we put the glasses on. Then we move into a different part of the Land of Fairytales, where the AR section takes place. When we return to the castle, we take the glasses off." (Interview BRLF, 2025)

The practical considerations, such as the rhythm and limitations of the AR/VR medium, also influence the storytelling. This design consideration of giving dramaturgical purpose to use the headset allows the audience to remain immersed in the narrative while also avoiding the physical discomfort from wearing AR headsets for extended periods. As the interview with BRLF emphasises that the AR technology should serve the story.

4.3.2.2.2 Multi-narrative Storytelling

Orphée | *l'Amour* | *Eurydice* (OAE) also synchronizes the live on-site performances with the virtual environment. This section focuses on how the Coops leverages immersive technologies to tell a multi-narrative story.

The story is told through three perspectives from the characters: Orphée, Eurydice, and l'Amour. Orphée is performed by an opera singer who also plays electric guitar in the performance, a dancer performs Eurydice, and l'Amour is performed by an actor. As mentioned, the audience can choose to enter either experience, while Orphée and Eurydice also include different parts of the l'Amour experience. The settings of immersive technologies combine with on-site live performances are: Orphée experience (live theatre + VR) and L'Amour (VR), while Eurydice experience (live theatre + headphones) and L'Amour (VR) (Dutch National Opera, 2022)[32].

The production creates different layers of storytelling, such as showing emotional distance between main characters, which matches the core scene: "Orpheus and Eurydice are not separated by death, but by a fate that strikes many present-day relationships: the lovers have lost each other along the way. They don't communicate directly anymore, only via text messages with L'Amour, the personification of love, who in turn is at a loss how to properly fulfil his role as a mediator" (Dutch National Opera, 2022). And giving the audience a sense

[32] More information can be found here: https://www.operaballet.nl/en/dutch-national-opera/2021-2022/orphee-lamour-eurydice

of seeing the world through these characters' eyes. As Coops states, the dancer who performs Eurydice cannot express by words, only through her physical body. Her audience can hear her side of the story through the headphones and listen to her letters to Orphée. While Orphée's audience could not see Eurydice's audience, which mirrors that Orphée cannot see Eurydice in the story. The story is deliberately designed to create fragmentations through hybrid spatial environments, reinforcing emotional distance while also serving as a multi-layered storytelling medium.

4.3.2.3. Storytelling in a virtual theatre

The production *A Christmas Carol VR* was not just reimaged as a retelling narrative, but an emotional journey was delivered entirely in a virtual theatre. In order to keep the coherence of storytelling, the team deliberately chose to give the audience limited agency to interact with the performers and the world without influencing the storyline.

*"It's about sitting back and letting me tell you a story, this sort of way, and that is essentially how it's framed."***[33] (Interview with Gochfeld, 2025)

The audience's avatars are represented simply by a "little sphere… like Christmas balls" (Interview with Gochfeld, 2025), and interaction is limited to movement or typing brief responses when invited. They share the same immersive virtual space as the actors experience it in real time. Gochfeld further states that even with designed minimal agency and interactivity, it must support the actor-audience connections:

*"We do give them that kind of sense of interactivity, of being present with the actor, because otherwise, why are we doing live theater? You have to feel the presence of the actor that you're there with a real person."*** (Interview Gochfeld, 2025).

Additional interactions among the audience and actors to enhance the sense of presence will be further discussed in the audience agency section.

4.3.3 Emotional Tone and Meaning

For these immersive creators design experience is not only to engage the senses and aesthetic features but to provoke emotional response and reflections. In these worlds they create, some of them would like the audience to bring something carried in their thoughts and heart back home, some would like to bring delight and joy to the audience to soften the stress from the world, some hope to deliver a message to shift even one person's view of seeing the pre-existing ideas, some would like the audience to rethink about responsibilities, power and communities, and some would like to create an age appropriate, engaging and emotionally calibrated experience for younger generation.

[33] In this study, the quotes marked with ** are edited; for original quotes, please refer to the interview raw transcripts.

“Something to take home not as an object, but something to chew on in their minds: feeling differently, such as feeling lighter or happier, or even having their worldview changed”
(Interview with Brand, 2025)

“I want them to feel wonder and delight. I think one of the things that I like about VR is that it is magical [...] and theatre too, is how they can transport you into another world. When you come out and see the world differently, that’s magical. I want to transform people by making them smile or laugh or feel a warm sense of joy. And of course, I also want them to be entertained and enjoy the experience.”

(Interview with Gochfeld, 2025)

“Where you had the opera, which is always my opinion, it polls from the perspective of “Orphée”. So, I thought it would be interesting to hear her (Eurydice) perspective as well and hear her voice. I think, at least for me, it's a challenge in a good way to invite those audiences for different perspectives and use that material, the existing material, to shake it up.”

(Interview with Coops, 2025)

"All three of these shows work because they're asking very basic questions that we all think about. They're giving a slightly fictional environment to do so. So you don't have to deal with […]all of these shows explicitly ask you about “power”. But the answer they're offering is much more to do with relating to and collaboration, […] I don't necessarily care if they walk away thinking: I am thinking the profound thought. I care much more about: they have acted in a way that has engaged with that.”

(Interview with Doulton, 2025)

*“We are aware that we are the experts of making a piece of theatre […] but we are not the experts of being a certain age group. […] we always use reference groups for the appropriate age groups […] that we can frame the work in order for them to understand it.” ***
(Interview with BRLF, 2025)

These statements illustrate the creators while their strategies to approach immersive storytelling are different, they all share the aim of using immersive storytelling as a medium to produce emotional and cognitive resonance.

4.4. Audience Experience

Audience experience is part of the design within the immersive and interactive experience. As many interviews noted, experience does not start from the moment when the lights dim out, but starts from the first contact and emotional engagement across physical and digital spaces. This section explores how creators structure the experience of their audiences, supported by selected quotations. It also integrates supporting insights from a user experience specialist, UEE, who has extensive experience in User Experience design and focuses on interactive storytelling and XR technologies.

4.4.1. Onboarding and Transitioning

Doulton emphasized that the audience's journey of *The Uncanny Things Trilogy* starts from the first point of interaction, when someone hears/reads about the performance. Pre-show communication, such as emails inviting costuming and offering contextual details, helps to build anticipation.

"The emotional journey […] starts when someone hears about the show and typically that is: 'wow, that's Wyrd,' either in a good way that I'm excited by because I like fantasy and nerdy stuff, or in a slightly more complex way. […] You will have received an email going: Hey, here's some upfront information which includes things like some people like dressing up for the shows, which is tremendous. And creating those avenues for people to do that is, I think, important." (Interview with Doulton, 2025)

During the observation of the trilogy in a day, three different characters come to meet the audience before each show. For instance, before *Come Bargain,* a "local council representative" comes to meet and greet the audience. Once entered the world, all characters except the "uncanny thing" greet the audience and explain how this world works and how the audience interacts with this world. The onboarding starts before the show, and through the characters' interaction, gradually draws the audience into the world.

Interviewee UEE, the user experience expert, emphasized the importance of onboarding the audience into an experience, including practical considerations such as how to put on headsets, narrative considerations, and compared it to before "the curtain opens" in traditional theatre to ease the audience into another world.

"It's setting expectations. It's transitioning them into the experience [...] kind of like leaving that real world and going into this magical world […] from a story standpoint and a technical standpoint." (Interview with UEE, 2025).

In *Sleepy Hollow,* onboarding is both practical and integrated into character interaction. During the field observation, the researcher participated in two scenes in Rotterdam. The team member met the audience at the waiting area, and introduced the aim of the experience as playtests, explained the brief history of creating this production, a 'previously in Sleepy Hollow' type of background story explanation, and lastly before entering the space explained how to put on the headsets and tight them up. Then the actor in character already invited the audience to enter the space and showed the seats to audience and moved through the spaces.

As the audience engagement specialist shared what she observed in the scenes in Rotterdam, *"I saw that with this very strong opening, it immediately drew them in, and they were taken with the actress. The same was in the interactive scene, you felt you really were part of the experience, but also a bit on edge because the setting was mysterious and airy."* (Interview with van den Brink).

Coops also emphasises that onboarding is part of the dramaturgical structure and practical considerations, while offboarding should mirror these carefully as well. Though it was less discussed in the production, it was considered equally important.

Together, these examples demonstrate that onboarding and transition moments in immersive storytelling are not simply logistical; they are emotionally and narratively structured. These moments align with the initial two stages of the arc of engagement: build-up and intense preparation. (Brown et al., 2012, p.7).

A Christmas Carol VR onboarding is told through a preshow virtual environment by AI Charles Dickens, trained in actor Ari's past performances, to act as a virtual guide. (A Christmas Carol VR, 2025).

"We tried to teach him enough about how everything works, so if you were to ask him, 'How do I change from a teleport mode to a fly mode?' he should be able to answer the question for you" (Interview with ACC, 2025)

Transitioning also includes transitions between physical and digital environments, which is essential to provide a richer sense of immersion (Sylvia Kim, Punnen Mathew, and Pino, 2024) and provide experience coherence. While the AR/VR technologies have also been given a "role" in the narratives and made it part of the fictional world, with actors' subtle cues to guide the audience, the reason to put on the headsets is to maintain the coherence of the storytelling and emotional connection.

For instance, in the Briar and Rose, the headsets have been referred to as a glass to see "advanced magic":

"*It (AR) needs to be incorporated in the story... we are never using a tool just for the tool's sake.*" ** (Interviewee BRLF, 2025).

In *Sleepy Hollow*, the headsets are disguised (see Picture 1), and when the necessary moment came, actors would subtly hint to put on the headset:

"If you want to experience what I see…in this world, put on your dream watchers.' That worked because it decorated the set and felt natural" (Interview with van den Brink, 2025).

This creates an organic and natural way to integrate the digital tools used by the audience into the narrative.

Picture 1. Picture provided by Studio Immersief, Copyright 2025 by Studio Immersief

4.4.2. Emotional Pacing and Narrative Flow

In the trilogy, Doulton structures each of the three shows to evoke different emotional tones: a ritual (Come Bargain), a comedy (Come Worship), and a tragedy (Come Murder). The goal of this experience is to create a transition from surface-level participation to more layered reflection. Doulton described this emotional journey:

"We come here; we slowly sink into this level of ritual. We understand we are here to help." And across the three shows, we get the sense of "we are increasingly secure in the ritual we're doing. We continue to reflect on how we think we should relate to this world". And by the end, hopefully we have across three different cycles and had essentially 3 different mini stories. All on the same theme of "how should we relate to the world?"

