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Exploring Immersive and Theatrical Elements in Virtual Reality

A Case Study of Love Simulation EVE and Future Prospects in VR Theatre

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Tiivistelmä - Referat - Abstract.

Tutkielma käsittelee virtuaalitodellisuuden (VR) immersiivisiä piirteitä teatteriesityksissä, käyttäen "Love Simulation EVE" -esitystä tapaustutkimuksena. Tutkimuksen tavoitteena on tunnistaa ja arvioida VR-esityksen immersiivisiä elementtejä. Lisäksi tarkastellaan kriittisesti, miten VR voi rikastuttaa perinteisiä teatterikokemuksia ja tutkitaan VR-teknologian mahdollisuuksia mullistaa teatterikenttää.

Tutkielman tapaustutkimusaineisto koostui esityksen havainnoinnista ja yhdestä haastattelusta. Ensin havainnoitiin Love Simulation EVE -esitystä, jossa esityksen seuraaminen yleisön roolissa, muistiinpanojen tekeminen ja esityksen analysointi muodostivat osan aineistosta. Tätä aineisto analysoitiin käyttämällä Sauterin esitysanalyysiä. Haastattelu valittiin toiseksi tiedonkeruumenetelmäksi, jotta saatiin ensikäden tietoa VR-esityksistä. Haastattelu toteutettiin käyttäen puolistrukturoitua teemahaastattelu ja haastateltavana oli Eero Tianen, Love Simulation EVE:n taiteellinen johtaja. Haastatteluaineisto analysoitiin käyttämällä laadullisen sisällön analyysin menetelmin. Erilaisia aineistonkeruumenetelmiä yhdistämällä pyrittiin saavuttamaan kattava ymmärrys tutkimuksen kohteesta.

Tutkielman tulokset osoittavat, että VR teknologia mahdollistaa immersiivisten yksilöllisten ja interaktiivisten elementtien käytön esityksessä. Tutkimus tuo kuitenkin esiin myös haasteita, jotka on ratkaistava, jotta VR teknologian potentiaali teatterissa voidaan täysimääräisesti hyödyntää.

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Tiivistelmä - Referat - Abstract

The present study investigates the immersive characteristics of virtual reality (VR) in theatrical performances, using the performance "Love Simulation EVE" as a case study. The research aims to identify and evaluate the immersive and interactive elements of a VR performance and assess their contributions to creating an immersive theatre experience. The study will critically analyse how VR can facilitate a theatrical experience, examining the potential for immersive qualities to enhance and emerge within a VR performance.

The case study data for this thesis consisted of observations of a performance and one interview. First, the Love Simulation EVE performance was observed, where watching the performance as an audience member, taking notes and analysing the performance formed part of the data. This data was analysed using Sauter's performance analysis. Interviews were chosen as a second data collection method to obtain first-hand knowledge of VR presentations. The interview was conducted using a semi-structured thematic interview and the interviewer was Eero Tianen, Artistic Director of Love Simulation EVE. The interview data was analysed using qualitative content analysis methods. A combination of different data collection methods was used to achieve a comprehensive understanding of the research subject.

Overall, the study concludes that VR has the potential to enhance and revolutionise traditional theatrical experiences by providing immersive, individualised, and interactive elements. However, it also identifies challenges that need to be addressed to fully realise the potential of VR in theatre.

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1. Introduction

Digital and virtual opportunities for performing arts have undergone a significant transformation during the past decade. Due to the global pandemic in 2020, performing arts saw a surge in demand for digitally produced content around the world, with the rise of live stream and on-demand theatre platforms. This surge can be attributed to various factors, including advancements in technology, the accessibility of digital platforms and impact of COVID-19 pandemic, all of which have also led to an increased exploration of virtual reality in theatre.

Spurred by global pandemic, theatre obtained a new a virtually manufactured second stage, which can be argued to be live stage's digital counterpart. Even though digital performance platforms had already been existing for years, the pandemic elevated the demand and curiosity towards experiencing theatre and performances through alternative mediums. In addition, desire from cultural organisations to develop and create alternative ways to experience performances increased significantly. Digital developments and circumstances prompted the performing arts industry to explore new ways of reaching audiences through digital means and audience to find new ways to experience productions. Due to social distancing and rare circumstances theatre's focus from live theatre was forced to shift towards digitally available performances.

Digital platforms have risen in popularity in recent years, however, digital is not a new feature in theatre. Theatre has long tradition in using and utilising digital advancements and developments. More precisely digitally produced content has been part of theatre from beginning of 1900s when experiments with projected film started appearing in performances.[1] Since then digital medium has rooted itself in theatre, especially in theatre equipment to digital projections. Despite the integration of digital elements in theatre, debates about the impact of digital interference on the experience of live performances intensified in the 2000s with the rise of event cinema, such as The MET Live and National Theatre Live. In addition to digital, the emergence of metaverse along the rise of virtual reality has introduced yet another way of experiencing performances, such as attending a show through a VR headset.

[1] Dixon & Smith 2007, 40-41.

Virtual Reality (later VR) is understood as computer-generated visuals and audio produced in a made to feel real simulation that is accessed through sensors, like a headset, which helps the user to immerse themselves in the artificial world.[2] It stands for a digitally produced world which creates a synthetic digitally produced environment.[3] In other words, VR simulates live experience in a realistic way.

VR performances have increased notably over the past decade, especially as established theatres such as Royal National Theatre and Royal Shakespeare Company have started experimenting with VR technology.[4] This phenomenon has also reached Finland with VR and XR experiments taking place at Finnish National Opera and Ballet[5] as well as Espoo Theatre. This included Finland's first professional VR performance titled Love Simulation EVE that premiered in March 2023. In addition to performing arts, VR is also utilised in multiple fields as a method for training in education and medical field, as a working tool in architecture and real estate as well as training athletes.[6]

Recent studies have mainly focused on the potential of VR, however immersive qualities of VR have also been studied.[7] Furthermore Royal Central School of Speech and Drama started a research and development program in immersive performance and digital technologies in theatre.[8] Thus, the academic and practical exploration of VR in theatre is gaining momentum, highlighting the importance of understanding its impact on both creators and audiences.

The necessity and purpose of digital and virtual viewing experiences in the context of performing arts has been scrutinised since its inception.[9] Furthermore, virtual stage's place and position in arts is yet to be determined in the post-pandemic performing arts field, therefore this study is characterising something that is evolving. Time will tell if it is a temporary trend or a feature that is here to stay. However, virtual features have undeniably become more prominent over the years and as consumers' relationship with virtual and digital content develops, virtual

[2] Oxford dictionary: Virtual Reality.
[3] Nebeling 2023.
[4] How will audiences experience live performance in the future.
[5] XR Stage: A New Era in Designing for the Stage.
[6] Marougkas, Troussas, Krouska & Sgouropoulou 2022.
[7] Reany 2010, 183-188.
[8] The Potential of Virtual Reality in Theatre and Performance: Insights from the Performance Lab Sandpit.
[9] Bay-Cheng 2023.

stage continues to evolve and expand its influence. Moreover, it is only natural that theatre, an art form that scrutinises and reflects the world around us wants to involve itself in digital and virtual medium.

Based on volume and quality of digitally available performances, it can be argued that digital is here to stay. However, since there are existing debates on digital's as well as virtual reality's role in theatre, I want to clarify that this study is not trying to elevate digital and virtual over live theatre nor do I think digital or virtual will replace live theatre. I would argue that digital and virtual endeavours are here to create new ways of engaging with audiences, increase accessibility and push the artform to new places.

VR and theatre together have not been extensively researched or written about, nevertheless articles about the topic have emerged since starting this thesis; focusing on the VR's visual, scenic as well as immersive potential of a performance.[10] VR technology and its stance in arts is changing with time, therefore it will be intriguing to observe how VR evolves in conjunction with the performing arts. Because VR and technology around it is continuously developing in rapid speed, this study is pursuing to define and verbalise something that is in progress. VR is a relatively new phenomenon and the study documents and tries to capture how this phenomenon appears at this moment in time.

The study explores Virtual Reality (VR) and what possibilities it can bring to theatre as well as what kind of value it can offer to performing arts. More precisely Virtual Reality is analysed through its immersive elements. The usage of VR and the element of immersion are examined in the Love Simulations EVE (2023). The performance is discussed and analysed using performance analysis. In addition, an interview was held with performances' artistic director, concept creator and writer Eero Tiainen, discussing the component of immersive and audience experience in the context of virtual theatre. The performance and interview are main data for this study.

