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DRAFTING THE VR PLAY: EXPLORING EXTENDED REALITY THEATER TO PROPOSE A METHOD FOR VIRTUAL REALITY PLAYWRITING

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Abstract

Drafting the VR Play: Exploring Extended Reality Theater to Propose a Method for Virtual Reality Playwriting

Kuidas kirjutada VR-näidendit: uurimus laiendatud reaalsuse teatrist eesmärgiga luua näidendikirjutamise meetod virtuaalreaalsuse jaoks

This dissertation is the first to propose a writing process and format for plays envisioned for Virtual Reality. Also known as VR, Virtual Reality is a computer-generated three-dimensional medium in which the audience may interact using commands and physical movement (Ryan 2015: 15). By devising a workflow and format for VR theater, this artistic research aims to aid playwrights and screenwriters to draft plays for the ever-advancing Virtual and Extended Reality (XR) mediums.

The methodology of this dissertation consists of a literature review, autoethnography, and practice as research. As part of exploring how to bring Virtual Reality elements onto the page, this research describes the development of a writers' workshop, a practical handbook, an two Extended Reality (XR) plays with scenes set in 360° video and limited interactivity.

This artistic research concludes by proposing a development process to write stories in a format denominated as VR play, which fulfills the function of a literary screenplay (Szczepanik 2013: 86) in a Virtual Reality or Extended Reality theater production. Therefore, the VR play marks the completion of the conception of the story and is the seminal source for production documents such as the director's script, lighting floorplans, technical breakdown of interactions, mood boards, storyboards, narrative path design, axis mapping of actions, and others needed to stage a Virtual Reality play.

This dissertation evolves traditional stagewriting and screenwriting to devise a format for the ever-advancing Virtual and Extended Reality medium. By doing so, this artistic research enables storytellers unfamiliar with VR—but familiar with the writing conventions of theater and cinema—to grasp the narrative possibilities of Virtual Reality and find creative fulfillment by drafting stories for it.

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Abbreviations

2D: Two-Dimensional

3D: Three-Dimensional

AR: Augmented Reality

DoP: Director of Photography

DoF: Degrees of Freedom

FoV: Field of View

HD: High Definition

HMD: Head-Mounted Display

IRL: In Real Life

LARP: Live-Action Role-Playing

MR: Mixed Reality

POV: Point of View

VR: Virtual Reality

XR: Extended Reality

1. Introduction

"If there's a book you really want to read,
but it hasn't been written yet,
then you must write it."
-Toni Morrison

Self-challenges drive an artist's career. As a writer, I have challenged myself to explore new dramatic structures, write in foreign languages, and receive feedback from producers, directors, performers, sound designers, and other artists. In 2016, while studying for a master's in film studies at Universidade Lusofona (Portugal), I got the chance to test a Samsung Gear Virtual Reality (VR) headset for the first time. The weight of the goggles against my eyes, the surround sound over my ears, and the uncanny sense of being elsewhere were electrifying. The technological possibilities hooked me instantly and led me to question: How could writers create stories for this medium?

1.1 What is this dissertation about?

Virtual Reality (VR) is a computer-generated three-dimensional landscape in which the audience may interact using commands and physical movement (Ryan 2015: 15). An alternate definition of Virtual Reality is that it is a technological medium that engages the audience through an imaginary environment, narrative, and interaction (Yan et al. 2021: 1).

As Virtual Reality headsets have become more popular and accessible, the medium has often been miscalled as metaverse thanks to the prevalence of Meta (the company formerly known as Facebook) in the headset industry. Meta brought Virtual Reality into the mainstream by successfully marketing two headsets: the Oculus Quest 2 in 2020 and Oculus Pro in 2022. Novella states that the value of the Virtual Reality and augmented reality markets was $12 billion in 2020 and will grow to $72.8 billion by 2024 (2022: 162).

When I tried Virtual Reality for the first time in 2016, I could not find a single article, methodology book, or artistic research that a writer could use as a guide to develop plays that

can staged in Virtual Reality or other expressions of Extended Reality (XR), which I will describe in the next chapter. Not finding resources was a big disappointment since I was used to quickly finding tutorials, script examples, and artistic research about writing for radio, theater, film, and TV. In the years since, the number of resources related to VR has increased, especially if they are related to technical aspects such as lighting, sound design, 3D renderings, and programming of interactions. Nevertheless, I still perceived a problem: How can a writer craft a play clearly staged for Virtual Reality?

I decided to explore this question through four creative works. With mobile phones making Augmented Reality (AR) filters popular and the slow market penetration of VR headsets, I focused my artistic research on Extended Reality (XR) plays, which featured scenes in 360° video and had little audience interactivity. Despite these limitations, my research findings can greatly help writers experiment with Virtual Reality playwriting.

My creative works enabled me to propose a seminal storytelling document for Virtual Reality theater and a methodology to back it. Similar to what Szczepanik (2013: 86–87) denominates as a literary play for cinema, the document I propose is the starting point from which all the technical scripts and production documentation derive. The concept of a seminal document is not new, and it reflects the historical standardization of the stage play and screenplay discussed in Chapter 2.

Since I consider it a seminal document, a VR play is not a frame-by-frame, exact representation of a Virtual Reality theater production. I reached this conclusion after reading Cardew's work on musical notation and interpretation, in which he differentiates between the written text and the performance itself (1961: 22). The document I call VR play is an evolution of the existing storytelling language of theater and film that includes the technological and spatial particularities of Virtual Reality. A VR play marks the completion of the narrative conception and is the Virtual Reality production equivalent of the literary screenplay. Therefore, VR plays are written to be read, understood, and ultimately interpreted by directors and their creative team using whichever documents and devices their creative practice requires. Since Virtual Reality is an expression of Extended Reality, the VR play format is also helpful for drafting stories meant to be staged across the XR spectrum with varying levels of virtual and live elements.