(Interview with Doulton, 2025)

Each show builds on previous shows, and on the trilogy in a day, the performers connect the decisions, discussions, and interactions from the audience into the following shows, creating a coherent narrative arc across the trilogy.

In *Sleepy Hollow* transitions between physical and digital environments are used to create disorientation and mystery.

During the field observation, the researcher and fellow audience members[34] were invited into the world by the actor in a manner of mysterious. In one scene integrated with AR, the overlaid digital visuals on the physical objects created a sense of ambiguity and disorientation, as the researcher wondered whether they were a real material existence in the physical world or full digital effects. However, the researcher's limited understanding of the Dutch language prevented full comprehension of the narratives of the two scenes. While still immersed in the mysterious atmosphere, especially in the first scene. From the moment the actor lit up the incense and hinted to the audience to put on the "dream watcher", the colourful auras surrounding the objects in the physical world. As incense smoke travelled through the boundary of the physical and digital spaces, a voice unfolded an old story. Although the jumping scare was anticipated, when it happened, the researcher was still startled. After the playtest, during the post-playtest interview with van den Brink, the researcher got a chance to speak with fellow audience members, and they confirmed that the intentionally designed jump scare also affected them.

Orphée | l'Amour | Eurydice (OAE), as mentioned, the audience is separated while also connecting them through narratives' meeting point and character l'Amour, two audience groups may meet in the same physical space but are separated metaphorically.

"Eurydice's audience saw the other (Orphée's) *audience. But the Orphee's audience never saw Eurydice's audience.*

In this performance, the audience who experiences Orphée's perspective by wearing the VR headset becomes part of the performing elements in the physical world. For instance, at certain moments when Orphée's audience and Eurydice's audience are in the same physical space, the former, wearing VR headsets, follow the actions shown through the VR and engage in the physical actions simultaneously. *"They (Orphée's audience) became shadow play for this Eurydice audience."* The Orphée's audience makes collective movements without realizing it, and the collective moments become part of the choreography of the performance. (Interview with Robin Coops, 2025). Audience became "audience-performer-participant-player". (Machon, 2013, p.62)

In *Briar and Rose in the Land of Fairytale,* the production is designed with a deep sensitivity to how young audiences experience immersive storytelling. According to BRLF, the creative team also brought the audience (especially young children) to the early stage of development, helping to set reference points and a design thinking approach to ensure the experience would be emotionally and cognitively appropriate.

To ensure the material was appropriate and comprehensible for children, they also brought in a child dramaturg to review the scripts and give real-time feedback. This child dramaturg and reference groups also gave feedback on the costumes, which influenced how

[34] The playtests in Rotterdam had different time slots, allowing the audience to choose. In the slot I chose, we were six adults who experienced these two scenes.

the team visually represented certain characters. These insights helped the team adapt, such as the languages, character presentation, and narrative logic, to better align with children's expectations and emotional understanding.

"He (child dramaturg) *would be 'what does this word mean? Why are you making this so complicated? Oh, this. I don't understand. This, I don't think other children would understand. […]* (for the costume) He just said: ' She *looks like a princess with the first costumes, and (with that costume) that doesn't look like a prince'"*

(Interview with BBLF, 2025).

During the process, the emotional impact on the young audience has been considered not only through dramaturgical, authenticity, and meeting their expectation of what a magical realm and characters are like. And these interactive components were play tested and adjusted with children and youth participants to ensure the pacing and emotional effect were suitable for the target audience. Such as to ensure "how scary is the first creature that they meet?" while considering the appropriate level of scariness for the target audience, also set an emotional preparation for the ultimate character, the Dragon Dragora, in the coming scene (Interview BRLF, 2025). During early development, the creative team regularly invited different age groups as reference groups into rehearsals, which allowed both artists and performers to better understand who their audience is and respond to their reactions.

A Christmas Carol VR uses performance rhythm to guide emotional flow. The production transitioned from recorded segments to a fully live performance, allowing the actor Ari to shift between characters in real time. Emotional flow is carried by the story and the live actor's performance to feel the performance is live, with designed minimal but meaningful interaction to increase their sense of presence.

The performance is narrated by the actor Ari, who plays all characters live, helping soften emotionally intense scenes:

"There's something very interesting about Ari being able to tell this story, first and foremost, as the narrator. But then, like someone again, putting on a puppet show, he's able to jump between these characters and do some fun things with being like Scrooge." This is intentionally chosen to shift between character voices and avatars to make it *"a little less scary,"* especially for children. (Interview with ACC, 2025)

The emotional intensity and coherence are supported by voice acting and facial capture. The XR development team reduced the complex technical burden on performers by enabling both first and third-person views, while taking care of the backstage, allowing the actors to focus on performance. The mode switching function allows the actors to observe their avatar's expressions to reach the desired level and enhance the audience's overall experience. The technological development also progressed from earlier models with pre-recorded character segments to the current version, where actors switch roles live and address the audience directly to enhance the sense of presence.

"He found that as a performer, it is tremendously helpful to be able to go between those modes and pick his viewpoint; he can decide, such as: what does this look like in silhouette because of the way the lighting is? What does it look like from the front? How does the face appear? He could even check if I go, 'ah', how wide does my mouth open?" If it opened too much, he could adjust accordingly." (Interview with ACC, 2025)

4.4.3. Interactivity and Audience Agency

This section discusses both interactivity and audience agency across these five productions. Creators offer a spectrum of meaningful interactivity and agency to the audience to enhance their sense of presence and engagement. This section is not aiming to measure the agency and interactivity in the production; instead, it illustrates a diverse approach to audience engagement and emotional connections from the audience agency and interactivity perspectives.

4.4.3.1. Interactivity and Audience Agency in the Uncanny Things Trilogy

In *The Uncanny Things Trilogy*, Doulton positions agency as central to the performance design. Across three shows, audience members do not passively observe but actively participate and interact with the performers, make decisions, and influence outcomes. The performers adapt, guide, and improvise in response to the audience's actions, questions, and choices. This aligns with Biggin's (2017) explicit interactivity, that audience members interact "in the obvious sense of the word: over participation" includes "choices, random events, dynamic simulation" (p. 89).

Doulton states:

"if you are sitting there and going, I am making an interactive [...] and I want to stop the (unexpected actions from the audience) *to protect my artistic vision [...] then you probably aren't thinking about making a piece of interactive theatre."*
(Interview with Doulton, 2025)

Instead of limiting actions to preserve a predefined outcome, Doulton embraces uncertainty and risks, supported by skilled improvisation and adaptation abilities carried out by the whole cast. He strategically provides the audience with the steering wheel of story progression. This further blurs the line between audience and performers; the experience is co-created by both parties. Doulton and fellow cast members give the audience great freedom to make meaningful actions within the responsive world, which aligns with Murray's (1997, p.126) concept of agency in narrative.

However, there a certain degree of boundaries that exist, such as ethical considerations. While the audience is given great power, the basic understanding, such as to respect the casts and the logic of the "world," is expected:

"So in general, our boundary is: you can't, as an audience member, make stuff up about the world. If an audience member came in and said: I am an uncanny thing, we would say 'No,

you're not. You're a human.' [...] So if someone says to me: 'uncanny thing set this room on fire'. [...] within the fiction of the show, the 'uncanny things' aren't allowed to affect their immediate environment. Practically, of course, that's because I can't do magic." (Interview with Doulton, 2025).

4.4.3.2. Interactivity and Audience Agency in Transmedia Space Storytelling (Digital & Physical)

In *Orphée | l'Amour | Eurydice,* Coops provides narrative choices to the audience before the artistic delivery. As mentioned, audience members are invited to choose which character's perspective to follow, and they can also directly choose L'Amour's storyline before or after the Eurydice experience (Dutch National Opera, 2022).

Coops draws upon the concept of jazz improvisation to explain that agency is also supported by overall structural design:

"Talking about agency […] Partly direct as well as lose control because the audience will take their decisions, and you cannot structure everything. And at the same time, when you're looking at good jazz improvisation, for example, you need to have structures to improvise within. So even the rules that you're making for your performers, which I'm also creating, space for them to improvise. The same for my audience, you're making kind of a game [...] And then within those rules they are free to move around." (Interview with Coops, 2025)

Audiences' choices and interactivity are framed intentionally. While selecting a narrative perspective, the audience is not granted full narrative control; at the same time, the narrative choices they make also craft their own experience and interpretation. Interactivity and agency are not unbounded but are carefully structured to allow the audience to learn about each character's aspects of the full story. Through fragmented storytelling across transmedia spaces, Coops designs the three characters' narrative threads to offer partial and complementary viewpoints. This encourages the audience to re-enter the piece from different perspectives and gradually assemble the full story.

In *Sleepy Hollow,* although it is still in development, Thomas Brand mentioned the team is actively discussing how much agency and interactivity to offer the audience, and how to structure the experience to encourage natural interaction among audience members. Brand states that he would like to invite the audience to be *"the protagonists of the story without telling them that they are"*. (Interview with Brand, 2025).

In a recent playtest where the researcher participated, the performers spoke to the audience in character during the experience. However, the audience members were not sure if they should respond, which was discussed during the post-playtest interview. This will be discussed further in section 4.4.5. audience behaviours.

In *Briar and Rose in the Land of Fairytale* deliberately chose to give the audience limited agency to ensure the coherent storytelling. The maker provide audience sensory autonomy, while their actions do not impact the narrative direction.

In “Briar and Rose”, the audience interacts with AR elements like fireballs or small missions to do within the storyline. The audience can join in and feel involved, as the representative of *Briar and Rose* states:

“The audience is allowed to interact and allowed to do stuff, […] but it’s not improvisation in the term of it being the audience changing the narrative. [...] they will come to a point where they help us free the dragon and the fairy godmother will come back, and we (characters) will thank the audience for their participation”.

(Interview with BRLF, 2025)

Audience’s interactivity and agency are intentionally constructed. The deliberative choice to immerse the audience in the fantasy world without losing the coherence of storytelling is also suitable for the target audience groups. Meanwhile, performers break the fourth wall to interact with the audience, and the tasks assigned to them to interact with the digital elements in the AR overlay foster a sense of involvement and control, which enhances the sense of presence and emotional connections.