The present study aims to explore the characteristics of the virtual stage and how immersive elements manifest within the context of a VR performance, specifically through the case study of Love Simulation EVE. Additionally, this research seeks

[10] The Potential of Virtual Reality in Theatre and Performance 2023; Pike 2020.

to recognise various types of immersive elements in virtual reality and assess their contributions to creating an immersive theatre experience. The study will critically analyse how VR can facilitate a theatrical experience, examining the potential for immersive qualities to enhance and emerge within a VR performance. Furthermore, it will investigate the broader implications of VR technology in the realm of theatre, evaluating its potential to revolutionise traditional theatrical experiences.

This thesis will proceed followingly: I will introduce methodology used in this study and the interview that was held with Love Simulation EVE performance's artistic director Eero Tiainen. In the second chapter I will go on to present theatre's relationship to digital and virtual through its history as well as defining key terminology of this study. Third chapter focuses on VR and its immersive qualities, drawing on examples of past VR performances. Fourth chapter examines the case: Love Simulation EVE. The chapter introduces the performance and discusses its immersive qualities as well as how VR element is applied in the performance. The chapter further delves into the interview with Tiainen and discusses how Love Simulation EVE is experienced as a theatrical performance. Furthermore, it explores the performance's immersive elements and audience experience as well as what makes VR a unique experience for the audiences. Finally, fifth chapter discusses the results of the study followed by limitations and a discussion on the future possibilities of virtual performances.

1.1 Methodology

This study is conducted using qualitative study methods. Research data was collected through observation and the interview mentioned. Through different types of data, the aim was to achieve a comprehensive understanding of the study. A case study approach was chosen within the qualitative research methods.

Case study is a central qualitative study data collection method that refers to an intensive study of either one or few cases.[11] Case study was suitable to this study since it focuses on one specific phenomenon, in this case the performance of

[11] Metsämuuronen 2001, 90.

Love Simulation EVE. Love Simulation EVE was chosen as a case since it is the first full length VR theatre experience in Finland. Therefore, it was possible to observe the performance firsthand as well as interview the creator. The case was chosen to demonstrate the phenomenon of VR theatre and its immersive potential. The objective of a case study is to explain and argue the case and understand it more deeply and to find similarities with other cases as well as to find what is special in the case in question. In a case study, the aim is to have a comprehensive and in-depth study of the chosen case.[12] The case is studied using several versatile data collection methods.

Observation was used as data collecting method. Observing the performance as an audience member and writing notes and analysing the performance served as data. I saw Love Simulation EVE once and my observations functioned as data and context as well as research for the interview.

Performance analysis was employed to analyse the immersive elements of Love Simulation EVE. Willmar Sauter's performance analysis was used as framework to analyse the performance.[13] Sauter interprets a theatre performance as communication between the stage and the audience, dividing the theatrical experience to sensory, artistic and symbolic levels.[14] The performance is perceived through these levels. Artistic and symbolic levels were easy to apply to the performance in question, since the performance itself was elevated from the everyday and generated an emotional and intellectual response in the spectator. It was also somewhat comparable to other theatre performances. Sensory level refers to interaction between performer and audience, this however is harder to recognise since the performance did not have a traditional stage nor live actors for majority of the performance.[15] Therefore, there were no traditional interaction between the audience and performers. However, audience's interaction with surrounding physical space and virtual space were possible to analyse. Primary communication in the performance took place between the spectator and the virtual space. Brief interactions with other audience members as well as staff were also included in the performance analysis.

[12] Gerring 2016, 26-36.
[13] Sauter 2000, 19-95.
[14] Sauter 2000, 63.
[15] Sauter 2000, 168-169.

To gain first-hand information on VR performance, a semiconstructed thematic interview was chosen as another data collection method. As previously mentioned, the interview was conducted with the artistic director and writer of Love Simulation EVE Eero Tiainen. In thematic interview, the aim is to find meaningful answers that align with research objective and gather information reliably, so that conclusions can be drawn about the researched phenomenon. The method was chosen for its flexibility and freedom that allows room for modifications and follow-up questions.[16]

The interview was held remotely on Zoom platform and lasted just under an hour. The interview followed a structure of a thematic interview and kept to an open format, which allowed changes and adjustments to the structure when needed. Themes and pre-written questions were outlined before the interview and were chosen carefully based on previous studies as well as on the interviewee's expertise. Aim of the study and themes of the interview were disclosed with the interviewee beforehand.

The interview data was analysed using content analysis. Content analysis aims to examine content's relevance objectively and systematically and helps to structure the material for conclusions.[17] Analysis in this study is content driven instead of theory driven. The aim of qualitative content analysis is to identify central themes of the interview. Content analysis can be applied to many kinds of research and literature contents, which is why it suits well for a qualitative research.[18]

2. From digital to virtual in performing arts

This chapter examines the relationship between theatre and the digital and virtual advancements. Firstly, collaboration of digital media in performing arts and how digital influence has evolved to present day is described. I will continue with explanation of virtual terminology and how I define virtual stage and what are the possibilities of virtual stage. At the end of this chapter the concepts of immersion

[16] Hirsjärvi & Hurme 1991, 47-48, 66; Eskola & Suoranta 2000, 86-87.
[17] Tuomi & Sarajärvi 2009, 106.
[18] Tuomi & Sarajärvi 2009, 108-110.

and interactivity are defined, illustrating how these elements converge in a theatrical VR performance.

2.1 History: How digital became the largest theatre in the world

Throughout its history, theatre has consistently embraced the forefront of technological advancements to enhance theatrical experience in productions, and furthermore has prompted to recognise and utilise potential of new technologies.[19] With digital advancements, it is possible to increase aesthetic and sensorial outcome, sense of spectacle as well as emotional impact in performance.[20]

Digital performance is rooted in the Futurist movement, when exploration with film projection started.[21] Loïe Fuller was one of the pioneers in incorporating projected film as early as 1911 in her revue performance in Berlin.[22] Experimentation with film in theatre performances carried over to the 1920s, most notably with Erwin Piscator's experimentation with film in 1929.[23] Piscator's aim for using film in theatre was to enhance the theatrical aspect of a performance. Piscator, with these multimedia performances, expanded the scope of his plays with visual fictional space.[24] At the end of 1920s, as political climate became more tense, experimentations with film declined and theatre returned quickly to traditional performances. Digital experimentation continued in the 1960s in the form of mixed media performances (combining film and live). Experiments with computer as part of the performance characterised experimental theatre in 1990s.[25]

The 1990s also introduced first experimentations and incorporation of VR, when a small number of artists experimented with VR technology in theatre.[26] Performances such as *Placeholder (1993)* and *Osmose* (1994-95) as well as VR adaptation of expressionist play *The Adding Machine* (1995) became the first full-length theatre performances to use VR.[27] Instead of VR headsets, VR imagery

[19] Dixon & Smith 2007, 39.
[20] Dixon & Smith 2007, 39-40.
[21] Dixon & Smith 2007, 47.
[22] Dixon & Smith 2007, 41.
[23] Brockett & Hildy 2003, 436.
[24] Pike 2020, 121.
[25] Dixon & Smith 2007, 87.
[26] Dixon & Smith 2007, 367.
[27] Dixon & Smith 2007, 368; 372; 385.

was seen through SD polarised glasses whilst actors were performing in front of a technician operating the background, all in real time. Both *Osmose* and *Place-holder* used Virtual Reality to place the audience member in a space which was consistent with reality e.g. simulating the real world. VR was used as a new exciting scenography medium, and in service of the script, not as an irrelevant device of spectacle.[28]

At the beginning of 2000, a significant transformation took place in terms of live theatre when prominent theatres and opera houses started to produce performances that would be digitally live streamed to cinemas all over the world. Big scale productions were broadcasted in high quality for the first time, as stablished theatres such as: Metropolitan Opera Live (Met Live) and National Theatre Live (NT live) started live streaming performances and distribute high level productions outside of theatre buildings to movie theatre screens. By broadcasting their performances, these big establishments challenged theatre's exclusiveness to one location and made their shows more accessible and available for audiences all over the world. This created a new type of theatrical cinema called event cinema that distribute direct live performances as well as recorded encore performances.

Alongside to these event-based showings, there has been an increase of digital platforms that display theatre performances as a streaming service. In addition to long-time existing platforms, that show plays and musicals from West-End and Broadway, such as Digital Theatre[29] and Broadway HD[30], a new platform, NT Home[31], was launched featuring National Theatre Live performances. These have made performances even more accessible to view, with freedom to watch them at anytime and anywhere on various types of screens.

Global pandemic created a void and demand for digitally accessible productions, leading to an increase in popularity of digitally captured performances. Even streaming service giants such as Disney+ stream land-mark theatrical performances, albeit musicals, such as *Hamilton* (2015). In addition to captured stage performances, there have been productions created solely for digital viewing.