1.2 Motivation

My desire to research a writing process and a format for Virtual Reality theater is based on two reasons. On one hand, I wanted to create a format that could withstand time and the technological advancements of the medium. On the other, I wanted to demonstrate my profound belief in writing education and lifelong artistic training by devising a writing methodology for this emergent medium.

The American Film Institute National Center for Film Preservation considers that over 50% of films produced in the United States before 1951 are lost since they were primarily preserved in highly flammable nitrate stock (Gianvitto 1999: 39). In the case of Elizabethan theater, the percentage of lost works is around 70% to 80% (Borlik 2016: 192).

These statistics have always amazed me, and I dread that VR theater can lose a similar or more significant percentage of works. After all, VR theater can be categorized as a media of attraction (Rouse 2016: 97), which means it lacks an efficient distribution system, is often not archived, or is documented poorly (Rouse 2016: 100). By devising a format that captures Virtual Reality theater on the page, I intend to facilitate VR playwriting and its preservation even as the technology of the medium keeps advancing.

Lack of archiving, technological limitations, and platform shutdowns have caused the loss of many digital artworks. For example, over 38 million web pages disappeared when Geocities shut down in 2017 (Shechmeister 2019). Virtual Reality is an emerging format, which means that works for this medium often lack written support documentation and exist only digitally, which puts them considerably at risk of being lost (Day et al. 2018: 1). Documenting VR works offers several benefits, such as capturing the original intent of the narrative, managing use permissions better, facilitating adaptations, extending the potential reach of the story and easing future administrative and creative work (Abbott 2012: 67–68). These benefits convinced me to use my artistic practice to suggest a writing format that preserves Virtual Reality theater through text, which is less susceptible to being lost as technology advances.

In addition to the above, playwrights and screenwriters deserve to have proper training tools. Reilly (2013: 107) describes how the process of becoming a dramaturg is a legacy of Romanticism, which “continues to haunt debates about playwriting in the academy: can

playwriting be taught?". My answer to this question is a clear yes: Playwriting can and should be taught.

Writing manuals were critical to build my creative practice, as I was born into a family that did not promote artistic exploration. The *Children's Encyclopedia Britannica* and the frustration of self-learning guided me through my first creative writings. There is a persistent counterproductive view inside the traditional education system, in which teachers and students approach creativity and creative practice as a mysterious process (Gardiner and Anderson 2018: 1). Thus, my writing career continued to be powered until my late teens by what Reilly (2013: 1) calls "the hard graft of experience and apprenticeship," during which I learned how to write narrative stories from reading manuals and founding the first theatre and journalism club in a public high school in my home town. Gardiner and Anderson (2018: 1) observed "greater student proficiency and improved teaching and learning experiences for teachers and students," which has solidified my belief that the next generations of playwrights (and, by extension, VR playwrights) need more pedagogical resources to help them hone their craft

This finding urged me to make my writing process more transparent. Before this research, my creative process started with writing a few ideas, from which I developed a logline, synopsis, and treatment before writing down a first draft. I considered the process too messy and chaotic for years, so I only shared completed drafts without any of its background work. Often, fellow creatives perceived my written texts as a "black box," a term borrowed from the technology world used to denominate technologies that work but are not apparent to the user how they do. It took years of regular sessions of creative feedback and psychological therapy to feel comfortable sharing my creative process. Experimenting with playwriting for VR and XR allowed me to find artistic confidence, and I hope others do the same.

From the perspective of practice, there is a need to establish writing conventions for Virtual Reality plays. When I took my first screenwriting class at 19, I knew my frustrating and lonely writing nights were over. As Millard (2010: 14) describes, writing for the screen entails collaboration in terms of "reading and re-reading, notes, discussion and redrafting, creating and recreating something that represents." Learning the writing methodology of Syd Field allowed my rough drafts to become understandable to seasoned filmmakers who were

familiar with Field's methodology and writing conventions from media institutions such as the BBC.

As months went by and I read more scripts and plays, I learned that using the correct formats is better for collaboration and proving to others that you are part of the industry (Millard 2010: 16). By following certain writing conventions, I was able to sell my screenplays and plays to producers and funding bodies, obtain scholarships, and eventually even find a way to move overseas.

In summary, my desire for a VR playwriting format that can withstand technological advancements and my passion for artistic education drove me to write this dissertation. By exploring the possibilities of theater in Virtual Reality and proposing a writing approach for VR plays, I attempt to prevent the loss of Virtual Reality theater works that will inevitably happen.

1.3 Research questions and aims

Artistic research can be defined as the pursuit of hybrid inquiries, combining creative action with reflexive thought (Kershaw et al. 2011: 64). The interdisciplinarity of this definition led me to my primary research question: "How can a writer draft a play for Virtual Reality?", which matches my aim to aid current dramaturgists and screenwriters in the exploration of this medium and other Extended Reality expressions. I spent the next four years building an answer by exploring the following questions:

- What concepts must a writer learn to understand Virtual Reality as a medium?
- How can writers adapt their skills to draft plays for Extended and Virtual Reality?
- What do we keep or add to the page of a play to depict a scene with Virtual Reality elements?