4.4.3.3. Interactivity and Audience Agency in Virtual Environment Storytelling

In *A Christmas Carol VR*, audience interaction is deliberately designed to be limited and maintain a sense of presence. As mentioned, audience avatars are designed as visible spheres and are muted, while giving them a sense of presence that does not block the view of others or interrupt the audience’s overall experience of enjoying the performance. The actors may respond directly to the typed input by the audience at certain moments. ACC interview’s statements complement the technological development part of contributing to giving more audience agency and enhancing the presence addition to live actors’ performances, and directly addressing audience members without affecting the storytelling intention.

In the pre-show environment, the team is also experimenting with giving more functional interaction within the world with interface elements such as movement settings and control menus so that users with different levels of VR literacy could navigate in the environment at their own pace:

“We also tried to find a balance of like just buttons that do different things, like changing you from snap, turning to smooth turning or fly mode to walk mode, but also having a more robust menu where these things are spelled out in much clearer ways, and you could experiment with that.” (Interview with ACC, 2025)

One notable feature, which is called “world control,” allows users to interact with the world, such as changing the scale of the world and moving objects around:

"You can move around the world, rotate the world, and treat it kind of however you want. [...] One of my favourite passive ways to engage with the show is to scale the entire world down to the size of a dollhouse. [...] Then I zoom up and I make the world huge, and now Ari's face is 10 feet tall."

(Interview with ACC, 2025)

In digital immersive environments, particularly VR, the spectrum of agency also depends on how navigational freedom and narrative cues are designed. UEE explained that designers must anticipate different behavioural insights that strongly mirror concerns raised in immersive performance. For instance, designing open or non-linear immersive environments, enabling free exploration while ensuring a coherent experience:

*"You must build in ways that try to lead them in the right direction, whether that's visual cues, audio cues, or breadcrumbs of some sort. […] as a designer, that is one of your challenges, you have to anticipate these situations and decide how to respond. Maybe nothing happens, and they're out of luck. Or it could be like something appears, if they're on a branch and they're in a dead end, and you want them to go a certain way, you could trigger something to appear after X number of seconds. So you have to acknowledge that this is a possibility and design for it accordingly."***

(Interview with UEE, 2025)

4.4.4. Consideration for Diverse Audience

Immersive creators in this study actively design with the recognition that audiences are diverse, not limited to, for example, age, background, familiarity with interactive formats, and VR literacy. They actively adapt to the audience's feedback during the early stage of development and rehearsal to adjust their experience accordingly.

As mentioned, the creative team of Briar and Rose involved reference groups and a child dramaturg from the early stages of the development, to ensure coherence and an emotionally authentic experience. The representative recognized that the dynamics of children alone and with parents present are very different all need to be counted in the design process. And a family theatre show aims to create shared, meaningful, and joyful moments for children and parents, rather than making the child feel isolated and parents are disengaged. (Interview with BBLF, 2025).

Audience VR literacy has been taken into consideration while the team designs the level of interactivity within the environment in *A Christmas Carol VR*.

In *A Christmas Carol VR*, ACC talked about designing the experience to consider not only technically fluent users but also those who prefer more traditional observational modes of engagement and interaction. Instead of pushing all users to interact actively, the design team recognized passive engagement as a valid and intentional mode of experience as well.

"When it came to VR literacy, we found that Robert Barry Fleming, the director of the original piece, that when he would put on the VR headset, his instinct was not to fly around everywhere and run around the scene and press every button he just wanted to put on the headset and watch the show like there were certain places he wanted to be. And we realized, of course, he's thinking of this just like a real theater to pick a seat in the third row center of the theater, and just sit and watch the show. And so we realized, it's not that we need to teach Robert to press more buttons and do more stuff in VR. It's that we need to make sure that's a valid way to watch the show. There should be a version of this that requires no VR literacy at all, and you can just put on the headset, and the moment you spawn into the world, you're at a place where you could stay in that place for the entire show and see the whole thing."
(Interview with ACC, 2025)

The audience engagement specialist and researcher van den Brink shared findings regarding the backgrounds of *Sleepy Hollow* attendees. They came from diverse backgrounds beyond traditional theatre goers, and for the Dutch audience, the *Sleepy Hollow* experience was novel.

"They either came from escape-room backgrounds or more entertainment park-type experiences, or theatre, and it was neither of those. For all of them, it was very new."

(Interview with van den Brink, 2025)

4.4.5. Audience Behaviour

As van den Brink mentioned, immersive productions have been widely done in the UK, especially in London, while in the Netherlands, it is still quite new. She shared her observations and research findings of audience behaviours throughout the two series playtests from the *Sleepy Hollow* production:

"Everyone was a bit anxious about what would be happening. […] because it's a very new experience for people, and they are a big part of the experience, but it's not like an escape room. It is not your experience, but it's a guided experience, but the amount of their own input and guidance is something people feel nervous about […] You saw a culmination of 'I don't know what it's going to be, I'm excited, but also a bit anxious about it,'. I think it is also a scale; some people have more experience and dove all in, while others were shy about it and anxious about the experience."

(Interview with van den Brink, 2025)

Gezgin & Imamoğlu (2021) assess the audience behaviour in an environment-behaviours studies aspect, noticing that especially in experiences such as site-specific immersive theatre, audience behaviours can be shaped and influenced during the performance. They argue that the audience knows how to behave in a traditional theatre setting, with sufficient experience. However, new forms of performance are being introduced to the audience with spatial design and information that does not match the 'theatre schema'

where the audience is used to experiencing, therefore, the audience needs to learn to adapt to this new "schema" (pp.1, 14).

Van den Brink also shared that audience behaviours changed with the same scenes between playtests after the team adjusted the guidance carried by the actors, and within different spaces and settings: *"In the first play test, it was in a really big warehouse where they were standing in a corner and saw things happening, but didn't know"* while in Rotterdam playtests, van den Brink noticed that actors' guidance from the onboarding, transitional moments, and interactions help the audience be in the experience, and they are guided by the actors to move through spaces and more at ease while stay in character: *"She was very interactive and helpful to people who didn't understand or felt nervous about what to do."* (Interview with van Zuijlen, 2025)

Audience behaviour is not only shaped by the spatial setting, physical environment, and willingness to explore (Biggin, 2017, p.109) but may also be shaped by the format's familiarity, cultural background, and past experiences. This aligns with Biggin's (2017, pp. 29-30) statement that this "aesthetic experience" can be developed and acquired as a "skill". The frequent participants become "experts" in the immersive experience.

During the observation of *Sleepy Hollow* in Rotterdam, there were certain moments when the performers directly addressed the audience. Audience members made eye contact and kept smiling, but did not respond. Later during the post-playtest interview, the audience shared their moment of hesitation whether they should talk with the performer or not. This demonstrates that the audience who are not familiar with these forms of performance are also learning not only how to physically navigate within the space but also how to interact within the world cognitively (Machon, 2013, p.61).

While observing a trilogy in a day in London, the researcher initially felt overwhelmed during the first show, "Come Bargain", due to unfamiliarity with the local folklore, role-playing game mechanics[35], fae mythology, and the concept of challenging. However, through performers' guidance, information from pre-show interviews with Doulton, and discussions with fellow audience members, the researcher gained experience, navigation, and interaction within the world became easier over time[36]. By the second show, "Come Worship", the researcher felt more at ease. Especially with the outstanding improvisations and performances carried out by the casts and the audience members, in addition to the audience members' energy and dynamics, who are aiming to do good in this world, created a good experience.

It was noticeable that some audience members who had attended previous performances of the trilogy[37]or who were more familiar with these formats were significantly

[35] The uncanny things trilogy is partially inspired by role-playing games such as Dungeons and Dragons (interview with Doulton, 2025); although I have heard about it, but did not experience it before.

[36] Although I volunteered to bargain with the "Uncanny thing" once, due to struggling to identify the information through the chanting and unfamiliarity with the cultural references, I missed a certain part of the key information that was supposed to be sent to the other task group to carry on the experience. The performer quickly fixed the problem by guiding another group member to bargain with the "Uncanny Thing" again.

more vocal, active, and engaging with the performers and the world. Some audience members were challenging and questioning the characters to test how far they could push to see the boundaries of the narrative. Their familiarity with the form and the world allows them to engage with the whole experience better.

Additionally, Gochfeld shared his reflections from his earlier VR-based projects, where audience members were given more freedom to navigate and manipulate within the virtual environment. For example, in *Mrs. Nemo*, a live VR performance, the audience could speak and were highly vocally expressed their enjoyment rather than being disruptive. This deliberately designed vocal interactivity enhances the overall experience. Audience can interact with the actor by talking to their avatar and manipulating some items in the environment (Lock & Stewart-David, 2022). This may also positively affect performers when the audience responds to their dialogue.

Gochfeld explains the potential behavioral challenges that may arise when immersive VR productions reach broader audiences. He states:

"I think it's always a risk, and you have to plan for it. We have been pretty fortunate in that in most of our productions, we haven't had that issue. I think part of it is because it is such a small community. And online anonymity is a problem, and you have to account for it. The shows we do in the VR shop are much more interactive. Audience can do things, and you just have to like handling hecklers at a comedy show, respond to what they're doing, and manage it. As long as you're not opening the show up to just anyone on VR shop, you know somebody has to buy a ticket and be invited into your world, then generally, you're gonna end up with people who want to be there and want the show to go on." **

(Interview with Gochfeld, 2025).

4.5. Interdisciplinary Teamwork

Immersive productions bring together multiple creative disciplines contributors, including performers, directors, technologists, XR designers, etc. These collaborations require shared understanding, continual adaptation, and communication across different knowledge systems and work practices.

All five productions in this study demonstrate a shared ethos of collaborative creation across disciplines. Despite their varied formats and team structures, the creators described similar values: mutual trust, open communication, iterative problem-solving, and continuous learning across disciplines or cross-professional boundaries.

While the focuses are different depending on the speaker's role (e.g., director, performer, creator, XR designer, and producer), the patterns of collaboration were consistent.

Briar and Rose in the Land of Fairytale

[37] During the breaks between the shows, I talked with different audience groups and confirmed with them my observations that some of them had already participated in this show before.