[28] Dixon & Smith 2007, 372-375.
[29] digitaltheatre.com.
[30] broadwayhd.com.
[31] ntathome.com.

These performances, like Royal National Theatre's Romeo & Juliet which premiered on Sky Arts and was later accessible on NTHome, have never been presented to a live audience.

Digital has become inseparable part of theatre, and it has been fundamental part in performance since modern theatre.[32] Launching these different platforms has challenged how theatre can be viewed and perceived. These experiments and establishments have widened and challenged the notion of how to watch and experience theatre. Digital medium's arrival to theatre, however, has not been warmly received on all accounts. Juxtaposition, even a conflict between theatre and digital has been present, especially of fear of how this change will effect local community theatres and cause a decline in attendance of traditional live theatre performances.[33] However, it is documented that digital presence has a positive impact on community theatre and co-existence of live and digital is even beneficial to theatre.[34] All the digital development and theatre's utilisation of digital possibilities has further laid a foundation for mixing digital as well as virtual form and the live.

2.2 VR, AR, XR: world of the virtual

This chapter explains terminology used in context of virtual reality, such as Augmented Reality (AR), Virtual Reality (VR) and Extended Reality (XR). These are the three most common types of virtual reality forms. To understand VR, it is helpful to understand different types of virtual practises that are commonly used and comprehend the different types of terminology used in the field.

AR = Augmented Reality (enhanced physical world)

VR = Virtual Reality (computer-generated virtual world)

XR = Extended Reality (X is wildcard for A, V or M)

AR refers to real world surroundings that are augmented digitally, thus combining real world, layered with a digitally created one. For example, digital content or

[32] Dixon & Smith 2007, 1-2.
[33] Gardner 2014; Reason 2006, 107-109.
[34] Nesta 2014.

enhancements can be overlayed to a live video, making it part of the physical world around you. AR is often used on mobile applications, social media platforms and TV broadcasting. AR is popular in live performances for example in situations where digital content is added onto live camera feed, where the audience watching at home see digital content added to the show. In AR, a distinction between live real world and digital content is often clear.[35]

Unlike AR which supplements reality, rather than replaces it, VR has the ability to fully immerse the spectator in the virtual world.[36] In addition, VR often must be accessed with a headset. AR experience does not need this requirement and can be used in everyday life since it doesn't need users to shut out the surrounding world.[37]

The concept of VR came already into use in the 1990s.[38] VR stands for virtual reality, which means computer created audio and visuals that represent the real, where user can interact by using sensors.[39] The most common sensor is VR headset, which is a form of VR experience that is specifically going to be referred to. In VR, computer technology is used to create a simulated environment that may replicate our world or create a completely imagery one. The user is placed inside a digitally produced world that is made to feel real, thus is a completely immersive experience.[40] In VR, the user or audience member is completely immersed in a synthetic digitally produced world, thus helping the audience member to step into the story of the performance. VR transports the user to a new experience, to a virtual world, as if they would physically be there.[41]

The virtual space, often referenced as metaverse or virtual world, is an imaginary virtual space that is accessed through a medium like a headset. The imaginary world has its own sets of rules and relationships. In VR experience the participant is immersed into an alternative reality which highlights the sensation of being physically in the said environment. Participants has autonomy to choose their own position that affect events in the story world, thus providing a more compelling experience. This is called sensory feedback, that refers to freedom of vantage

[35] What Is Augmented Reality (AR) and how does it work?
[36] Azuma 1997, 2.
[37] Nebeling 2022.
[38] Stevens 2021.
[39] Oxford dictionary 28.11.2022: Virtual Reality.
[40] Nebeling 2022.
[41] Nebeling 2022.

point. Movements in virtual world give direct feedback to participants, therefore it is interactive.[42] In addition, interaction with objects, characters and places is possible in VR generated imaginary worlds. Changing viewpoint and having the sensation of moving physically in the imaginary world also counts as feedback.

Extended reality (XR) is used as an umbrella term for virtual, augmented and mixed reality. Characteristics of XR mediums are, just like in theatre, immersion and interaction.[43]

2.3 Virtual Stage: a new stage

Virtual reality is an evolving medium that combines cinematic storytelling, world-building, and game-like interaction into new kinds of bodily experiences. Therefore, it is very suitable for immersive theatrical experiences.[44]

Virtual stage can be seen as a counterpart of live physical stage. It can be defined as an immersive virtual space, which is made possible due to technological advancements. It exists at the "threshold" of physical and virtual; hence audience member is grounded in the physical space while mind is immersed in the virtual world. Therefore, there is a notion of two lives with virtual stage: a physical one (physical location of the experiencer's body) and a virtual one (where the mind is immersed in), both existing simultaneously.[45] Consequently, virtual stage represents an entirely unprecedented form of space. In purposes of this study, virtual stage is referred to as a stage that is either digitally captured (recording of a real-life physical stage) or a fully virtually manufactured stage. Virtual stage does not physically exist, and it can only be accessed through a device such as VR headset.

Virtual stage is not to be confused with digital stage. The key difference between virtual stage and digital stage lies in their technologies, visualisation and interaction.[46] The line between digital and virtual stage is defined in its form of access, for example, VR can be accessible at anytime and anywhere with VR glasses.

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[42] Sherman & Craig 2003, 6.
[43] Nebeling 2022.
[44] Wales, Wheeler, Cimolino, Levin, Mees & Graham 2023.
[45] Dixon & Smith 2007, 377.
[46] The Difference Between Virtual Reality and Digital Twin.

VR provides an immersive simulated environment, while digital technology creates a virtual replica of the existing.

Virtual stage offers a new type of relationship with the audience. The computer-generated world can be seen as a theatre and performance space, or as a tool that can make impossible things real for the spectator. VR performance gives an opportunity to abandon one's physical body and self-consciousness through an avatar. Moreover, accessing virtual world through an avatar frees from limitations and restrictions of the physical world. Within these liminal spaces of physical and virtual opportunities, arise new experimental forms and practices.[47] Therefore, it offers a world to try new ways to behave and participate as an audience member providing a performance space with endless possibilities but also a new creative layer to a performance.

Virtual stage differentiates from traditional stage in its absence of time restrictions, since it is not tied to a space. Virtual space has a diverse potential for creativity, experimentation and play between creators and audience. Virtual stage offers a more approachable access to participate since it serves a more democratic place to participate, for example, comparing to a theatre building where there is an audience etiquette and behavioural customs to abide to.[48] Therefore, virtual and digital stage arguably allows democratisation of producer and audience member relations.[49] Because interactivity is a prominent feature of VR, the communication extends over passive audience participation.

2.4 Immersion & Interactivity

Immersion and interactivity are considered the main characteristics of virtual storytelling.[50] These are also characteristics that apply to an immersive theatre performance. Interaction highlights user's role and their agency, for example the varied choices in interaction and behaviour can lead to different results.[51] In the

[47] Boardhurst 2006, 141.
[48] Broadhurst & Machon 2006, 181.
[49] Broadhurst & Machon 2006, 181.
[50] Sherman & Craig 2003, 7-11.
[51] Ferri, Haahr, Koenitz, Sezen D.& Sezen, T. I. 2015, 14-15.

context of a VR performance, interactivity and immersion are key elements that work closely together.

2.4.1 Immersive

The notion of immersive is familiar in theatre studies and has been widely written about. In its simplicity, immersion means sensation of being immersed in an alternate environment.[52] Nevertheless, in theatre the word immersive creates a lot of debate as well as sparks different interpretations and connotations.[53] However, there are some key elements that distinguish immersive theatre from traditional theatre. For example, when entering an immersive theatre performance, traditional theatre modes and expectations of a theatrical event does not apply. Immersive theatre is a loose term, therefore purposes of this study I'm outlining three key elements of immersion: space and creation of physical environment, element of interactivity, personalised experience with a unique experience factor.[54]

Space has an important role in immersive theatre, since space between audience member and performer differs from traditional theatre or is completely absent. Distancing proscenium does not exist in immersive theatre. Audience member is surrounded by the presented world and is, for example, able to walk around, explore its surroundings and have agency in the world, which creates a sense of increased access to a performance. This ties to the second element of interactivity: possibility to interact with performers or surroundings.[55] The above-mentioned aspects collectively establish a unique experience factor, making the performance feel something out of ordinary.