My artistic research included four creative works: conducting a writers' workshop about VR playwriting, a handbook introducing creatives to VR playwriting through the production of a 360° video, staging a hybrid play in which a scene took place in 360° video, and writing a hybrid performance which begins in Virtual Reality, has an AR segment, and ends in real life. My creative works helped me better understand how the drafting process changes while

writing for Virtual Reality and which elements must be included on the page of a VR play so the creative team can later interpret them.

The following section explains the methodology that shaped and organized my analysis. With four different creative works, I needed a helpful methodology to solve what I was observing and experiencing as a writer.

1.4 Methodology

I decided to follow a qualitative perspective in this research since it is more relevant to social studies and the pluralization of research (Flick 2018: 11). Thus, this work is the result of bringing together external research works and theoretical approaches with my personal know-how and first-hand experimentation. I initially followed a stylistic research perspective as defined by Maras (2010: 278–279), focusing on the placement of words and images on the page.

My research aims to aid writers unfamiliar with VR to start exploring it as a narrative medium. Therefore, my first creative work consisted of an introductory workshop into VR storytelling for writers unfamiliar with it but who were acquainted with the writing conventions of the BBC format for cinema and theater. The findings of this workshop gave me some points of inquiry I could explore through artistic practice, which led to the development of a handbook, the adaptation of an existing work into a hybrid play with a 360° video segment, and the development of the theatrical text for a hybrid piece which had segments set in Virtual Reality, Augmented Reality, and In-Real-Life (IRL).

But how could this dissertation be practice-based if it focuses on the literary play for Virtual Reality and not the production resulting from interpreting the theatrical text? First, artistic research emphasizes activity, process, action, collectivity, and reflexivity (Kershaw et al. 2011: 63–64). Thus, it can be known as "(PaR) practice as research," "practice-based research," "practice-led research," and "practice turn" (Kershaw et al. 2011: 63–64). The multi-faceted nature of artistic research allowed me to study VR playwriting through the points of convergence between arts and sciences identified by literary theorist Ihab Hassan,

which include experimental science, the incorporation of technology into the arts, both as theme and form and the existential search for a unified sensibility (Dixon 2007: 150).

When it came down to selecting the tools to obtain and organize the information from my artistic research, I decided to select them based on the features that Flick (1992: 15) considers fundamental for qualitative research, such as having appropriate methods and theories, including diverse perspectives from a variety of participants, observing reflexivity from both researcher and research and trying different qualitative approaches and methods. Thus, the research tools I used to support this artistic research were Problem Structuring Methods (PSMs), autoethnography, focused interviews, and PaR analytical framework, which I describe below.

1.4.1 Problem Structuring Methods (PSMs)

I grew up in a household led by two Human Resources professionals so I instinctively leaned towards a research tool called Problem Structuring Methods (PSMs) while I was developing my first creative project. PSMs actively engage stakeholders dealing with an uncertain situation through an iterative conversation about the problem, which a researcher facilitates in a workshop format (Tavella 2018: 58). I found PSMs helpful because it helped me to include different kinds of creative professionals and discuss perspectives and conflicting interests on the problem at hand (Gomes Júnior; Schramm 2022: 55).

Scripts	**Outcomes**
Description of the task (numbered) Questions used Materials needed.	Expected results, impacted documents, texts, images, or objects created.

Table 1. Workshop modeling adapted from Tavella (2018: 68).

My first creative work was a workshop for writers new to Virtual Reality in which participants learned about the medium and its storytelling possibilities before working individually to suggest a writing format for VR plays. PSMs were an instrumental first research approach since in-person research was impossible in late spring 2020 due to the

COVID-19 pandemic. Even at this early research stage, PSMs generated some insights that were instrumental in devising a page format for VR plays years later.

As Tavella (2018: 58) explains, Problem Structuring Methods "supports groups of stakeholders in negotiating, making decisions, agreeing on and committing to possible actions to alleviate the problem." Thus, I continued to consider the community-based approach of PSMs in my second and third creative works. During these works, I often engaged with other creative professionals in discussions about the crucial elements to include on the page of a VR play. While these later discussions did not follow a script (as it happened in my first creative work), they were still as impactful since they shaped the proposed writing process and format of a VR play.

1.4.2 Autoethnography

Using my personal experience as part of the research, or autoethnography (Tavella 2018: 59), was a difficult choice. In addition to my resistance to sharing my work in progress and its related documents, autoethnography is sometimes considered a "self-indulgent, narcissistic, introspective and individualised," (Méndez 2013: 283) research method in the academic world as "it opposes the positivist standpoint that assumes that reality is objective and independent from the researcher" (Méndez 2013: 280). As I mentioned, I became comfortable using autoethnography in my artistic research after years of peer reassurance and psychological therapy.

To conclude my dissertation, I wanted to reflect on the lessons learned using the Critical System Heuristics autoethnographic method (Ulrich; Reynolds 2010: 243). Since I was proposing a playwriting methodology for Virtual Reality, I decided to use the "ought" format of the questions. By doing so, the conclusions of this artistic research go beyond "musts" that playwriters new to VR should follow and includes my suggestions from the perspective of a peer who has experimented with Virtual Reality playwriting. The adapted questions are as follows:

Questions on sources of motivation

1. Who ought to be the VR play client? That is, whose interests ought to be served by this playwriting format?

2. What ought to be the VR play's purpose? That is, what ought to be the final result?
3. What ought to be the underlying measure of improvement? How should we determine whether and in what way the VR play's suggested methodology improves theater research?
4. Who ought to be the decision-maker of a VR play? Who should be able to change the VR play's content?