As the representative, BRLF highlights the essential negotiation between artistic vision and XR storytelling in theatre. The team brought together programmers, designers, and artists. Some of them came from fields outside of theatre. While they are highly skilled, many were new to the theatrical environment. On the other hand, some of the theatre artists were new to the technological complexities of XR. This gap naturally created early challenges in communication and alignment of expectations.

For instance, for part of the team to understand the artistic aim to achieve within the theatre space, which is different from film, games, was challenging to negotiate. And from the artistic side, the communication needs to be precise. However, through constant communication, the team from both artistic and XR designing and development sides learned from each other and pushed through challenges, and created an award-winning experience.

BRLF illustrates one of the key examples of transition between worlds when putting on headsets. The artistic team wanted to achieve a gradual blend of the world with *"fog will come in and then overlap, and there will be constant AR".* The audience is in this *"sort of time and space corridor where you are flying through a space to get to the new place, and then the world opens up"*. This was crucial to evoke *"that feeling of 'me as a child traveling through space'"*, avoiding a shock cut which breaks immersion. Although the XR team initially declared it was impossible to achieve, as *"this has never been done before"*. The negotiation was constant, as BRLF explained, eventually, they embraced the challenge and achieved it. *"They were so proud, and we were so proud of them for achieving that."*

Creating XR environments requires significant resources. BRLF (Interview with BRLF, 2025) explained that the team navigated through early misalignment using a three-stage prioritization system: Fundamental for storytelling, which consists of non-negotiable elements essential for the narrative to function. Adaptable sections, which include desirable elements that could be reimagined or adjusted to be technically feasible. 'Icing on the cake' is an enhancement that adds beauty but could be skipped without losing essential value.

Orphée | *l'Amour* | *Eurydice* (OAE)

Coops operates both as director and producer; he emphasizes building collaborative ecosystems around his productions. He often starts with an initial artistic concept and develops it independently, then shapes it in collaboration with co-producing partners. He mentions a recent ongoing research project, *Dons* at ICK Dance Amsterdam, as an example of collaboration and co-producing:

"I mainly start the project, I come up with the idea, and then I search other companies and partners to co-produce it with, because, in general, I'm still a small company, and there are other bigger companies where we can collaborate to create a work together. And it helps everyone. […] With ICK, I know them already quite well, so it's, it's super nice to collaborate with them. Work with their dancers. That's super grateful. And they get a new voice, too. They have another kind of creator, […] So it's you're inspiring each other in that sense as well. And in that case, you're dividing tasks […] who's doing what? I'm now going to the places where

we can perform. And I will do the basic funding, but they will help with writing for the funding as well, because they have a team who's writing […], so you're helping each other." (Interview with Coops, 2025)

The production OAE and his recent production, *Saga of Sage,* brought together performers, XR designers, and technologists. Coops notes the importance of communication among an interdisciplinary team, especially regarding unexpected technological or narrative issues. With a background of previously using technologies and continuously learning new technologies, this benefits Coops in communicating with the team members more efficiently and effectively. They have been using a VR chat platform to share and modify ideas with all team members, before the XR team further executes the vision. Coops also talked about carefully selecting a team who are truly passionate about using XR technology to create artistic work with a public funding budget.

A Christmas Carol VR

The multidisciplinary team involved in developing the project includes XR creative technologists, XR technical artists, director, and performers. The interviewee ACC emphasized that the project was an ongoing learning environment that functions both as a performance piece and a research platform. The team continually refines this production over the years. The Agil Lens team has extensive experience in making virtual theatre spaces with live performances.

The performers use their avatars to perform live on the virtual stage. For instance, actor Ari managed multiple characters in real-time, with body, facial, and voice capture systems. Instead of overwhelming the performers with many technical functions, the team has been iteratively working on improving the design of the environment and use of technologies to allow the performers only needs to only focus on acting and be in the moment. As ACC emphasizes, it is a constant involvement. This requires the tech team to continuously work to refine the environment design, and during the performance, ensure the smooth running, and solve problems in real-time. Such as by giving the actor the first and third person modes, allowing them to observe their avatar's expression.

The Uncanny Thing Trilogy

Collaboration and co-creation are the themes shared by all interviewees, while Doulton with multiple roles in the production: creator, actor, director, producer, and promoter. He elaborated further on their collaborations among performers and how they co-create to achieve the mutual goal.

Given their highly improvisation nature of the production, Doulton emphasized trust and mutual decision making, where performers are empowered to critique and shape the evolving work.

"You have to trust them not only to be just good performers, but you have to trust them to make reasonable decisions. And I would say that has helped hugely by trusting them to be able to speak their mind on things. I don't think these shows would happen if it weren't the kind of show where the performers could say: 'actually, I don't think that idea works'. And that means they are co-creating it in a meaningful way." (Interview with Doulton, 2025)

During the performance, the team also ensured with each other as the show is organically growing with the audience's participation, the mutual trust, constant communication, while maintaining the characters and interacting with the audience required high improvisational and multitasking skills, and also a deep understanding of this production.

Sleepy Hollow

The producer van Zuijlen shared early challenges of communication with the VR development team, which involved better and direct communication strategies to interpret the vision into VR environments. As Brand elaborated, VR is different from actors, it needs to be fixed from the basis and fix its functionalities. The communication with the VR developers is essential to ensure the vision is translated clearly to the VR team while saving each team's resources and time.

The producer further talked about teamwork from the budget management and planning aspect. He described the collaboration among teams as flexible but guided by clear communication and decision-making. As the producer must make a careful financial plan to ensure each phase of the project is strategically planned incrementally, when necessary. He states:

"With a €4,000 scenery budget over four months in three locations: Amsterdam, Groningen, and Rotterdam, I had to decide what to swap or drop so we could evolve scenes."

(Interview with van Zuijlen, 2025)

4.6. Challenges and Constraints

Across the cases, interviewees discussed several main challenges: financial sustainability, technological challenges and limitations, interdisciplinary communications, logistical issues, and audience reach in a virtual theatre context. Several challenges are integrated in the previous sections. In this section, which focuses on economic and funding pressure, logistic and technical challenges, and challenges in audience reach and engagement in the virtual theatre context.

4.6.1. Financial Sustainability

Doulton shared their financial constraints with running *The Uncanny Things Trilogy*. Although the trilogy has been artistically well-received, it has faced financial pressure. Early phases of the project were funded through grants and personal contributions, with later runs becoming financially unsustainable:

"This time, I would admit that financially it is not a model that has succeeded, and we have made a loss in this turn, which is a shame and financially difficult."

(Interview with Doulton, 2025)

He also mentioned the broad shift of the UK funding landscape, where support has moved away from art-focused projects like opera.

"London used to get something like 10 times as much arts funding per head as anywhere else in the country, which you can see why a government would go actually. But it hurts us."
(Interview with Doulton, 2025)

Doulton is the creator, director, and performer of the show, also in charge of the marketing and producing of production. Given the high demand of multiple responsibilities, the high workload is another challenge.

Similarly, Coops (OAE) also shared the tensions of balancing production and self-financial sustainability:

"So I make those decisions in the beginning, and then if something changes, you go into dialogue, and everyone needs to be paid normally, and there you cannot touch upon, and then often you pay yourself less. […] that's something I should take care of, for example. […] because it's all passion, and […] sometimes it's dangerous as well."

(Interview with Coops, 2025)

4.6.2. Logistical and Technical Constraints

"Briar and Rose" during the tour in Norway, to put out all headphones and take them back in, and charge 200 headsets in the tour, created another layer of challenges. And synchronizing performers and digital characters' interaction was one of the challenges the team was facing as well. As the performers could not see the digital content on the stage, involved staging and AR content adjustment to ensure the coherence of the storytelling and sense of reality.
(Interview with BBLF, 2025)

4.6.3. Audience Reach in Virtual Performance

Gochfeld states that audience reach remains a fundamental constraint for virtual live performances, which is due to both technical access and physical logistics. For remote audiences, the issue is due to low ownership of VR headsets per person. According to

Omdia's (2021) report, which researched the VR market globally, covering 30 countries, the penetration of VR headsets was "2.4 headsets per hundred households in 2021" and is expected to reach 6.3 in 2026. On the other hand, for location-based installations, Gochfeld states:

"if you're doing it an installation or a location-based piece, or just only so many headsets that you can run at the same time, the same place, and only so many people that you can fit into a room, which, in a sense, always has been the limitation. The difference from having a 500-seat theatre and having a show where you can only have eight people once, because that's how many headsets you can run simultaneously. That's a very different economic model."

(Interview with Gochfeld, 2025)

He further states that at the current stage, each 45-minute-long performance can only have 12-15 people in, and such a performance can only run a few times per day, so "throughput becomes a real problem" (Interview with Gochfeld, 2025).

4.7. Iterative Development (Emerged Theme)

This section explores how immersive and interactive theatrical experience creators develop their productions from scratch to stage. Creators describe an iterative and incremental process, where playtests, audience feedback, and continued refinement help clarify how the work shapes the audience experience. Several interviewees, including directors, producers, and XR developers, shared detailed examples of how they adjust and navigate through the development process.

4.7.1. Refining vision through playtests and audience feedback

At the initial stage of creating the experience, after the concept is decided, creators are not working from a fixed vision, but constantly negotiating, adjusting, and learning how their artistic vision resonates with audience experiences through testing, researching, and refining.

Van Zuijlen and Brand shared the process of developing the production of *Sleepy Hollow* at the current stage. Their current run of a series of playtests in Groningen, Amsterdam, and Rotterdam is an iterative process, where they tested the same two scenes within different locations and audience groups, while improving and refining the production in the process.

"This year we did a series of three playtests, all with the same scenes, but the scenes have developed over time."

(Interview with Brand, 2025).

As mentioned, the audience engagement research specialist, Kim van den Brink who attends two out of the three playtest series. She noted the purpose of the playtest was to

inform the team about how the audience experiences the performance, with a strong focus on technical and experiential aspects:

“How does it work? How do people start to see? What do they need? What do they talk about?”

“Do people understand how to put on the VR glasses, all this very practical stuff. I focused on what the experience brings to them because it’s a way to bring together all these layers of AR/VR, combined with an interactive component of the theatre.”**

(Interview with van den Brink)

Doulton also shared their earlier development of The Uncanny Things, using audience feedback to determine whether the message of the performance has been delivered successfully or if any parts may cause confusion.