Immersive storytelling allows the story to expand to something that is personal since it makes spectators part of the story rather than observers of the story.[56] The audience member becomes more a participant rather than a witness. Audiences' role is not only to respond to the performance, but to interact, to roam

[52] Sherman & Craig 2003, 7.
[53] Warren 2017, vii.
[54] Eckert 2021.
[55] Eckert 2021.
[56] Stevens 2021.

freely and even speak with other participants. Audience is needed to complete an immersive theatre performance.[57]

Immersive performance has the opportunity to create strong relationship between audience and performer, since traditional fourth wall is absent. When audience and performers are in the same physical environment, it creates unique experience and opportunity for engagement and connection, in a more vulnerable way. It makes audience members more part of the story than just observers. Immersive theatre positions spectators as productive participants that demands from audience to do and feel more.[58]

Alston describes immersive theatre as an ‘experience machine’ that is ‘enclosed in other-worldly spaces’ that “aim to place audience members in a thematically cohesive environment that resources the sensuous, imaginative and explorative capabilities as productive and involving aspects of a theatre aesthetic.”[59] Purpose is to increase audience engagement with audience immersion.

Immersivity has long traditions in theatre; dating all the way back to ancient Greece, with performances that engaged audience members actively in their performances. Modern immersive theatre can be traced back to Antonin Artaud’s 'Theatre of Cruelty,' which was active from 1931 to 1936.[60]

Immersive feature does not only limit to theatre. Installations by teamLab often integrate immersive elements and artists, such like Björk, has made immersive music video experiences. Immersive qualities transform how audiences interact with and perceive art. As technology evolves, such immersive practices are becoming increasingly prevalent since immersivity in the arts leads to richer, more interactive, and impactful experiences. It provides both creators and audiences new ways to explore and connect with the performance. Immersivity allows artists to involve their audiences in more personalised and interactive ways. It transforms the performance into something to be experienced that engages all the

[57] Alston 2016, 7-9.
[58] Alston 2016, 4.
[59] Alston 2016, 2.
[60] Brockett & Hildy 2003, 440.

senses. This shift towards immersion redefines how art is created and experienced, turning it into a dynamic and participatory journey.[61]

Participation of audience member refers to actions needed by audience member in the action of a performance.[62] This means there is an active participation from the audience member that goes beyond the expected rituals of audience member, for instance clapping, laughing or gasping. Therefore, audience responding to a performance, but not actually participating in the action is not included as audience participation.[63] Moreover, the participation needs to feel different to what we expect to take part in. This could be for example having power to influence the plot or speak to a performer.

2.4.2 Interactivity

Interactivity often allows the audience to respond to or influence the artwork. It can also manifest in a form of free roaming, where audience is allowed to move around the space however they want. Interactivity can manifest through selecting options or influencing the pace or order of events. The audience is often invited to respond, make choices or choose perspectives, which gives weight to their actions and choices. Interactive elements usually allow the audience to influence certain outcomes or navigate choices. In some cases, there is an opportunity to influence the narrative through interaction.[64] Interactivity is usually low-risk for the audience, as they remain outside of the narrative but have some control over aspects of the experience. Interactivity impacts their personal experience but does not fundamentally change the narrative for other viewers.

2.5 VR experience types

VR can be divided into four different types of experiences: non-immersive, semi-immersive, fully immersive and collaborative.[65] VR doesn't automatically mean that it is immersive. Even some forms of VR can be counted as *non-immersive*

[61] Alston 2016.
[62] White 2013, 4.
[63] White 2013, 4-5.
[64] Iudova-Romanova, Humenyuk, Horevalov, Honcharuk & Mykhalov 2023.
[65] Digital Leap 2023.

VR-experience, for example where the user access the virtual environment through an avatar on a computer screen.

Semi-immersive experience immerses the user in an audio-visual experience with a VR headset. The user is given a sensation of being in an environment where they are able to look around and roam freely. However, it is not possible to interact with surroundings, objects nor with the characters.[66]

In *fully immersive* VR experience the user fully enters in the artificial world. User's suspension of disbelief is extended so that the virtual world feels real. In addition, the user can fully engage and interact with the surrounding virtual world.[67]

In a *collaborative* experience, users can interact with each other as avatars and share the virtual space, even though they are physically located elsewhere.[68] Two users can for example collaborate on tasks and solve problems together. The identifying feature is having activities that need two or more people to participate.

3. VR and Theatre – imagining beyond stage

This chapter analyses what a VR performance is and how VR performance can be defined. Moreover, the chapter discusses the possibilities of a theatre performance that uses virtual enhancements, by giving examples of recent VR performances. This leads to current discourse points; elaborating on how VR is used to a broader extent in arts and media as well as in theatre. VR and its immersive qualities provide more interactive, engaging, and experiential opportunities.

3.1 Characteristics of VR experience

Sherman and Craig distinguish four interconnected characteristics in a VR experience: *virtual world*, *immersion* of the virtual world, *sensory feedback* e.g. possibility for navigation and choosing a perspective within the virtual space, and lastly *interaction*.[69] These characteristics are examined in the following paragraphs.

[66] Digital Leap 2023.
[67] Digital Leap 2023.
[68] Digital Leap 2023.
[69] Sherman & Craig 2003, 6.

Virtual world refers to the imaginary space accessed through a medium, like mentioned before, through VR glasses. The imaginary space has its own collection of objects and sets of rules, which is physically immersive for the viewer.[70]

VR offers a complete *immersion* into the performance's story world. With VR headset performances can be experienced without any distractions of the outside world. Compared to digital performances consumed on screen, VR resembles traditional theatre setting in terms of how audience member has autonomy to choose where to look. Immersion in VR can be divided into mental and physical.[71] Mental immersion refers to suspension of disbelief and deep engagement with the content. Physical immersion on the other hand indicates the bodily experience of the user.[72]

In addition, some VR forms offer free navigation, *sensory feedback*, of the virtual space. There is no director controlling spectator's view, like in digitally broadcasted performances. Traditionally in theatre, performers and audience is separated by an intangible fourth wall. In virtual performance by putting on VR glasses audience leaves original space to the performance's stage or into the story world, thus no fourth wall exists.[73] VR environment also provides feedback to the user usually through sense of touch.[74]

With *Interactive* element, environment responds to user's actions, in a way that there's opportunity to affect the virtual environment in one way or another. Another form of interaction can be the ability to change viewpoint, picking up objects or manipulate the environment in some way.[75]

In addition to these four elements, VR can offer a more *personalised* experience for the audience.[76] As content we use in real life is getting more and more personalised, it makes sense that theatre content becomes that as well. In VR audience has an opportunity to have one-of-a-kind experiences tailored to the

[70] Sherman & Craig 2003, 7.
[71] Sherman & Craig 2003, 9.
[72] Sherman & Craig 2003, 9.
[73] Ferri, Haahr, Koenitz, Sezen, D.& Sezen, T. I. 2015, 15.
[74] Sherman & Craig 2003, 10.
[75] Sherman & Craig 2003, 11.
[76] Stevens 2021.

audience member creating a more personalised and individual experience, which is similar to video games.[77]

Therefore, VR arguably promotes more active and interactive form of entertainment instead of traditional passive audience experience. Similar to immersive theatre, virtual stage has this same opportunity to fade out the lines of stage and audience however doing it in a virtual environment. Virtual environment gives an opportunity for redefining relationships with audiences through VR technology. It is possible to put spectators in the centre of action even centre of the stage. It can even be argued that since theatre is "the original virtual reality machine", it is effortless for the theatre audience to visit interactive and immersive.[78]

VR is able to take the theatrical elements and enhance them further to a fully immersive experience and even give opportunity to manipulate and interact with the virtual surroundings. Because of its immersive qualities, VR can imitate live performance's proximity. For theatre practitioner's point of view, virtual 3D space thinking comes naturally since it's already the starting point for a theatre practitioner.[79] Considering how surprisingly close VR performance is to theatre, it's only natural for theatre to take a leap towards experimenting with VR performances, since the artform has immersive elements in its foundation.

3.2 Possibilities in VR performances

Virtual technologies with digital platforms offer global, plural and inclusive access to performances. VR devices, for example help making theatre more accessible, especially for those who have physical accessibility challenges, live far away from theatres or have other accessibility issues. For example, Haaga-Helia University led a project called *HomeOpera* had brought cultural experiences, e.g. opera performances to Finnish retirement homes with VR performances.[80]

Virtual and digital can gain with its accessibility new audiences and new communities.[81] In addition to accessibility VR can increase viewer rates, therefore

[77] Stevens 2021.
[78] Dixon & Smith 2007, 363.
[79] Digital Leap 2023.
[80] homeopera.
[81] Blake 2014.

reachability, just like VR concerts have managed to do.[82] VR fosters social interaction and feeling of community and allows people, who otherwise would potentially struggle with coming to the theatre building, to enjoy performances in a more convenient and safe way. VR arguably offers greater access to performances and possibility for increased audience involvement.