Question on sources of control

5. What resources and other conditions should the VR play decision-maker control? On what sources of decision power should a VR play rely?
6. What ought to belong to a VR play's *environment*? What conditions should the decision-maker not control because they are outside the scope of VR plays?

Questions on sources of knowledge

7. Who ought to be involved in a VR play? Who is ''competent' to participate in drawing up the VR play?
8. What expertise (special knowledge or experience) ought to be brought in? Who should be considered an expert, and what role should experts play? In other words, what ought to count as relevant 'knowledge'?
9. Where should the involved team see the guarantee that the VR play will work? What or who should be assumed to provide the final draft?

Question on sources of Legitimation

10. Who ought to observe the VR playwriting process but not take part? Who should argue the case of those who cannot influence the creative playwriting process?
11. To what extent and in what way should feedback be given?
12. On what storytelling perspectives ought a VR play be based? What are the different visions of 'storytelling' considered, and how should a VR play deal with their differences?

Despite my initial resistance, I now consider autoethnography essential for this artistic research. As Tavella points out, autoethnography offers a path toward critical self-reflection (2018: 61). In my research, autoethnography helped me to go beyond the observation of the writing challenges of VR plays and deepened my analysis to include my history, culture, and values in my reflections on Virtual Reality playwriting. By adding this personal perspective, autoethnography made my work more understandable to people new to the field of VR since it has the capability "to remove barriers to understanding which are created by distortions in

both spheres of human interest: communication (language) and behavior (work)" (Gregory, 1992: 185).

1.4.3 Focused interviews

One of the advantages of qualitative research is that it explores the "why" (Milena et al. 2008: 1279). My intention in doing five focused interviews was to validate the idea for my second-year research project. After reviewing the workshop results, I created a practical handbook to guide writers unfamiliar with VR and their creative communities in the production of a 360° video. I wanted to know how people who had written VR experiences approached the subject of writing and producing a script to validate my interest in creating a handbook that covered this process. By asking about their experiences, I learned "what is really the nature of an individual's relation to subject matter like" (Witz et al. 2001: 196).

A benefit of these preliminary interviews was that I could switch my perspective from researcher to student (Milena et al. 2008: 1279). These interviews convinced me there was a pedagogical gap my second creative project could fulfill and served as an inspiring starting point for developing the practical handbook.

1.4.4 PaR analytical framework

To make the process for each of my works easier to read, I organized the information based on the minimal constituents of Practice as Research suggested by Kershaw et al. (2011: 64–67). Thus, the analysis for each creative work splits into the following sections:

- Starting Points: which are the research questions or personal intuitions that inspired the work.
- Practical Methods: which specifies the aesthetic traditions, creative practices, and creative licenses used. Originally titled "Aesthetics," I decided to re-title this section to emphasize the practical focus of my work.
- Location: this is the space and time in which the creative work occurred.
- Transmission: which contains the mediums used to explore the subject, obtain the knowledge, or disseminate its findings.

- Key Issues: This is the discussion of issues regarding theory/practice, process/product, ontology/epistemology, artist/academic, resources/infrastructure, and multiple formats/singular outcomes.

The tools described above helped me explore writing for Virtual Reality both from the theoretical point-of-view and my perspective as an artist. I hope this explanation justifies the decisions behind each of my creative works and the selection of which elements to include or not to include on the page of the VR play.

1.5 How to read this dissertation

Virtual Reality is a field currently in a booming phase in which constant technological upgrades may deter artists from experimenting with it. Just like while playing an instrument or learning a new acting technique, with enough practice, even the most daunting method can become familiar.

I wrote this dissertation intending to introduce Virtual Reality as a medium of expression for playwrights and screenwriters unfamiliar with the technology. Thus, I organized my research departing from the assumption that the reader has had zero or little experience with Virtual Reality. The first chapter summarizes the conventional formats of playwriting and screenwriting along with key concepts that the reader must know to understand how Virtual Reality works. The second chapter analyzes the four creative works made for this thesis following the PaR analytical framework. The third chapter builds on the findings of the previous section to propose a writing methodology and page format for VR plays. The final fourth chapter contains my research conclusions based on the answers of the Critical System Heuristics framework and proposes future research areas.

1.6 Key Takeaways from Chapter 1

This artistic research explores how a writer can draft a play for Virtual Reality, aiming to introduce more playwrights and screenwriters to this medium and aid them in drafting plays for it. This dissertation defines the concept of VR plays as written plays envisioned for Virtual Reality or other Extended Reality expressions. A VR play is also a seminal document

meant to be interpreted by a director and their team and inspires other creative documents involved in a Virtual Reality play production.

The research methodology includes qualitative, practice-based research tools such as Problem Structuring Methods, autoethnography, focused interviews, and PaR analytical framework. The second chapter of this dissertation explores the narrative possibilities for Virtual Reality from an academic perspective. It defines traditional screenwriting and playwriting and its writing conventions before breaking down the elements included in the text of experimental VR plays and the definition of certain concepts that writers must understand to convey stories meant to be staged in Virtual Reality.

The aforementioned theoretical background sustains the creation process and analysis of the creative works described thoroughly in Chapter 3. The fourth chapter summarizes the findings and suggests the critical elements to include in the page of the VR play, as well as the methodology that leads to a first draft. The thesis concludes with potential research avenues derived from the latest technological advancements in VR headsets.