*"In general, I find audience feedback is most useful. Either, when it is essentially a first-person account of what they got out of the show, what do they like, what they dislike? What do they find confusing? What they found clear regarding the show’s world. It is often well-understood. But sometimes the specific mechanics are confusing. Then the other piece of feedback that I find useful is “getting a sense of what people think the show was about.”***

(Interview with Doulton, 2025)

As mentioned, the representative BRLF from the *Briar and Rose in the Land of Fairytales* explained that the technology's physical constraints were carefully navigated while maintaining narrative coherence, also considering the physical effect on the audience’s comfort. They tested several times to find the best duration of using the headset to refine the transitions and enhance the overall experience.

“ We remounted the show two times. So, the third time around that […] was the shortest that […] before […] the eyes wouldn't get enough rest. So that's so it's definitely shaped a lot of the things in terms of how the story is shaped.”

(Interview BRLF, 2025)

BRLF emphasizes the importance of involving the audience from the start. The creative team had reference groups who were children of different ages to provide feedback and understand their reference point they connect to. To better understand their target audience, both for the creative team and the performers.

"(We) talked a lot with them about what excites them, what are their reference points?"
(Interview with BBLF, 2025)

Creators like Brand and Coops also emphasize that audience feedback is a tool to help understand the current stage of how the audience responds to the world they create, but not all feedback is helpful and will be considered. However, if similar feedback appears multiple times, it might indicate a moment of adjustment accordingly.

It is important to note that playtest and audience feedback are tools for assessing the current realization of the experience, and how the artistic vision brings to the audience experience. They do not serve to inform the artistic vision itself.

*“If you put people in this room, and we make our suppression with the rooms. When people entered this room, no one was normally standing in the middle. We have seen people standing by the walls. If you are out of luck, people stay on one side. Not everyone would step out of the group. So, how do you spread people in a room? That’s playtesting come in, because if you put a table in the middle, people can be more in a circle. Are there chairs? Can they sit? You play with these principles.” **

(Interview with van Zuijlen, 2025)

4.7.2. Evolving with Technological Development and Creative Problem Solving

For many creators among the interviewees who employed technologies in their productions, technological developments are not separated from their artistic vision, as their evolution supports the further realization of their artistic visions.

The production of *A Christmas Carol VR* is treated by the team not only as a continuing project but also as a platform for innovation. As the representative ACC explains,

"We always treat it as an opportunity to both take what we've learned from the previous year as well as kind of kickstart R and D on other things that we want to touch."

(Interview with ACC, 2025)

Gochfeld (Interview with Gochfeld, 2025) discusses embracing the technical constraints and challenges. From a researcher’s perspective, he positions much of his work as “a sense of inquiry” to explore the innovation possibilities within current limitations. And importantly, live actors in virtual performance enable adaptation during urgent events, such as sudden digital glitches, the performers can improvise and smooth out the whole situation.

*“If everything's programmed and on rails and something goes wrong, it breaks. But actors, especially stage actors, are well equipped to deal with mishaps. Ari Tara, who does our Christmas Carol, is just an amazing improviser, and has this amazing ability to, no matter what happens, he'll keep going, and he'll keep the audience entertained and work with them.”**

(Interview with Gochfeld, 2025)

Working in a fully virtual format brought unique pressure. Delivering a smooth and emotionally engaging performance depends heavily on real-time synchronization between

performance data. ACC explains how they solve the challenges with creative problem-solving:

*“Other challenges include things like multiplayer audio. Being able to send all this body capture data at ideally, 90 frames a second, to everyone who's in the audience. That's tricky […] because the reason we started using OSC (*open sound control) *in the first place was […] in a traditional multiplayer setup, you have a server, and then you have your clients, and if the server crashes, then all the clients crash too […] if it's in the middle of a live show. So what we found with OSC was that we can still have kind of a server, but it's a fake server […] if that server crashes, you're not in a multiplayer session, so everyone else is fine […] then it's very easy for us to reboot the crash server and then start sending those signals again, […] hopefully not too many people noticed, if you know, a queue came a little bit late.”*

(Interview with ACC, 2025)

In 2024, a technical breakthrough from another project, “Body of Mind”, was applied to *A Christmas Carol VR*. Interviewee ACC describes how they optimized the show to run on standalone VR headsets:

"So, we got the entire thing to run just on Quest 2, Quest 3, Quest Pro, and of course, saw a substantial increase in our audience size for last year because it was so easy for people to access the show." (Interview with ACC, 2025)

ACC further emphasized that the transition into Unreal Engine allows the production to achieve higher levels of photorealism and presence:

“Out of the gate, when we started doing this in Unreal Engine with Christmas Carol, we were trying to maximize photorealism as much as possible, but we also didn't want to require the audience to have powerful computers. So that's why we did everything in the cloud. Now we know all the computers are RTX a6000, like very powerful enterprise GPUs, and we can crank up the lighting and the fidelity of our metahumans and all that and get to a point where this feels good and robust from a performance capture and visual fidelity perspective.”

(Interview with ACC, 2025)

As mentioned, the production functions as both a narrative work and a research platform. To feed in new technical exploration, where they have learned lessons from past development periods. The project evolves year by year based on technological improvements and audience accessibility considerations.

The evolution of immersive technologies also provides previously impossible or hard-to-realize ideas to be realized. The representative BBLF from Briar and Rose mentioned that an earlier project faced cost constraints of using immersive technology. Although the issue was solved, it shows that the early time of employing XR technologies in theatre was challenging:

"Buying six headsets was more expensive than building a big nine times eight, two-story, Labyrinth set in space with actors like that was just impossible for us, as a state-funded

Norwegian theatre, to buy that kind of tech. So, we borrowed the headsets from a Swedish developing company that explored the VR is really in the early stages, and then we used that in a performance."

(Interview with BBLF, 2025)

As technology has been evolving rapidly, immersive technologies have been leaping forward. It became more accessible for users, including developers, creators, and general users. As the cost of the technologies used to be sky-high, technologies including XR are becoming much cheaper. When the production of Briar and Rose started, the continued involvement of technology made the artistic realization happen.

"Then suddenly you have long throw AR, and this QR code technology makes that possible."

(Interview with BBLF, 2025)

4.7.3. Evolving a new VR storytelling Language

In the discussion on how newcomers might approach storytelling within fully virtual theatre spaces, ACC emphasized the need to set realistic technical expectations, define audience interaction in the early stage, and embrace VR as a new medium for artistic expression. Instead of treating VR as a simple extension of proscenium theatre, ACC promotes exploring the possibilities of VR and potentially developing a new storytelling language.

To avoid miscommunication between artistic and technological collaborators, ACC suggested that newcomers would benefit from some kind of common reference to current technological realities. It may help them understand which requests are "a really big lift" and which are achievable at the current stage with VR. This reflects broader concerns about knowledge asymmetry in cross-disciplinary collaboration, which were discussed earlier.

ACC encouraged newcomers to treat VR as a new medium to tell the story:

"I want folks coming from the more traditional theater world to look at this not necessarily as just a virtual version of a theater show, but as a new medium that is evolving in new ways."

This VR's unique *"affordances"* include manipulating scale, physics, and visual environments in ways that are *"very expensive in the real world but might be impossible*" (Interview with ACC, 2025). This also aligns with other interviewees in this study who integrate XR with live on-site theatrical performances to tell fantasy, horror, stories, and difficult to realize on a real stage.

ACC further used the film's first introduction as an example to explain that people should not treat a virtual environment like a traditional theatre in VR. Just like film eventually developed its language, such as editing, cutting, close-up, montage, etc. With VR storytelling, creators should develop new languages to tell stories in a virtual space: *"really investigating the affordances of what you can do in virtual reality.' And I think eventually we*

are going to stop calling it virtual reality theater, and we will call it something else. (Interview with ACC, 2025).

4.8. Conclusion

The artistic vision and audience experience are not in a binary or strictly hierarchical relationship. Instead, they are multifaceted and interconnected and constantly evolving within specific contexts. It is a constant negotiating within iterative processes, where team dynamics, technological and spatial design, and the unique challenges and constraints of each production also influence such dynamics. Also, broader structural conditions such as funding environments, local policy, and audience expectations indirectly influence the dynamic of this relationship.

Echoing audience engagement specialist and researcher van den Brink's statement, the success of an immersive experience lies in the resonance between what the creators imagine and what audiences feel, think, and do within the worlds they co-inhabit:

"I think to know what is success for your immersive experience is very much about your artistic vision, and it's not your artistic vision that focuses on the artistic part of it, but the artistic vision of what the experience should be, so I think the artistic vision is part of it. But it doesn't exist, or it doesn't make sense if it doesn't match with the actual audience experience." (Interview with van den Brink, 2025).

This perspective reinforces the idea that artistic vision is not an isolated creative objective but needs to resonate with the audience's journey. There are three interconnected domains of practices that influence and manifest the realization of this journey:

> Core Creation: It involves audience-centred design strategies, including the selection of storytelling formats, onboarding, transitioning, and offboarding, emotional pacing, narrative flow, consideration of how much audience agency and interactivity should be given to the audience, iterative refinement, and navigation of creative constraints.
>
> Execution Environment: It refers to the collaboration process through which interdisciplinary teams realize the work, encompassing communication, transauthor storytelling via transmedia (Breuleux et al., 2019), and practical problem-solving. Iterative refinement and negotiation of constraints also influence heavily within this domain.

In addition to these two domains, a third domain, broader contextual conditions, also indirectly influences the relationship. It emerged across some cases, including aspects such as funding availability, the audience's familiarity with the immersive formats and technologies. And the broader cultural or institutional infrastructure (for instance, distribution locations) may also influence the manifestation of immersive practices. However, these factors are not the central focus of this study. They were mentioned by interviewees and briefly explained in section 4.2. It serves as a contextual understanding of the current landscape of immersive practices within these four countries.

Chapter 5. Conclusion and Discussion

5.1 Summary

This study explores how creators of immersive and interactive theatrical experiences navigate the relationship between artistic vision and audience experience across different immersive formats. It employed a qualitative, mixed-methods approach, including nine stakeholders' interviews, two field observations, and document analysis. This study finds that the relationship between artistic vision and audience experience in immersive and interactive theatrical experiences is not binary or strictly hierarchical. Instead, they are multifaceted and interconnected, and constantly evolving within specific contexts. It is a constant negotiation within the iteration process, where team collaboration, technological and spatial design choices, and also the unique challenges and constraints each production faces shape the relationships. And broader conditions, such as funding environments, local policy, audience expectations, and infrastructure, also indirectly influence this dynamic relationship and the manifestation of immersive practices[38].