VR allows us to have simulated experience approaching that of physical reality and creation of what is not possible in the physical world.[83] VR is part of a continuing history and evolution of adoption of new technologies in theatre. Virtual performance can increase and enhance aesthetic effect and sense of spectacle when emotional and sensorial impact factors increase. Therefore, VR can add to experience value of a performance.[84]

3.3 How VR has been used in performing arts

Online gaming platforms are and has been on the forefront of virtual reality content. Platforms like *Roblox* and *Fortnite* host virtual reality events frequently in metaverse. In addition to virtual gaming events there's been an increased number of virtual concerts in virtual gaming platforms. Front row artists, such as *Ariana Grande*, *Justin Bieber* and *BTS* has held a metaverse performances to a great acclaim.[85] Virtual concerts boasted with multimillion views, which extended artists their reachability with these performances. For example, Travis Scott's Fortnite performance in 2020, 12 million live viewers tuned in.[86] Even Video Music Awards awarded best metaverse performance in 2022.

In theatre established theatres as well as smaller companies have experimented with VR technology. The Royal National Theatre is one of the leaders in VR integration in theatre.[87] National Theatre produced a VR musical *Wonderland (*2016*)*[88] and an immersive holographic VR performance *Limbo* (2019).[89] Outside

[82] Stevens 2021.
[83] Sherman & Craig 2019, 8.
[84] Dixon & Smith 2007, 40.
[85] NFTing 2023.
[86] Tidy 2020.
[87] Stevens 2021.
[88] Guadian 2024.
[89] All kinds of limbo.

of UK *B*rainz studios company in Poland did 360 camera performance of *Elektra* experienced through VR headsets.

In Finland VR performances are happening at an increasing level, for example, Finland based company *Second Theatre* captures already staged performances to VR format.[90] In addition, Finnish National Opera has experimented with XR and VR technologies in their OperaBeyond- research project since 2018.[91] Furthermore, Espoo Theatre in Finland produced a first VR centred performance: Love Simulation EVE. Next chapter discusses and analyses Love Simulation EVE performance's use of VR and its immersive elements.

4. Love Simulation EVE: a Case Study

In this chapter I will examine immersive qualities in context of virtual reality in the case study of Love Simulation EVE. First, I will describe the performance based on my observations as an audience member and continue to analyse its immersive and interactive elements as well as the utilisation of virtual stage based on performance analysis and previously presented research.

In the second part the results of the interview with the artistic director of Love Simulation EVE, Eero Tiainen, will be presented and analysed. The interview followed a structure of a thematic interview and interview data was analysed using content analysis.

4.1 Observation and analyses of the performance Love Simulation EVE

Love Simulation EVE had its premiere at Espoo Theare in spring of 2023 and serves as a case study on how VR and live performance can be combined. The performance is multifaceted including several stages combining immersive theatre elements altogether providing an event like theatrical experience. A separate section of the performance's VR portion called Love Simulation EVE: Water

[90] Secondtheatre.
[91] OperaBeyond.

Spirits, was available to experience separately as a stand-alone piece at Espoo Museum of Modern Art between August 2022 to January 2023.

In the theatre's website the performance is described as cinematic virtual reality game and according to the site it is the first piece of its kind that combines live actor performances and a VR world multiplayer environment.[92] The website also states that the motivation for doing the performance was to create an entirely new dimension in the field of performing arts and to explore what performing arts can be.[93] The narrative Love Simulation EVE revolves around the complexities of modern relationships and touching on themes of love, loneliness, as well as emotional connection.

Love Simulation EVE was written about Finland's major news outlets in a mainly positive way, especially for pushing the boundaries of traditional theatre and for its engaging use of technology.[94] It opened up discussions about the future of live performance and how VR can enhance storytelling. Overall, the performance represents a significant milestone in the intersection of theatre and digital media in Finland.

The performance experience can be divided into four parts and a prologue, which is presented in the form of an audio clip. Before attending the performance, an audio clip was sent to ticket purchaser's email, with instructions to listen to it the night before attending the performance. The audio clip contained an introduction the world of the performance as well as basis of the storyline (see Appendix 1), with the option of either listening to it in English or Finnish. The audio story prepares the audience member to the performance, introduces the story world and creates expectations before even entering the theatre space.

At the theatre, worldbuilding is accomplished as soon as audience member enters the theatre building. From here on I will refer to audience members as experiencers. From the beginning audience members were treated as participants of a Love Simulation. At arrival the audience is welcomed by front of house who was calling the performance as simulation and addressing experiencers partakers of the experiment, already differentiating the performance from a traditional theatre

[92] Espoon teatteri: rakkaussilmulaatio.
[93] Espoon teatteri: rakkaussilmulaatio.
[94] Kytölä 2023; Mankkinen 2023; Rantanen 2023; Ekman 2023.

experience. Experiencers were instructed to the next steps of the experience and register with another front house member, who handed a sticker to be worn indicating in which language the experiencers are to be addressed as well as signalling readiness to start the first part of experience. These elements all add and play into the immersive theatrical event experience, ensuring a smooth communication with the staff.

The first part of the performance started from the lobby, where a staff member takes the experiencer to the “simulation” part of the performance. Experiencer enters to the simulation area where stepping on a mat is signalling end of the lobby area and beginning of the simulation. Shoes were advised to be taken off when entering this space- physically marking the entrance to the simulation/ performance area from the lobby area.

The second part introduced the experiencer to three storyline premises of the Love Simulation (see Appendix 1). Experiencer is guided individually to take a seat in front of a screen to watch three different characters’ stories explaining why they are taking part in the simulation. Here the experiencer gets to interact with the story and choose two out of three characters’ memories to follow in the next portion and therefore influence their own story experience. After choosing the experiencer is handed stickers to indicate which journeys the have chosen. These visual signals limit the verbal interaction with the staff while smoothing the experience consequently adding to the immersion of the storyline.

Third part of the experience contained the actual VR simulation part. After staff, dressed in lab coats, completed their instructions of the simulation, experiencer was escorted to an individual pod that is equipped with a VR headset. A staff member showed how to use a VR headset and explained the rules of the experience. The experience at this point has mainly been individually curated and interactions have mostly been with the staff members.

When logged in to the virtual world, the experience starts with an introduction to the story world where the performance is now experienced as an avatar. A voice-over instructs to adjust to the surroundings, “look around” and familiarise with the virtual world. At the beginning and the end of the VR portion it is possible to see and visually interact with another person’s avatar. Interacting is possible only with opposite pod experiencer with visual signalling, like waving. The experience

continued to the two previously chosen storylines. During the characters' stories a 360 exploration of the surroundings was made possible. The narrator even encouraged the experiencer to mimicking certain gestures to continue to the next part of the story. After an approximately 45-minute-long VR experience, an actor (recognisable from the narrative stories) escorted the experiencer out from the pod to the final part.

Fourth part of the experience was in a curtained pod with two chairs opposite each other. Experiencer was guided to face another experiencer from the opposite pod of the VR simulation. Both participants listen through headphones to the final part of the story.

4.2 Analysing the immersive and VR elements

This subchapter identifies the immersive elements in the performance, especially focusing on the VR portion of the experience; first introducing the immersive elements of parts one and two and further analysing the third part: VR portion.

Love Simulation EVE displays several elements of an immersive theatre performance. Interactions with staff adds to the immersive world building of the story. On sensory level the lobby is decorated in theme of a clinical reception, which adds into the idea that the experiencer is a participant of the Love Simulation. The performance area is isolated with curtains and lights, visually creating an immersive environment. Even removing shoes is required upon entrance as a soft mat covers the performance area signifying the establishment of "stage" as the designated space for action. In addition, the staff speaks to the experiencer as a participant of the Love Simulation, while informing what is to happen. Mix of front house staff, VR specialists and actors, guide the experiencer seamlessly into the story of the performance. World building feels immersive from the performance space design to staff interaction, together creating a holistic experience machine.

VR

The VR portion of the experience can be identified as a semi-immersive VR experience with *collaborative* elements. The performance can be qualified as a

semi-interactive, since the experiencer has a VR headset and therefore immerses the experiencer into the virtual world.[95] It offers a virtual immersive story world, sensory feedback and small amount of interactivity.

It is possible for the experiencer to look around and choose what and where to watch as well as which action to follow. However, in the VR simulation experiencer cannot interact with the surroundings nor actors. Most of the experience follows linear storyline and experiencer cannot influence the progression of this storyline in a significant way.

At the beginning of VR portion, when a narrator starts the story with thematic intro, experiencer can move around and explore surroundings in 360° vision and freely roam in the virtual space. In addition, there are parts at the beginning and end where the experiencer's movement is tracked, e.g. movement causes fairy dust like shimmers coming from avatar.