2. Dramaturgy, Screenwriting, VR playwriting, and Virtual Reality Terminology

I write my works following certain conventions, a practice that began early in my career. After university, my first job was evaluating projects and submitting them to funding competitions of institutions such as the Mexican Institute of Cinema and the Ministry of Basic Education. I quickly noticed that format, grammar, and spelling influenced the score received. By adhering to conventions, I won a statewide screenwriting competition twice.

Beyond drafting plays with the correct format, I also learned that writing is a strict method with concrete steps. Once, I submitted a short screenplay to the Ministry of Basic Education in Mexico that quickly received stern feedback. The reviewers counted the distribution of characters and spoken lines according to gender and immediately noticed a disparity in the participation between men and women. When I checked the project's documentation, I noticed the problem was that I skipped developing a synopsis and treatment—both processes that require receiving feedback—and went from writing a logline straight to doing a draft. By jumping some steps of the creative process for the sake of productivity, I ended up with an unusable text and had to begin the development process again. A dramaturgical text that follows the processes and conventions of its medium reflects that the writer knows how the production team reads it and how it guides the production of the final artwork.

The boom of screenwriting manuals in the second half of the 20th century resulted in the emergence of certain writing conventions for cinema (Price 2013: 204–205), which include the Courier New typeface, cues, transition terms, scene numbering, character and dialogue position on the page. The impact of writing manuals went beyond the silver screen, as it standardized the development process and formats of radio plays, teleplays, and stage plays. The conventions writers follow in each artistic discipline help to easily differentiate the text for each medium. Simply put, it is impossible to confuse a stageplay with a screenplay. I aim to introduce more writers to VR playwriting; thus, this dissertation explores how to develop and format plays for this medium while including my thoughts on the creative process.

In this chapter, I give an overview of dramaturgy and screenwriting before discussing how they influence what will become the practice of VR playwriting. Afterward, I explain specific terms essential to understanding Virtual Reality as a creative medium to stage plays.

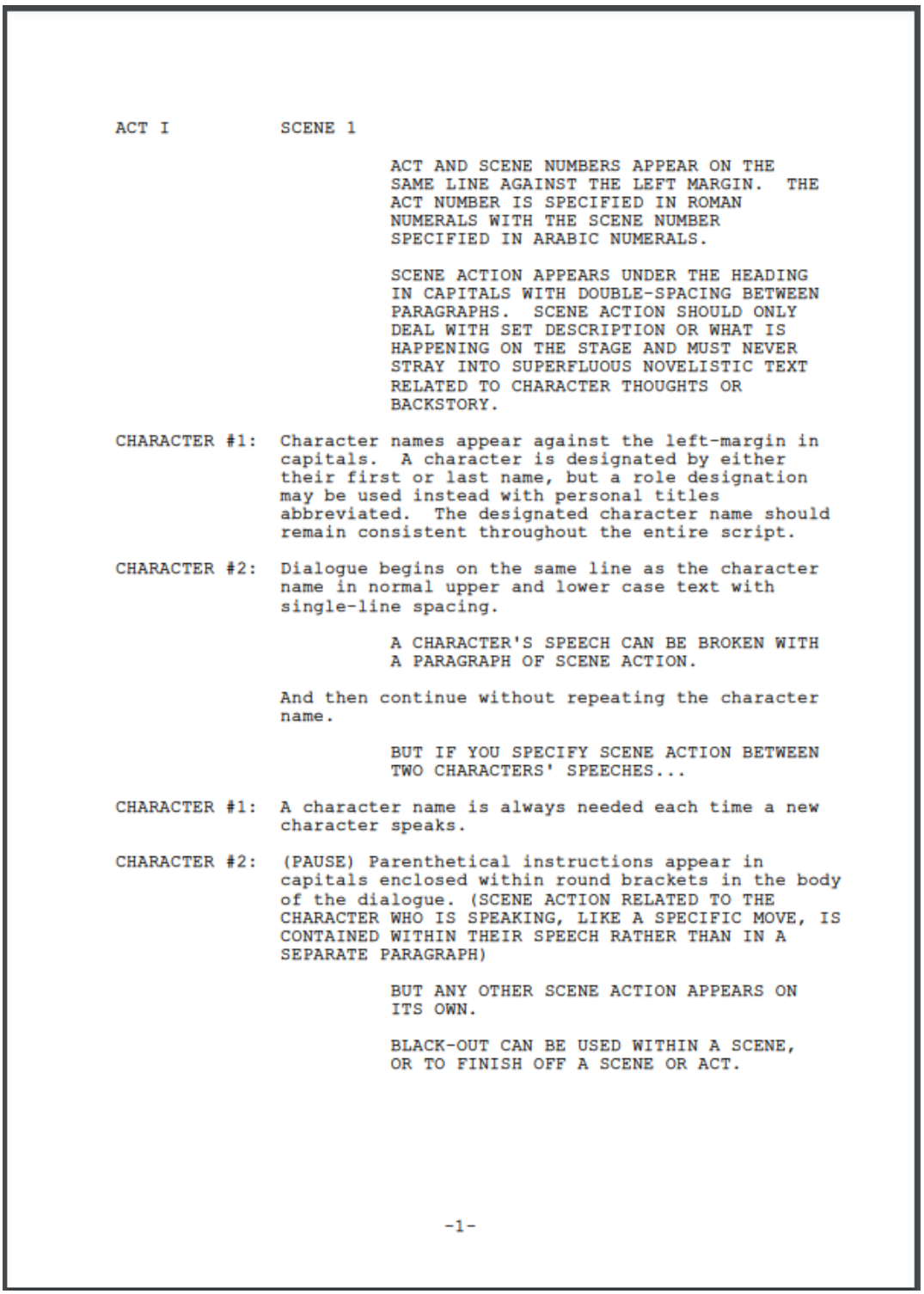
2.1 Dramaturgy

Chemers and Sells (2020: 3) define dramaturgy as the aesthetic architecture of a dramatic text and the practicalities used to create a theater performance. It is an accumulation of techniques that analyze a play's structure, themes, goals, and conventions, research the process of turning an inert script into a live performance, and apply said knowledge practically so a performance makes sense to a live audience in a determined time and place.