The findings are built around six themes, of which five pre-defined themes are based on literature overviews: "Artistic Vision, Audience Experience, Interactivity and Audience Agency, Team Collaboration, Constraints and Challenges". Interview guidelines were based on these themes. Among nine interviewees, eight of them were directly involved in the five cases mentioned in this study, and one expert is from a User Experience and XR design background. Four out of five cases integrated or fully use XR technologies in live theatre performances. The five diverse formats of cases are: *Uncanny Thing Trilogy*- Interactive Immersive Opera, *Sleepy Hollow*- XR and Theatre, *Orphée | l'Amour | Eurydice*-Immersive Opera, *Briar and Rose in the Land of Fairytales* -Live Stage Theatre Performance using AR, and *A Christmas Carol VR*-Immersive Performance. During the analysis, a sixth theme, "iterative development," also emerged.

From the interviews, it becomes clear that artistic vision is not a fixed concept. It develops and adapts within an iterative and incremental process. While the concept and artistic vision set the creative direction, it also responds to and resonates with the audience's experience. The iteration process and refinement include playtesting, feedback loops, and research. And it is important to clarify that these are not used to inform artistic intent or creation but to evaluate how the audience experiences the designed world and improve accordingly when necessary. These adjustments also include adapting to technical reality and the practical considerations. However, they are all aimed at enhancing audience experience and engagement.

Interactivity and audience agency are shaped differently across immersive formats. In XR-integrated or fully virtual performances, these elements must be carefully calibrated to

match the technological, dramaturgical, and overall experience goals. While in works like *the Uncanny Things Trilogy*, audience interaction and choices, along with the underlying narrative arc carried by the performers, are the driving forces behind the progression of the story. The artistic boundaries and degree of audience freedom and influence on the world may vary across cases and are tailored to each production's goals and formats.

Interdisciplinary collaboration also played an important role in the realization of these experiences. An interdisciplinary team includes directors, performers, XR designers, technologists, and other experts who come together to contribute their diverse knowledge and efforts to the creation of an immersive world, it is a co-creation process. Especially for first-time cross-disciplinary collaborations across XR technologies and arts sectors, it requires constant communication, and mutual trust. Interviewees emphasized the importance of learning across disciplines, navigating unfamiliar concepts, problem-solving, and working flexibly under pressure.

Additionally, there are several constraints and challenges shared by the interviewees. First, during the early stages of development, a cross-disciplinary collaboration was challenging with effective communications, when stakeholders were both unfamiliar with each other's disciplines and still learning how to articulate and align their visions. Second, technological challenges and constraints were commonly faced by those practitioners who integrate such tools into their production. Especially in XR-based productions, creative ambitions sometimes need to adjust to the technological reality. Third, in a virtual live performance context, currently facing limitations in reaching a wider audience. Finally, financial constraints were shared mainly by independent practitioners, especially in contexts heavily dependent on public funding. Despite these challenges, creators adjust and adapt to the situations, carry out innovative problem-solving, and successfully deliver immersive experiences.

The financial constraints related to the broader ecosystems, the local economy, and funding structures play a major role in regions which are relatively relying more on public funding. Based on two industry reports with audience research, in the UK, "value of money", quality of performance, "engaging storytelling", and ability to share the experience with friends are the major factors that influence the audience to attend an immersive experience (IEN, 2024, pp. 7-11). While in the US audiences demonstrated a high willingness to pay for immersive experiences but the importance of honest marketing, emotional resonance, and experience quality are the main factors to influence their decisions. (Gensler Research Institute & The Immersive Experience Institute, 2025, p.65)

There are three domains that are interconnected and influence the practice of immersive and interactive theatrical experience. While these domains have emerged throughout the nine interviewees, and complemented by document analysis, they cannot exhaustively cover all the immersive experience practices. In here, it just serves to understand the complex nature of immersive experience creation:

> Core Creation includes audience-centred design choices such as storytelling formats, onboarding, transitioning, and offboarding, emotional pacing, narrative flow,

consideration of how much audience agency should be given to the audience, iterative refinement, and navigation through creative constraints.

Execution Environment refers to interdisciplinary team collaboration, communication, transauthor storytelling via transmedia (Breuleux, de Coninck, and Therrien, 2019), and coordination among team members. Many challenges arose not from artistic differences but from misaligned technical expectations or differences in professional languages.

Contextual conditions are not shared across all cases but were mentioned in some interviews and observations. They encompass the funding landscape, audience familiarity with immersive formats and technologies, and infrastructures that influence the sustainability of the immersive practice.

5.2. Discussion

Audience Familiarity and Participation

Audience behaviour is not only shaped by the spatial setting and physical environment but may also be influenced by factors such as familiarity with the format, cultural background, prior experience, and narrative comprehension. This aligns with Biggin's (2017, pp.29-30) statement that this "aesthetic experience" can be developed and learned as a "skill". The frequent participants may become "experts" in the immersive experience. In areas where immersive experience remains relatively novel, the audience may encounter unfamiliarity with the immersive and interactive theatrical "schema" (Gezgin & Imamoğlu, 2021) and require time to learn how to navigate the space.

A hybrid immersive production that combines live and digital components can cause further complexity. Participants who are unfamiliar with XR technologies may experience anxiety or be overstimulated. As noted by Coops, the audience may express their excitement verbally in responding to their VR experience during the performance. As interviewees note the importance of onboarding, scene transitions, and performer guidance, which may ease audiences' first-time experience anxieties and help them engage more with the experience.

On the other hand, in more mature immersive theatre markets, the "expert audience" is more likely to be present. These experienced attendees may not purposefully instruct others, but they can unintentionally offer "informal tutorials" to newcomers simply by modelling behaviour. These moments are spontaneous and unpredictable, especially in the experience with a high degree of audience agency.

In guided experiences, such as *Sleepy Hollow*, actors' interaction and guidance helped participants feel more comfortable navigating the experience, especially those unfamiliar with immersive concepts. And cues, either through verbal, spatial, or gestures, which lead the audience to the desired direction, also help the audience to navigate and enhance their participation.

Overall, audience experience is co-shaped by intentional design choices and broader contextual factors such as prior exposure, familiarity with formats, and digital literacy, especially regarding XR interfaces. While this study does not generalize these findings, it highlights the importance of considering audience learning curves in immersive and interactive experience designs.

Discussion regarding using VR technology as a new language and medium

Echo interviewee ACC's statement about treating VR technology as a new medium to tell a story and develop a new VR language. At the current stage, the penetration of VR headsets in individual households is low, but it shows constant growth, although slowly. These current challenges show great opportunities. And drawn from history, when new technologies are introduced to society all went through a period from only a low percentage of people owned them, but now it is widely used or even being replaced. Such as renting video players with video tapes in the 80s (Paul, 2022).

Discussion for communication with audience members

These topics are not directly addressed in the interviews as they are not the focus of this study. However, concerns around marketing and communicating with audiences have emerged in recent industry reports. This study also proposed questions for future exploration by researchers and producers:

- How can immersive creators build a long-term audience base through honest, transparent, and engaging communication?
- How to communicate with these audiences who are not fluent in the "immersive languages" or hold rigid expectations about immersive experiences?

The concern of lacking honest marketing (Gensler Research Institute, 2025) raises questions for the immersive producer:

- How can immersive creators build a long-term audience base through honest, transparent, and engaging communication?

Finally, the purpose of this study is not to assess whether a work includes a high degree of immersion, agency, or interactivity as a measure of quality or success. It argues that artistic vision should not be rigorously evaluated based on the presence or degree of these elements. To debate whether an experience is "fully immersive" is not a productive way to understand creative intent. Instead, employing interactive elements, giving certain agency, and technology integration in the productions are seen as tools/mediums to connect with the audience. This study analyzes these elements in relation to creators' design strategies to understand how interactivity, agency, immersion, and the use or non-use of technology support audience engagement and emotional resonance. The diversity and continued growth

of these practices reflect the beauty of developing new forms of expression and creating new avenues to connect with people.

5.3. Limitations

This study was based on small samples of empirical cases, with a focus on stakeholders rather than audience perspectives. Although observable behaviours such as navigation, movement, and interaction were recorded, direct audience interviews were not conducted due to time, geographic constraints, and limited resources. Limited sample sizes, especially site-specific productions, are lacking, which is acknowledged. These limitations may introduce potential bias, and findings are interpreted within this context. And the short, one-time observations of two productions may limit the understanding of overall audience experiences, and the ongoing nature of *Sleepy Hollow* may restrict firm conclusions.

These limitations demonstrate that the findings should be interpreted as a case-by-case insight, not as a general practice principle. Further research should extend this work by incorporating audience interviews and comparative cross-cultural studies.

References

2020 Immersive Entertainment Industry Report, (2020), Accessed in May, Retrieved from https://everythingimmersive.com/storage/website-files/documents/2020%20Immersive%20Entertainment%20Industry%20Annual%20Report.pdf

2022 Immersive Economy Report, (2022), UK Immersive Tech Network, https://iuk.immersivetechnetwork.org/wp-content/uploads/2022/10/Immersive-Economy-2022-final-13-Oct.pdf

A Christmas Carol VR, (2024), About, *A Christmas Carol VR*, https://www.xmascarolvr.com/about

Agrawal, S., Simon, A., Bech, S., & Bærentsen, K. (2019, October). Defining immersion: Literature review and implications for research on immersive audiovisual experiences. Paper presented at the Audio Engineering Society 147, New York City.