In the experience, there are moments where the participant is given the illusion of autonomy, leading them to believe they can influence the narrative. During the story there are cues given by a narrator to mimic virtual actors' position and by doing so the story can go forward. When following assignment to got to different positions the VR device vibrates. Nonetheless experiencer cannot impact the story or narrative flow in a significant way once entering the VR experience.

The simulation does include elements of interaction and collaboration with a fellow experiencer. Two experiencers can see each other and interact with one another at the very beginning and end of the VR portion. At the end there is an ice breaking task, where with a specific hand gesture, two experiencers opposite one another can break an ice wall. This part can be identified as collaborative VR experience.[96]

Because the experiencer is not able to interact nor engage with the characters, the performance cannot be identified as a fully immersive experience. When the VR portion ends, the experiencer is able to interact with performers, however this is outside of the virtual world. Notably, what can sometimes detract from the immersive experience is the occasional clumsiness and heaviness of the VR

[95] Digital Leap 2023.
[96] Digital Leap 2023.

headset. However, the immersive nature of the world effectively causes individuals to lose awareness of their physical surroundings.

4.3 Interview with the creator of Love Simulation EVE Eero Tiainen.

Eero Tiainen is the artistic director of Love Simulation EVE performance, who also co-wrote and co-produced the performance premiering at Espoo Theatre. The aim of the interview was to gain understanding of how VR is used in the context of live performance and why and how VR technology is suitable for theatre. Furthermore, the purpose was to find out how immersive elements manifest in the context of a VR performance. The interview served purpose to function as a method for data collection. Since there is only limited research available on the topic, the interview functioned as added material and primary data to the study. The interview provided first hand data to the study.

The main focus of the interview was on the audience experience through immersive elements in context of virtual stage. In addition, the interview set to find out the nature of a virtual stage and how to define it. One of the aims of the interview was to discuss and explore VR's potential and purpose of using it in theatre. The aim of the interview was to discuss how VR curates a different type of audience experience as well as immersive theatre immersive experience as well as how does the element of immersive increase in a VR performance, if it does. Lastly it was of interest to find out what VR experience can offer to audiences and audience experience and to overall comprehend what role VR and XR technologies may play in the future of theatre.

Interview was conducted in Finnish language and relevant parts of the interview of the study was transcribed. The interview was semi-structured (see Appendix 2) and was divided into following four themes: VR in theatre and its potential, immersive element and how immersive qualities potentially increase during the performance, notion of virtual stage and audience experience, more precisely role of the audience in a VR performance.

Both performance analysis of Love Simulation EVE and interview with its creator was conducted to understand VR's usage in a performance from audience as well as creator's perspective. Since Love Simulation EVE is first of its kind in

Finland and VR performances are a rare case, the interview's purpose was to fully understand VR's promise in a theatrical performance from both sides.

Expectation for the interview was to get firsthand knowledge of making a VR performance and therefore understand the subject matter more deeply. Interview's intention was to understand motivation behind doing a VR based performance. I hoped to find out perspective of a practitioner's point of view in usage of VR.

4.4 The interview results

This chapter focuses on the main *findings* of the interview with Tiainen as well as address which elements Tiainen emphasised in the performance. As described previously the performance consists of several parts and includes different storytelling elements, however the interview manly focuses on the VR portion, the third part, of experience.

As previously the interview consisted of four main themes (VR in theatre, immersivity, virtual stage and audience experience), however during the interview Tiainen elaborated on the notion of how Love Simulation EVE reads as a theatrical performance. As this was something Tiainen emphasised during the interview, it is presented in the results. In the next paragraph I will present how the performance reads as a theatrical performance, then proceed to the main themes of the interview as well as challenges of VR theatre that Tiainen brough up.

Love Simulation EVE as a theatrical experience

Tiainen emphasised that Love Simulation EVE is a theatrical performance. He explains how the performance still reads as a theatre performance and at its core it follows theatre's characteristics even tough part of it is happening in a virtual environment. The performance is directed like a stage production, which is evident in actors movements, for example in their blocking, which is just like they would be on stage. In addition, the rhythm of the play as well as mise-en-scéne is reminiscent of theatre's, instead of film's or TV's direction style.

The scenes are edited like experiencer would be in the same space with the actors, just like audience would be in the same space with performers, thus emulating audience experience in a theatre. Tiainen calls this technique theatre

editing, which can be described as a continuous shot with a static camera angle, that achieves a consistent viewing experience. This is illustrated in Tiainen's point that audience would get confused if VR scenes would be cut like a scene from a film. This is due to the theatrical set up and the bodily experience of it, and therefore the editing needs to be similar to theatre.

With elements such as acting, directing and editing, Tiainen argues that Love Simulation EVE is rooted in theatrical experience even though VR is easily read as an audiovisual media. Even though VR is visually similar to film or game, the performance is still theatre in its way of expression.

VR

When asked about the decision on creating a VR centred performance, Tiainen emphasised how content is the driving force of the Love Simulation EVE, not the format. Hence story world with audience experience is at the centre of the experience.

In the interview Tiainen highlighted the element of sensory feedback, especially the haptic aspect of VR. Tiainen pointed out that VR performance includes several of our senses- especially sense of touch. Tiainen outlined that the inclusion of hands as one of VR's unique features. He further stated that the performance is a bodily physical experienced and what we do with our body, especially with hands, bring more participation for the experiencer. This physical experience differentiates VR from other mediums especially theatre, and only escape games have this similarity with site-specific-theatre. With the physical element the performance is no longer just audiovisual.

Immersivity/ Audience experience

Tiainen highlighted the opportunity to create a solo, one-on-one experience as one of VR's unique features Tiainen says VR is more individualised compared to traditional theatre experience. From the audience perspective, the whole performance from the beginning gives a sensation of an individually curated experience. The solo experience was further enhanced in the intimacy in the actor's delivery. Tiainen further explained this in the absence of speaking to masses.

Tiainen also proposed the idea of VR creating possibilities for new ways for live encounter. Even if traditional physical collective experience is not achieved in VR,

it introduces telepresence, which understands remotely accessed presence. Tiainen claimed that remote presence is still presence and in the future this aspect will have more opportunities when audiences around the world can attend to same VR performance simultaneously and interact with each other through avatars. The interactivity element in VR will only increase as technology around it evolves more.

In addition to personalised and intimate attributions, being in the virtual world provides a sense of freedom from experiencer's physical being. Tiainen explained this occurring in the employment of an avatar. Avatar is a temporary character which allows the experiencer to leave their physical body and be free in the virtual space. Tiainen also described this a *playful state.*

Immersivity/ Virtual stage

One of the characteristics of virtual stage according to Tiainen is non-existence of stage "no proscenium", which is also a characteristic of immersive theatre. Tiainen described the immersion of the virtual world as a constant panoramic view that surrounds the experiencer, similar what immersive theatre offers. Tiainen discussed how the experiencer has the freedom, similar to live theatre, to choose where to look and even where to go in the virtual world. Full visual immersion allows intricate story worlds for the audience to experience in 360° way.

Challenge

The challenges of VR format according to Tiainen is that virtual world reads as physical reality and people expect virtual reality to function as physical reality. Therefore, the illusion might break easily, and it must be maintained carefully for the experiencer. Tiainen explained that different types of interactions and possibilities of various interaction outcomes must be prepared for. If variable elements are not fully thought out for, it can easily break the illusion. In addition, the virtual world is not tangible; audience can be surrounded by it visually and audibly, but they cannot touch nor physically enter it. VR at the end of the day is an illusion.

4.5 Summary of the Interview Results

Key elements of a VR performance that Tiainen brough up in the interview were world building, physicality, haptic element, of the experience and one-on-one feature. The aspect of no stage puts immersive theatre qualities to the fore front. Visual world building interwoven to the physical free roaming possibilities in the narrative story potentially enhances the immersive experience. In addition, Tiainen emphasised the theatrical nature of the performance and theatre being the essence of Love Simulation EVE.

The visual world-building element of VR is arguably one of its strongest immersive elements. Transferring the experiencer to the story world, where the experiencer is free to explore the world and connect with the story in a personal one-to-one way, creates a unique experience for the audience member. Together the elements create a playful state to the experiencer, which allows freedom to explore the virtual world without self-consciousness. These elements of a performance not only enhance the experience value but also its event-likeness which increases the experience value.

5. Discussion

In this chapter I analyse the interview results in comparison to the performance and discuss how immersivity through VR manifests during the performance. The challenges of the interview are discussed as well as limitations of this study are presented.

The main aim of this study was to define features of virtual stage and how immersive elements work in the context of VR as well as how VR provides vast opportunities for an immersive theatre experience. The results show that VR has the ability for immersive world building in a completely new way and therefore VR can enhance audience experience in various ways.