The concept of dramaturgy can be expanded beyond practice as Reilly (2013: 110) affirms that dramaturgy is the pedagogy of playwriting, which "is like morphology in biology: it teaches us the structures as well as the abstract idea of human reproduction" (Reilly 2013: 110). Another definition, inherited from the historical influence of materialism and rationalism, is that dramaturgy is an encounter (Chatzichristodoulou 2017: 312), a singular moment in which an unrepeatable specific encounter between performer and spectator.

Dramaturgy aims to embody emotion (Reilly 2013: 111) by communicating a visual image or an idea. Modern playwriting manuals such as George Baker's Dramatique Technique highlight "the importance of holding and drawing out a dramatic situation, offering clear relationships on stage, the unity of action, and the breakdown of time in the revelation of information" (Reilly 2013; 111).

Dramaturgical texts capture a time-based theatrical practice, framing a performance, locating the space/place of production, and attending to the many dimensions required to make sense of the intended performance (Macdonald 2010: 94–95). We can see this in the BBC writing format (2004) for the stage.



ACT I SCENE 1

ACT AND SCENE NUMBERS APPEAR ON THE SAME LINE AGAINST THE LEFT MARGIN. THE ACT NUMBER IS SPECIFIED IN ROMAN NUMERALS WITH THE SCENE NUMBER SPECIFIED IN ARABIC NUMERALS.

SCENE ACTION APPEARS UNDER THE HEADING IN CAPITALS WITH DOUBLE-SPACING BETWEEN PARAGRAPHS. SCENE ACTION SHOULD ONLY DEAL WITH SET DESCRIPTION OR WHAT IS HAPPENING ON THE STAGE AND MUST NEVER STRAY INTO SUPERFLUOUS NOVELISTIC TEXT RELATED TO CHARACTER THOUGHTS OR BACKSTORY.

CHARACTER #1: Character names appear against the left-margin in capitals. A character is designated by either their first or last name, but a role designation may be used instead with personal titles abbreviated. The designated character name should remain consistent throughout the entire script.

CHARACTER #2: Dialogue begins on the same line as the character name in normal upper and lower case text with single-line spacing.

A CHARACTER'S SPEECH CAN BE BROKEN WITH A PARAGRAPH OF SCENE ACTION.

And then continue without repeating the character name.

BUT IF YOU SPECIFY SCENE ACTION BETWEEN TWO CHARACTERS' SPEECHES...

CHARACTER #1: A character name is always needed each time a new character speaks.

CHARACTER #2: (PAUSE) Parenthetical instructions appear in capitals enclosed within round brackets in the body of the dialogue. (SCENE ACTION RELATED TO THE CHARACTER WHO IS SPEAKING, LIKE A SPECIFIC MOVE, IS CONTAINED WITHIN THEIR SPEECH RATHER THAN IN A SEPARATE PARAGRAPH)

BUT ANY OTHER SCENE ACTION APPEARS ON ITS OWN.

BLACK-OUT CAN BE USED WITHIN A SCENE, OR TO FINISH OFF A SCENE OR ACT.

-1-

Figure 1. Traditional stage play page (BBC, 2004)

The position and presentation of the previous example's header, characters, dialogue, and action lines are what this dissertation considers writing conventions. Following them formats the text in a way that “suggests a professional approach and an understanding of the medium and format for which you are writing” (BBC, 2023).

We can trace the juxtapositions between the dramatic arts, specifically immersive theater, and Virtual Reality to the 1980s (Yan et al. 2021: 1). Immersive theater, which has become increasingly popular, is characterized by the disappearance of the stage and the immersion of the audience into the environment where the performance occurs (Yan et al. 2021: 1). As of 2023, Virtual Reality devices can replicate the same conditions, using computer-based technology to display 360-degree panoramas of virtual or augmented reality environments. As technology progresses, there is a trend towards presenting real performers in virtual and immersive scenarios.

Thus, the importance of dramaturgy for VR playwriting lies in its materialistic definition of theater as an encounter. If digital performance relies on the digitalized embodiment of senses, bodies, and experiences (Chatzichristodoulou 2017: 321), then we could use dramaturgy to craft new encounters in Virtual Reality.

We can also see another point of connection between traditional theater and VR plays is that both create paths of observation or trajectories (Benford; Giannachi 2011: 16). These potential paths are facilitated by the writer; in the sense that their work on the page of a VR play already includes the physical and digital aspects needed to create both expected and spontaneous trajectories (Benford; Giannachi 2011: 18) albeit not its full disclosure.

Playwriting also shares some juxtapositions with screenwriting due to its shared history. According to Steiger (1986: 246), primitive cinema derived from vaudeville theater and slowly created its artistic discipline that drew aspects from "the novel, the popular legitimate theater, and the visual arts, and combined with specifically cinematic devices." Thus, the VR play methodology proposed in this dissertation is also rooted in the creative practice of screenwriting.