Amarte Fonds, (2025), about us, accessed in June 2025, retrieved from https://www.amarte.nl/en/filosofie

Anto, A., et al., (2024), Open-World Games' Affordance of Cognitive Escapism, Relaxation, and Mental Well-Being Among Postgraduate Students: Mixed Methods Study, National Library of Medicine, DOI: 10.2196/63760

Arts Council England, (2025), Developing your Creative Practice, https://www.artscouncil.org.uk/dycp

Barbes, A., (2024), The Immersive Genres, https://ienet.wpenginepowered.com/articles/the-immersive-genres/

Believe Your Eyes, (n.d), Punchdrunk, Accessed February 2025, https://www.punchdrunk.com/work/believe-your-eyes/

Biggin, R., (2014, 2017), Immersive Theatre and Audience Experience: space, game and story in the work of Punchdrunk, DOI 10.1007/978-3-319-62039-8

Billinghurst, M., Clark, A., & Lee, G.A., (2015), A Survey of Augmented Reality, Foundations and Trends® in *Human-Computer Interaction 8*(2-3):73-272, DOI:10.1561/1100000049

Bouko, C., (2014), Interactivity and Immersion in a media-based performance, *Journal of Audience & Reception Studies*, Volume 11, Issue 1., May 2014

Breuleux, Y., et al., (2019) The World Building Framework for Immersive Storytelling Projects, *SHS Web Conf. Volume 64*, 2019, 14th European Architecture Envisioning Conference (EAEA14 2019), https://doi.org/10.1051/shsconf/20196400003

Brown A.S. & Ratzkin, R., (2011), Making Sense of Audience Engagement, Copyright The San Francisco Foundation

Brown, A., et al., (2012), Making Sense of Audience Engagement, https://galachoruses.org/sites/default/files/Barun-Making_Sense_of_Audience_Engagement.pdf

Bryman, A., (2012), *Social Research Methods*, 4th Edition, Oxford: Oxford University Press.

Burgess, N. & King, J.A., (2001), Navigation in Virtual Space: Psychological and Neural Aspects, *International Encyclopedia of the Social & Behavioral Science*

Compendium cultural policies & trends, (2019), Norway 1.1, https://www.culturalpolicies.net/country_profile/norway-1-1/#:~:text=Cultural%20policy%20objectives,as%20fundamental%20bearers%20of%20culture

Coursera, (2024), What is Unreal Engine?, https://www.coursera.org/articles/what-is-unreal-engine

Csikszentmihályi, M. (2004), Flow, the secret to happiness [Video], TED Talks, https://www.ted.com/talks/mihaly_csikszentmihalyi_flow_the_secret_to_happiness

Csikszentmihályi, M. and Robinson, R.E., (1990), Chapter 1 A Conceptual Model of the Aesthetic Experience, *The Art of Seeing: an Interpretation of the Aesthetic Encounter*, p.9

Csikszentmihalyi, Mihaly. (1990). Flow: The Psychology of Optimal Experience." *Journal of Leisure Research*, 24(1), pp. 93–94

Current London Shows, Immersive Rumours, (2025), https://www.immersiverumours.com/current-london-shows

Different types of augmented reality, (n.d.), Onirix, Accessed in March 2025, Retrieved from https://www.onirix.com/learn-about-ar/types-of-augmented-reality/

Dutch National Opera, (2022), Love and relationships as seen through the eyes of Orpheus, Eurydice en L'Amour, Accessed in May 2025, https://www.operaballet.nl/en/dutch-national-opera/2021-2022/orphee-lamour-eurydice

Dutch News, (2024), Tax hike will "cut and burn" through cultural sector, Dutch News, https://www.dutchnews.nl/2024/09/tax-hike-will-cut-and-burn-through-cultural-sector/

Ekman, S., & Taylor, A. I. (2021). Between World and Narrative: Fictional Epigraphs and Critical World-Building. *Journal of the Fantastic in the Arts.*

Gensler Research Institute, (2025), Evolving Immersive: The 2025 Immersive Entertainment & Culture Industry Report, https://www.gensler.com/doc/evolving-immersive-the-2025-immersive-industry-report.pdf

Gezgin, Ö., & Imamoğlu, Ç. (2023). Audience behavior in immersive theatre: an environment-behavior studies analysis of Punchdrunk's Sleep No More. *Studies in Theatre and Performance, 44*(2), 251–267. https://doi.org/10.1080/14682761.2023.2185928

Gigantye, M. A., (1993), Chapter 1-Virtual Reality: Definitions, History, and Applications, Virtual Reality Systems, pp.3-14, https://doi.org/10.1016/B978-0-12-227748-1.50009-3

Glitch Studio, (2025), The Theatre Reimagined – Introducing AR to the Stage, accessed in May 2025, retrieved from https://www.glitchstudios.co/projects-archive/the-theatre-reimagined-introducing-ar-to-the-stage/

Goldman, J. (2024), Deciding your Fate is Deadly in The Endings With Strange Bird Immersive, Houston Press, https://www.houstonpress.com/arts/review-the-endings-at-strange-bird-immersive-19140127

Google AI Overview, (2025), What are the immersive theatre characteristics?, Google, Retrieved from, https://www.google.com/search?q=what+are+the+immersive+theatre+characteristics&sca_esv=f37af7071d948b3e&rlz=1C1GCEU_nlNL1160NL1160&sxsrf=AHTn8zo4n7jqnmYJK8Mvxopk7T2BpMRQ1Q%3A1747745650021&ei=cnssaMaMAZeji-

gPjuPRUQ&ved=0ahUKEwjGjYL1i7KNAxWX0QIHHY5xNAoQ4dUDCBA&uact=5&oq=what+are+the+immersive+theatre+characteristics&gs_lp=Egxnd3Mtd2l6LXNlcnAiLndoYXQgYXJlIHRoZSBpbW1lcnNpdmUgdGhlYXRyZSBjaGFyYWN0ZXJpc3RpY3MyBRAAGO8FMggQABiABBiiBDIFEAAY7wUyCBAAGIAEGKIESOYmUJ0CWIglcAF4AZABAJgBfqABhASqAQM2LjG4AQPIAQD4AQGYAgigAqgEwgIKEAAYsAMY1gQYR8ICDRAAGLADGNYEGEcYyQPCAg4QABiABBiwAxiSAxiKBcICBBAhGAqYAwCIBgGQBgmSBwM3LjGgB_UZsgcDNi4xuAelBA&sclient=gws-wiz-serp

Götz, U., (2021), On the Evolution of Narrative Mechanics in Open-World Games, *Narrative Mechanics*, pp. 161-176, DOI:10.14361/9783839453452-008

Government of the Netherlands, (2024), First development budget cuts announced: overhaul of grants for NGOs, Government of the Netherlands, https://www.government.nl/latest/news/2024/11/11/first-development-budget-cuts-announced-overhaul-of-grants-for-ngos#:~:text=The%20government%20will%20cut%20the

Harkness, H (n.d.), Believe Your Eyes, Hector Harkness, Accessed February 2025, pp.120-128, https://www.hectorharkness.com/believe-your-eyes/

Holden, J. (2015), The Ecology of Culture, https://www.lkca.nl/wp-content/uploads/2020/03/Holden-Ecology-of-Culture.pdf#:~:text=This%20report%20has%20been%20commissioned%20by%20the,Project%2C%20which%20is%20led%20by%20Professor%20Geoffrey (pp. 2, 7,12)

House of Lords Library, (2024), Budget 2024: Impact on the cultural sector, UK Parliament, https://lordslibrary.parliament.uk/budget-2024-impact-on-the-cultural-sector/#:~:text=Local%20government%20revenue%20funding%20of,up%20by%205%20percentage%20points.

Huuhka, M., (2020), chapter: Playing is Performing: Video Games as Performance, Einspielungen, pp. 59-78, https://cris.tuni.fi/ws/portalfiles/portal/85851814/Playing_is_Performing_Video_Games_as_Performance.pdf

Immersion, Lexicon of Psychology, n.d., https://www.psychology-lexicon.com/cms/glossary/42-glossary-i/23510-immersion.html

Immersion, Online Etymology Dictionary, (2025), https://www.etymonline.com/search?q=+immersionem

Immersion, Oxford English Dictionary, (2025), https://www.oed.com/search/advanced/Meanings?textTermText0=immersion&textTermOpt0=WordPhrase

Immersion, Oxford Learner’s Dictionaries, (2025), https://www.oxfordlearnersdictionaries.com/definition/american_english/immersion

Immersive Arts, (2025), Over 80 UK Projects Receive Nearly £1.2m in First Funding Round, https://immersivearts.uk/news/over-80-uk-projects-receive-nearly-1-2m-in-first-funding-round/

Immersive Experience Network, (2024), Immersive Audience Report 2024, https://immersiveexperience.network/wp-content/uploads/2024/06/IEN-Audience-Report-2024.pdf

Immersive Rummer, (2025), Review: The Uncanny Things Trilogy by Virtually Opera, Accessed May 2025, Retrieved from https://www.immersiverumours.com/post/review-the-uncanny-things-trilogy-by-virtually-opera

Itti, L., (2007), Visual salience, DOI:10.4249/scholarpedia.3327

Kulturdirektorate, (2024), PlayOn! – New Storytelling with Immersive Technologies, https://www.kulturdirektoratet.no/web/guest/eus-kulturprogram/vis-artikkel/-/playon-new-stortytelling-with-immersive-technologies

Lock, D., & Stewart-David, M., (2022), The Making of an Immersical, https://thewritingplatform.com/2022/05/the-making-of-an-immersical/

Machon, J.,(2013), *Immersive Theatres: Intimacy and Immediacy in Contemporary Performance*, Red Blobs Press

Mazuryk, T. & Gervautz, M., (1999), Virtual Reality-History, Applications, Technology and Future, Virtual Reality, https://www.cg.tuwien.ac.at/research/publications/1996/mazuryk-1996-VRH/mazuryk-1996-VRH-paper.pdf

Mendoza-Ramírez, C., et al., (2023), Augmented Reality: Survey, Appl. Sci. 2023, 13(18), 10491; https://doi.org/10.3390/app131810491

Michailidis L. et al., (2018), Flow and Immersion in Video Games: The Aftermath of a Conceptual Challenge, *Frontiers in Psychology*, DOI:10.3389/fpsyg.2018.01682

Mills, A. J., et al., (2010), Multiple-Case Designs, *Encyclopedia of Case Study Research,* Volumes I and II, Thousand Oaks, CA: Sage, https://methods.sagepub.com/ency/edvol/encyc-of-case-study-research/chpt/multiplecase-designs

Mogensen, K. Æ., (2023), Fully Sensory VR, Anyone?, Farsight, https://farsight.cifs.dk/full-sensory-vr-anyone/

Mondriaan Fonds, (n.d.), Contact person for the six public cultural funds, Mondriaan Fonds, https://www.mondriaanfonds.nl/en/apply-for-a-grant/interdisciplinaire-projecten/

National Endowment for the Arts, (2025), Media Arts, accessed in June 2025, Retrieved from https://www.arts.gov/impact/media-arts

National Lottery Project Grants, (2024) Guidance for applicants: £30,001- £100,000, https://www.artscouncil.org.uk/sites/default/files/2024-07/National%20Lottery%20Project%20Grants%20-%20Guidance%20for%20applicants%20-%20%C2%A330%2C001%20to%20%C2%A3100%2C000.pdf

Netherlands Enterprise Agency, (2024), VAT rate on culture, books, and sports set to increase to 21% (repealed), Business.gov.nl, https://business.gov.nl/amendment/vat-rate-culture-books-sports-increase/

Notherestern University, (2023), What is XR?, Accessed in May 2025, Retrieved from https://xr.northeastern.edu/2023/04/26/what-is-xr/

Omdia, (2021), Omdia research reveals 12.5m consumer VR headsets sold in 2021 with content spend exceeding $2bn, retrieved from: https://omdia.tech.informa.com/pr/2021/dec/omdia-research-reveals-12m-consumer-vr-headsets-sold-in-2021-with-content-spend-exceeding-2bn#:~:text=It%20finds%20that%20in%202021,VR%20headset%20sales%20in%202021.