Visual immersion, physical and solo experience are the main points that can be concluded from the interview. Tiainen highlighted following characteristics of

virtual reality experience: immersive qualities, sensory feedback and interaction, which are also described by Sherman and Craig's.[97] Immersion, sensory feedback and interactive elements support the world building aspect of a VR performance and are recognised as characteristic of an immersive as well as a VR performance.

Characteristics of VR

Typical VR experience characteristics such as sensory feedback, immersion, and interactivity are prominently observed.[98] Features in questions were also brought up during the interview, and Tiainen affirmed how these elements enhanced participation in the performance. For instance, *Sensory feedback* allows the experiencer to choose where to watch and what to follow during the performance, which creates a sense of freedom to the experiencers.[99] VR achieves effectively an immersive space with *Virtual stage* since it has no proscenium, instead there is a constant panoramic view attributing to immersive experience.

Tiainen emphasised the *physical bodily* element of the VR experience. Because VR involves all of our senses, especially sense of touch, makes VR the performance a more holistic experience and therefore creates effectively an immersive environment. In VR the physical experience comes to the fore front of the experience in addition to the complete visual immersion to the story world. Moreover, the VR experience is a more physical experience compared to other types of audience experience. For example, in Love Simulation EVE the experiencer is able to move around, see the impact of hand movements and even communicate with other experiencer with physical signaling and together participate in tasks, like breaking the ice wall with hand sensors. Therefore, VR can potentially bring a new type of physical participation, more than any other format of media before. With these elements Tiainen claims that immersivity enhances in a VR performance.

Another feature of VR that Tiainen highlighted was VR's ability to transport the experiencer to the world of performance. In Love Simulation EVE a complete *visual immersion* is achieved. The virtual world surrounds the experiencer into a

[97] Sherman & Craig 2003, 7-11.
[98] Sherman & Craig 2003, 6.
[99] Ferri, Haahr, Koenitz & Sezen 2015, 15.

360° view story world. Complete immersive visual immersion to the presented world provides a mental active engagement with the story.[100] VR has the ability to transport the experiencer to a story world and to various scenarios within it quickly and in a completely immersive way. However, the challenge of virtual world is that if there are any inconsistencies in visual cues, glitches or the surroundings does not act in a desirable way, it can easily confuse the experiencer and take out from the experience. Sensory, visual and bodily experience together create an immersive experience.

When talking about *audience experience* in VR, Tiainen emphasised VR's efficient way to create a *solo experience*. This manifests for example in possibility to curate own experience with choosing which storylines to follow. In addition, in the simulation, experiencer is experiencing the story by themselves enchasing solo-like experience. Seeing the story close to action further enchases it and achieves the sensation that the performance is played just to them. Being alone in the virtual world, with outside senses blocked, achieves a personalised intimate experience for the audience member. An intimate experience is achieved in actors' delivery of their lines. Since the collective audience element is absent, actors do not have to project with their voice, instead they can whisper without worrying about delivering to the back seats. Hearing the dialogue from good quality headsets further an individual experience as the voices is only heard through a headset.

As the solo aspect is enhanced in the performance, consequently the experiencer is inevitably alone most of the performance and provides a more voyeuristic than watching a live theatre performance.[101] As VR effortlessly fades out the lines of stage and audience, and it also facilitates to the audience member to be virtually very close to the virtual actors and experience the action closely without worrying about disturbing. This is also evident in Love Simulation EVE. The intimate one-on-one element of VR can be considered as a unique aspect of VR, and it enchases the immersive and experience element of the performance.

The results suggest that VR format can also free the experiencer from physical restrictions or any awkwardness of social interactions. The virtual space fully

[100] Sherman & Craig 2003, 9.
[101] Dixon & Smith 2007, 130.

allows the experiencer dive to the story world as well as let the experiencer express themselves in a free manner, free from physical capabilities and immerse themselves in a performance in a new way. There is a possibility to disaffiliate from physical being in the virtual world. Moreover, an avatar can allow freedom from self-consciousness, since there is no fellow audience member's gaze to be self-conscious about.

Tiainen interestingly proposed element of telepresence in the experience, even though the VR component of the performance is primarily experienced individually like mentioned before. Telepresence alludes to possibility of interaction with other experiencer and still a sense of connection. In Love Simulation EVE had brief moments when telepresence comes to the forefront: when the experiencer can see and interact with another experiencer. However, these moments are only at the beginning and end of the VR experience, and otherwise the experiencer is immersed in their own storylines and individual experience. Most notably interaction between experiencer and performer is missing in the virtual world and therefore the level of interaction remains small. There is no shared experience between performers and audience, and with minimal experiencer to experiencer interaction a collective audience experience is missing. Instead of interaction the connection potentially happens, as in films, through the story.

The challenge of VR format, according to Tiainen, lies in the way that the virtual world is perceived as physical reality, leading users to expect virtual environments to function just like the real world. Another challenge, in the context of Love Simulation EVE, is the distancing effect happening from the blurriness of the actors. The varying quality of VR simulation can easily distract the experiencers from the story.

Vocabulary that Tiainen used during the interview was academically heavy, instead of coming from practise. Therefore, the interviewee in many instances circled back to academic readings in his answers instead of creation process. Tiainen emphasised that the performance was produced content first and theatrical as well as physical nature of the performance was highlighted. In addition, it was surprising how much physical aspect, especially haptic element of VR, was emphasised. Otherwise, the interview mostly reaffirmed other studies of immersive VR experiences in theatre, for example, sensory feedback, immersivity,

virtual world and interaction being main characteristics of it.[102] No actual new research information on immersive element in VR emerged during the interview. Thus, the interview brought his point of view and affirmation to other sources as well as to this study's hypothesis.

The interview revealed that Love Simulation EVE was originally not intended to be a VR performance. Since VR was not initially considered as a starting point, there are several questions that remain unanswered. The aim of the study was to gain insights into the creative possibilities of designing a performance with VR in mind, as well as exploring the audience experience within the virtual world. It would have been valuable to learn more about an audience-centric perspective on VR and how theatre makers can effectively utilise this medium, along with understanding the creators' viewpoints on VR as a method of storytelling. Since the VR element was introduced later in the process at the suggestion of the producing theatre's artistic director and given that the foundation of the performance was rooted in traditional immersive, site-specific theatre rather than a desire to create a VR experience, many questions remained inadequately addressed.

5.1 Limitations

I am aware of the limitations of this study. Firstly, the challenge lies in the limited number of studies and research available on virtual reality's usage in theatre and understandably there's a lack of long-term research in the field. Therefore, much of the discussion is based on my own understanding and interpretation of the topic. Secondly, while case studies provide rich, detailed insights that are useful in understanding versatile phenomena, there are limitations with the method such as limited generalisability, subjectivity and difficulty in replication. Therefore, the results need to be interpreted with caution. Observation as a data colleting method has its limitations. It is essential to acknowledge that complete objectivity is challenging to attain when observing. However, Sauter's performance analysis was used as a framework in order to analyse the performance in an objective manner.[103]

Regarding the interview, there was only one interviewee. Although the interview questions were carefully formulated and both the subject and theme of the

[102] Sherman & Craig 2003, 6.
[103] Sauter 2000, 19-95.

interview were provided in advance, answers to questions concerning VR as a tool for immersive experience and virtual staging were not received as intended. This was potentially due to VR being introduced later in the process of the performance. In addition, linguistic challenges emerged when analysing the interview. The interview conducted with Eero Tiainen was held in Finnish language, therefore his answers were translated to English in purpose of this study. Consequently, direct quotes could not be used in the study.

6. Conclusion and Future

Integration of immersive theatre and Virtual Reality has the potential to reshape storytelling.[104] Incorporating technology and multimedia in theatre can increase the potential of interactivity and immersive sensation for audience members. Therefore, as Tiainen presented, VR has the potential to bring more participation and interaction to audience than any other medium before. There is even a possibility to generate narratives through physical participation and enhance immersive experience of the performance. Because of increased level of participation and interaction, the audience experience feels different from a traditional theatre performance and therefore arguably enhances audience experience.

In VR as well as immersive theatre, the barrier between stage and audience is faded out. In VR, however, the performance space is a replica of our physical reality- an extension of metaverse. Because of the qualities of virtual environment, it can efficiently take audiences to the world of the performance. Virtual stage is new stage for different experience possibilities for audiences.