2.2 Screenwriting

Just like dramaturgy, screenwriting is a practice with a set of processes, techniques, and devices (Maras 2011: 1). Screenwriting is a "practice of story development" (Millard 2010: 17) that involves writing and rewriting what eventually becomes the screenplay behind a film production. The screenplay provides crucial information regarding the plot, location, actors, sets, props, timemainly focusedd timing of a story shot for cinema (Price 2013: 5–21).

Early screenplays mainly focused on the technical details of the film camera and the ways the image could be displayed (Rouse 2016: 103). Price (2013: 235) states that screenwriting was constantly in flux in the first half of the 20th century. In other words, a 1911 photoplay would be unreadable to a "star system" writer of the 1950s.

Type of Document	Description
Aide-mémoire 1896-1907	Instead of scripts, memos to self were employed since the recording depended on a single person.
Outline Script 1907-1914	A few words indicated each scene's content and the order of a scene sequence within the film
Scenario 1909-1914	An outline developed in narrative form that told a continuous story within the limit of a film roll (usually 1000-foot long).
Continuity script 1914-1929	A scenario that also worked as a blueprint to monitor quality and calculate the cost of a project.
Master-scene screenplay 1930-1950	A continuity script that included dialogue and sound cues. Very formulaic.
Traditional Hollywood screenplay 1950-onwards	A modern script which may or may not be formulaic. It usually considers the creative input of the writer, producer, and director.

Table 2. Evolution of the traditional screenplay, according to Janet Steiger (Price 2013: 6).

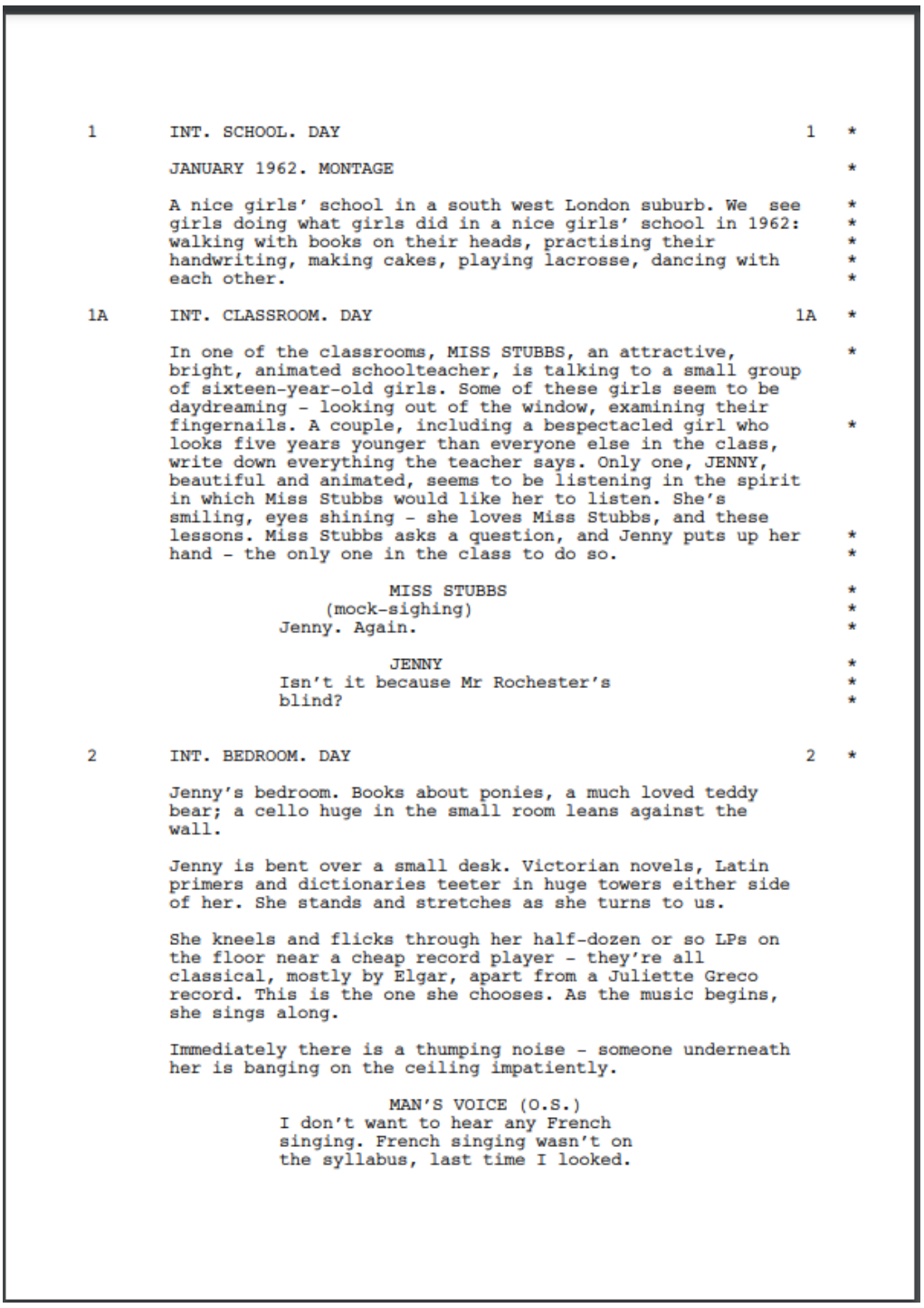
Price (2013: 5–21) affirms that a variety of reasons influenced how screenplays are constructed, including the input of production companies, political system (i.e., Soviet politics vs. American politics), art system (i.e., French auteur theory vs. Hollywood "Star

System"), funding process (i.e., public vs. private) and even the scholarship of an author. Current screenplays generally operate in three modes: description, by delivering information about the *mise-en-scène* and the production design; report, by describing the movement of character on-screen; and a comment mode, which is controversial since authorial commentary is often discouraged as the goal of a screenwriter is to make on-screen action tangible on the page and not comment on it (Price 2013: 211).