Opéra de Paris, (2025), Discover La Magie Opéra, a brand-new immersive VR experience at the Palais Garnier from 7 May to 31 August: explore the theatre and experience the emblematic arias of the Opera, Retrieved from https://www.operadeparis.fr/en/news/discover-la-magie-opera-a-brand-new-immersive-vr-experience-at-the-palais-garnier-from-7-may-to-31-august-explore-the-theatre-and-experience-the-emblematic-arias-of-the-opera

Paul, D., (2022), Home video rentals, retrieved from https://www.ebsco.com/research-starters/film/home-video-rentals#:~:text=Small%20stores%20began%20renting%20videocassettes,in%20the%201970s%20and%201980s.

Pike, S. (2020). Virtual relevant: AR/VR and the theatre. *Fusion Journal*. https://fusion-journal.com/wp-content/uploads/2020/04/Pike_Virtually-relevant.pdf

Puck van Dijk, (2025), https://www.studiopuckvandijk.com/productions/

Punpeng, G. & Yodnane, P., (2023), *The route to immersion: a conceptual framework for cross-disciplinary immersive theatre and experiences*, Palgrave Communications, Palgrave Macmillan, vol. 10(1), pages 1-9, December.

Raindance, (2025), A Christmas Carol VR, Accessed in May 2025, Retrieved from https://www.raindanceimmersive.com/2025-a-christmas-carol

Roesner, D., (2014), *Musicality in Theatre. Music as Model, Method and Metaphor in Theatre-Making, Contemporary Music Theatre and Opera*, xxxxxxx

Slater, M., et al., (2009), Visual Realism Enhances Realistic Response in an Immersive Virtual Environment, *IEEE Computer Graphics and Applications, 29*(3):76-84, DOI:10.1109/MCG.2009.55

Sleepy Hollow, (2025), Brandkracht, https://www.brandkracht.nl/

Sleepy Hollow, (2025), Studio Immersief, https://www.studioimmersief.nl/work/sleepy-hollow

Soloski, A., (2018), The Problem with immersive theatre: Why actors need extra protection from sexual assault, The Guardian, https://www.theguardian.com/stage/2018/feb/12/immersive-theatre-punchdrunk-sleep-no-more

Stimuleringsfonds, (2025), Lancering nieuwe regeling Artistic & Design Research for Immersive Experiences, Stimuleringsfonds, https://www.stimuleringsfonds.nl/nieuws/lancering-nieuwe-regeling-artistic-design-research-for-immersive-experiences

Studio Immersief, (2025), Sleepy Hollow, accessed in May 2025, retrieved from https://www.studioimmersief.nl/work/sleepy-hollow

Swamp Motel: Plymouth Point (Play at Home), (2020), https://www.reviewtheroom.co.uk/swamp-motel-plymouth-point-play-at-home/

Sylvia Kim, S., Punnen Mathew, A., and Pino, Z. (2024) Passageways and portals: a comparative analysis of transition spaces in physical, digital, and virtual environments, in Gray, C., Ciliotta Chehade, E., Hekkert, P., Forlano, L., Ciuccarelli, P., Lloyd, P. (eds.), DRS2024: Boston, 23–28 June, Boston, USA. https://doi.org/10.21606/drs.2024.1166

Tanenbaum, K & Tanenbaum, T. J., (2009), Commitment to Meaning: A reframing of Agency in Games, *Digital Arts and Culture,* https://escholarship.org/content/qt6f49r74n/qt6f49r74n_noSplash_305fd28ab3e5a5fe4d03d722afe8a8d8.pdf?t=pyebbq#:~:text=Perhaps%20the%20most%20well%20known,creative%20roles%20available%20to%20interactors.

The (Unofficial) Unreal Engine Podcast, (2024), How to Put on a Live Unreal Engine Show with Yu-Jun Yeh, YouTube, accessed in April 2025. retrieved from https://www.youtube.com/watch?v=2f4i5XS4XRc

The Unofficial UE Podcast, (2024), How to Put on a Live Unreal Engine Show with Yu-Jun Yeh, YouTube, retrieved from https://www.youtube.com/watch?v=SCX--pB-pxA

Theatre Elsewhere, (2025), Meta, https://www.meta.com/en-gb/experiences/theater-elsewhere/2515021945210953/?srsltid=AfmBOorTdN3FyyIGhrR7j6GiRoQ3RT2zVxTQbNuubyTEGHLYH1IQC7kI

UK Research and Innovation, (2024), New Funding supports UK artists to work with immersive tech, https://www.ukri.org/news/new-funding-supports-uk-artists-to-work-with-immersive-tech/

Venice Immersive Think Tank 2024, (2024), The LBE Market: Immediate Options to Address the Pressing Needs of Immersive Distribution and Exhibition in Venues, Venice

Production Bridge, https://veniceproductionbridge.org/sites/default/files/documenti/file/venice-immersive-think-tank-2024-report.pdf

Villa Albertine, (2025), Call for Applications: Immersive Exhibition Grants for Cultural Institutions and Venues, Villa Albertine, https://villa-albertine.org/va/professionals/call-for-applications-2024-french-immersion-grants-for-us-cultural-institutions/

Virtual Reality Society, (n.d.), History of Virtual Reality, Accessed in May 2025, Retrieved from https://www.vrs.org.uk/virtual-reality/history.html#:~:text=In%201968%20Ivan%20Sutherland%20and,ceiling%20(hence%20its%20name).

Voice of VR, (2025), https://voicesofvr.com/1393-overview-of-raindance-immersive-2024-selection-featuring-social-vr-indie-artists-virtual-culture/#:~:text=%5B00:08:46.991%5D,in%20these%20mixed%20reality%20contexts.

Voidspace, (2025), Voidspace in Conversation: Owen Kingston – Parabolic Theatre, Access in May 2025, Retrieved from: https://voidspacezine.com/voidspace-presents-owen-kingston-parabolic-theatre/

Warren, J. (2017), Introduction, Creating Worlds: How to Make Immersive Theatre, pp. vii-xv.

Welham, Kate, (2024), Immersive Theatre and Interactive Theatre, Immersive Experience Network, https://immersiveexperience.network/articles/immersive-and-interactive-theatre/

Yuhui, T., et al. (2024). Immersive theatre: A comprehensive review and future direction. *Pakistan Journal of Life and Social Sciences*. https://doi.org/10.57239/PJLSS-2024-22.2.00274

Appendix A

Sample Interview Guidelines with Director

Background Questions	1. Can you share your journey of becoming an interdisciplinary artist, given your background in filmmaking, animation, lighting, set design, dramaturgy, and post-production? What do you enjoy most

	about creating immersive and cross-disciplinary projects?
Artistic Vision	2. What is your overall artistic vision regarding this production *Sleepy Hollow*? 3. How do you see *Sleepy Hollow* evolving?
Audience Experience	4. How did you want the audience to feel during the experience? 5. What is the audience's role in this production? 6. What emotions or reactions were central to your vision? 7. Can you share any moments where audience interaction led to unexpected insights?
Interactivity and Audience Agency	8. Immersive theatrical performance often involves giving the audience room to interact and actively engage instead of passively observing. How do you determine the right level of audience participation, and what strategies do you use to balance that with your creative control?
Challenges and Constrains	9. The project has gone through a series of playtests in Amsterdam, Groningen, and Rotterdam with different scenes. Were there moments where audience behaviours surprised you, and how did you adapt the design or performance in response? 10. Did any audience reactions challenge your initial expectations about the work's impact? 11. Could you share an example of a challenge you faced in achieving this balance of artistic vision and audience experience and how you addressed it?
Technology Application	12. The Fortune teller scene uses different stimuli: lighting, incense, the sound and tone of the actress, soundscapes, gypsy style blanket,

	AR, and touch all these multi-sensory elements to immerse the audience in that scene. Throughout the whole project, how do sensory elements like sound, lighting, and VR contribute to the audience's emotional journey in Sleepy Hollow? 13. How do you leverage sensory triggers to tie to the story's theme?
Interdisciplinary Collaboration	14. How does the interdisciplinary team work together to develop this project? Do you have a moment to negotiate priorities, such as artistic ambition vs technology/practical constraints, narrative clarity vs audience freedom, or technological feasibility vs. emotional impact? If yes, how?

Appendix B

CODING BOOK

Artistic Vision	Audience Engagement Refinement Engagement Storytelling Immersion Technology integration Audience Experience Communication Adaptation Improvisation
Audience Experience, Interactivity and Audience Agency	Audience Comfort Audience Engagement Audience Enjoyment Audience Expectations Audience Interpretation Engagement level Audience Behaviors Audience Choices Audience Agency Audience Comprehension Guidance Participation

	Empowerment Freedom
Iteration	Balance Dynamics Artistic Balance Accessibility Feasibility Audience Feedback Artistic Integrity Communication Technology
Team Collaboration	Interdisciplinary Collaboration Communication Knowledge sharing
Constraints and Challenges	Financial Constraints/Budget limitations Technology limitations Cost Audience Expectation Engagement Challenges Collaboration Challenges