Most unique feature of VR is its possibility to enable audiences' experience and make impossible things a reality. Scenarios that would be impossible, rare or dangerous are made possible in virtual performance. For example, being on top of a mountain, walk on water, just like in Love Simulation EVE, or change proportions of surroundings like becoming miniscule or a giant. The experiencer can be designed to be able to do whatever they want without limitations of the physical world. Creators can have complete creative freedom with the design without

[104] Stevens 2021.

restrictions of what is possible to do on a stage.[105] In the virtual- anything is possible, and this adds to the unique experience factor.

Audiences often look for experiences in art that can transport them from every day and experience something new, which art is arguably all about. Virtual performance adapts technologies to increase performance and aesthetic effect, therefore a sense of spectacle increases.[106] VR can, in a fully immersive way, transport audience from everyday surroundings to a fictional story-world.[107] With VR, it is possible to, for example, transport audience to the middle of a stage, middle of action or to a completely imaginary story world.

With technology like VR there's a potential to reach new audiences. The online environment provides an opportunity for unprecedented outreach.[108] Not only can it reach people that are otherwise not engaged in theatre culture, but VR can make the shows more accessible for those who are otherwise unable to attend, for instance because of distance or accessibility issues. VR can also make performance more approachable for those who fear or are not familiar with theatre etiquette. In some cases, VR performance can be accessed from comfort of your own home. VR experience can bring safety to those who are anxious in large groups. It also worth of mention that physical harassment aspect is also absent in VR.

But why would theatre want to utilise VR since theatre performance itself have immersive qualities and immersive performances is already an established part of theatre? Is it therefore worth considering whether VR can bring something new to theatre and field of performing arts? If theatre is truly an artform of interaction and participation, why cannot it also be virtually experienced.

Challenge with all VR and XR forms is that live audiences and theatre goers are not generally the type to explore alternatives to live performances like virtual or digital options.[109] In addition the VR performance challenges the notions of theatre, and its key features with liveness and the ‘one-time’ feature. With recorded material possibility of performers mistakes and spontaneous occurrences are

[105] Digital Leap 2023.
[106] Dixon & Smith 2007, 40.
[107] Digital Leap 2023.
[108] Broadhurst & Machon 2006, 181.
[109] Layzelle 2021.

absent and the unique experience factor disappears as VR performance can be shown identically repeated as many times as production desires. Since one of theatre's uniqueness is its one-time feature and no performance is exactly repeatable, VR form might be vexing to some audiences.

The repeatability of VR brings also the question of live element. One of theatre's attributes is the live form, which contributes to event-likeness and uniqueness of a live performance. In the interview Tiainen proposes that virtual reality can create a new type of live encounter in a performance.

VR challenges these core elements of a theatrical performance. However, I do not believe VR poses any real threat to live theatre. The need for live communal experiences will remain. Instead of threats, I mainly see opportunities in inclusion of VR. For example, VR can bring is new experiences and expand audience experience in performing arts.

My concern is that VR might be used merely as a gimmick, without contributing meaningfully to the performance or storytelling. There's a risk that, even when incorporated, it remains superficial and adds little to the overall experience.

6.1 Future

The Covid-19 pandemic showed that in unpredictable situations, people still need arts and performances to see and experience. It also proved that audience wants and needs a shared experience. During first months of Covid-19 pandemic the significance of technology proved its necessity for arts. Pandemic brought digital theatre to mainstream, shed more light on it, made audiences more adapt to digital and virtual content demand all over the world. Therefore, as technology continues to evolve, virtual and digital mediums for performing arts will stay significant and relevant.[110]

Technology of Virtual Reality is creating new opportunities in the arts industry. It is giving artists a chance to perform and interact with their audiences in new ways. The immersive and interactive elements of virtual reality provide a new type of audience experience. They give an opportunity to enhance audience

[110] Digital Leap 2023.

engagement and find new ways to connect with their audiences. As mentioned before, theatre makers are suitable to delve into VR possibilities since they are adept in working with 3D space. As each new medium has in turn struggled for cultural territory with the existing art, digital as well as the virtual are starting to find their footing.[111] Digital and virtual performance, being the new medium compared to other performing arts, is finding its place and even purpose in the arts field.

Application of VR and AR has opportunities not just in theatre, but in all live performance. It is likely that as long as audience interest in this technology continues to grow, the future of theatre will only become more and more intertwined with it. Virtual and augmented reality, though they pose technological challenges, also provide the opportunity for the future of theatre to become increasingly accessible.[112]

Technology's contribution to the theatre can be an "enhancement" and a "reconfiguration" of aesthetic creative potential. As society stands on the verge of revolution in user-computer interaction, it is natural for theatre to experiment with these available technologies. This technology transcends conventional screen boundaries, creating an immersive experience that makes the complex workings of the computer feel more accessible and real.[113] It is a canvas of boundless potential, shaped solely by the imagination and creativity of its designers.

When we look at VR's future in performing arts, it frames the question of what is modern theatre performance? Ultimately VR is a different experience to a traditional live theatre experience. VR is reconstructing theatre as we know it, breaking the boundaries of traditional stage settings and creating immersive, interactive experiences where audiences can engage with the narrative in entirely new ways, potentially both physically and emotionally. Even though we can compare experiences and different aspects, there's are still a big difference between them. VR is not replacing a live experience or presenting a threat to it. Arguably it is there to aid theatre and support it, as well as to offer an alternative way to experience a performance.[114] It offers a source for rebirth.

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[111] Pavis 1992, 109.
[112] Stevens 2021.
[113] Dixon & Smith 2007, 40.
[114] Baz 2007, 73.

In the future when technology develops and visual component is accompanied with interactions within the story, the immersive element of VR has the potential to increase even more. For example, when opportunities to impact the story become possible through interactions or manipulating the virtual world, it has the potential to enhance the immersive element of a performance. As more data emerges on VR and theatre, it offers more possible future research perspectives and possibilities for comparisons between traditional live experience and a virtual one.

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APPENDICES

Appendix 1, Love Simulation EVE plot premise

The premise of the performance is that the fictional Eve Labs has developed an alternate reality that offers people a second chance to live life in a virtual world called Everland. The Love Simulation EVE is a program for improving quality of life through love algorithms. Eve Labs has developed a way to record stories and connect the memories of different individuals. Those on the brink of death see their lived life experiences as holograms in front of them. This led to the creation of a collective real-world-like virtual world. The purpose of the Love Simulation is to compile a love algorithm and dive into the memories of Eve Labs' developers. The Love Simulation consists of various scenes and encounters from which the participant gathers their personal love algorithm. The experiencer's avatar is a water spirit that lives in the virtual world.

In the performance, you can choose two between the memories of three characters. Their storylines go as follows:

Evelin Jalonen-Hirano, the founder of EVE Labs and the first mind-recorded person, who is married to Iano Jalonen-Hirano.

Henri Krohn, is an angel investor at EVE Labs and joined the operational staff of Eve Labs after his wife became paralysed. His goal is to live with his wife without illness, which was realised in 2051 when the couple underwent mind recording and moved to the quantum sea of the Love Simulation.

Noen Zimmerman, is a metaverse expert who has been a long-term employee at Eve Labs. Noen tragically lost her husband and has since dedicated her life to developing mind recording technology to live with her husband in the quantum sea.

Appendix 2, interview questions

1. **VR:** Why has the creator chosen to use VR technology in the performance? What are the goals and expectations for using VR?
    a. Why did you want to introduce VR technology into theatre?
        i. How did you end up combining VR and theatre?
        ii. When you began planning the performance, was VR technology the starting point for the performance, or did the VR aspect come in later?
    b. What do you think VR brings to a theatre performance that otherwise couldn't be achieved?
        i. Why do you think the use of VR technology is suitable for a theatre performance?
        ii. Does it add value?
    c. Is there a specific aspect of the performance that VR technology supports?

2. **Immersion**
    a. How would you describe immersion in the context of VR?
    b. In what ways do the immersive possibilities of VR technology differ from a traditional theatre performance?
        i. Is it possible that the sense of immersion is enhanced in a VR experience? -Why/why not?

3. **Virtual Stage**
    a. How would you define a virtual stage?
    b. What opportunities do you see in a virtual stage in relation to theatre? Specifically, in the context of a VR experience?
    c. What processes or decisions must be made when working with a virtual stage, compared to a traditional theatre performance?
        i. Does the approach to a virtual stage differ from traditional stage design
    d. You've mentioned that the virtual stage is still a shared experience—could you elaborate on that?

4. **Audience Experience**
    a. What kind of role does the audience have in a VR performance?
        i. How is this different from the traditional role of the audience?
    b. How would you describe a participant in a VR performance: as an audience member or an experiencer? What is the difference between these two roles?
    c. You've mentioned VR offering new forms of communal existence before —what do you mean by this?
    d. What kind of experience do you hope the audience will have during the performance?