In the 1980s, the emergence of the "spec" script, the rise of Hollywood films that followed story templates, and the publication of screenwriting manuals consolidated the conventions present in contemporary screenwriting conventions (Price 2013: 201). Therefore, screenwriting is "an activity bound in convention in terms of script layout, font use and formatting" (Dooley 2018: 183). The BBC Writer's Room website (2008) provides several script examples, such as the one on the next page, which depict these established writing conventions for cinema that differ from the stageplay ones in elements such as the positioning of the header, the specification of day and night, the numbering of the scene, and the dialogue margins.

The contemporary conventions of screenwriting go beyond formatting. Contemporary screenplays are characterized by approaching scenes as continuous units of action happening in a single place and limiting the use of the screen text to describe things visible in the frame and some character traits (Price 2013: 209–210).

The way a screenplay is written has a purpose beyond making it clear that the story is crafted for cinema. A screenplay has become a quantifiable document for film production management since one page of written script is approximately a minute of on-screen time, and it is the basis for different creative and technical documents that lead to the shooting and editing of the film (Dooley 2018: 183). Thus, letting go of the conventions of screenwriting is a challenge since it entails losing a critical document that triggers film production activities.



1 INT. SCHOOL. DAY 1 *

JANUARY 1962. MONTAGE *

A nice girls' school in a south west London suburb. We see girls doing what girls did in a nice girls' school in 1962: walking with books on their heads, practising their handwriting, making cakes, playing lacrosse, dancing with each other. *

1A INT. CLASSROOM. DAY 1A *

In one of the classrooms, MISS STUBBS, an attractive, bright, animated schoolteacher, is talking to a small group of sixteen-year-old girls. Some of these girls seem to be daydreaming - looking out of the window, examining their fingernails. A couple, including a bespectacled girl who looks five years younger than everyone else in the class, write down everything the teacher says. Only one, JENNY, beautiful and animated, seems to be listening in the spirit in which Miss Stubbs would like her to listen. She's smiling, eyes shining - she loves Miss Stubbs, and these lessons. Miss Stubbs asks a question, and Jenny puts up her hand - the only one in the class to do so. * * *

MISS STUBBS *
(mock-sighing) *
Jenny. Again. *

JENNY *
Isn't it because Mr Rochester's *
blind? *

2 INT. BEDROOM. DAY 2 *

Jenny's bedroom. Books about ponies, a much loved teddy bear; a cello huge in the small room leans against the wall.

Jenny is bent over a small desk. Victorian novels, Latin primers and dictionaries teeter in huge towers either side of her. She stands and stretches as she turns to us.

She kneels and flicks through her half-dozen or so LPs on the floor near a cheap record player - they're all classical, mostly by Elgar, apart from a Juliette Greco record. This is the one she chooses. As the music begins, she sings along.

Immediately there is a thumping noise - someone underneath her is banging on the ceiling impatiently.

MAN'S VOICE (O.S.)
I don't want to hear any French singing. French singing wasn't on the syllabus, last time I looked.

Figure 2. Traditional screenplay page example (BBC, 2008)

A contemporary screenplay doubles as a literary work and production blueprint, linking cultural politics, the production system, and everyday production work (Szczepanik (2013: 76). Szczepanik (2013: 86–87) identifies the contemporary screenplay as the literary screenplay in the documentation sequence followed during story development. Denominated

as author's version by Price (2009: 69–70), the literary script marks the completion of the work of the author before moving on to film production.

Format	Function
Theme	Written pitch of the story.
Story idea	A formal description of the story idea and the characters.
Synopsis	Summary of the main storyline, characters, and scene settings, which do not contain dialogue.
Treatment	A text describing the story, characters, main plot, subplots, and key dialogue, which uses cinematic terms to denote the story's medium.
Step Outline	Structures the treatment into numbered scenes, depicts all plot lines and scenes, and may contain more dialogue. It is very close to the subsequent Literary Screenplay.
Literary Screenplay	This document depicts the main narrative and its subplots. It contains the critical visual, dialogue, and sound cues. It also specifies the location and time of the day of every scene.
Technical Screenplay	Also known as "director's screenplay" or "shooting script", it contains technical appendices, numbered shots, and shot parameters (camera angles, movement). It can be written using a split-page format.
Further production and post-production texts	Derivative works created by other crew members. Some examples include the "director's book", musical script, additional dialogues, set version ("guts"), storyboard, and cutting continuity texts.

Table 3. Document sequence of a screenwriting production (Szczepanik 2013: 86–87)

Thus, the literary screenplay marks the pivotal point in which we move from story conception to production, which means that its creation involves some but not all members of the filmmaking team. Developing a story for the screen is so intensive that it has created its own micropolitics (Szczepanik (2013: 76) of documentation distribution, which splits the audiences that can influence each of the texts resulting from the creative workflow. The politics depicted below did not originate from cultural institutions or policymakers, according to Szczepanik (2013: 77), as they are embedded in everyday practice and are propagated through training, productions, and community.

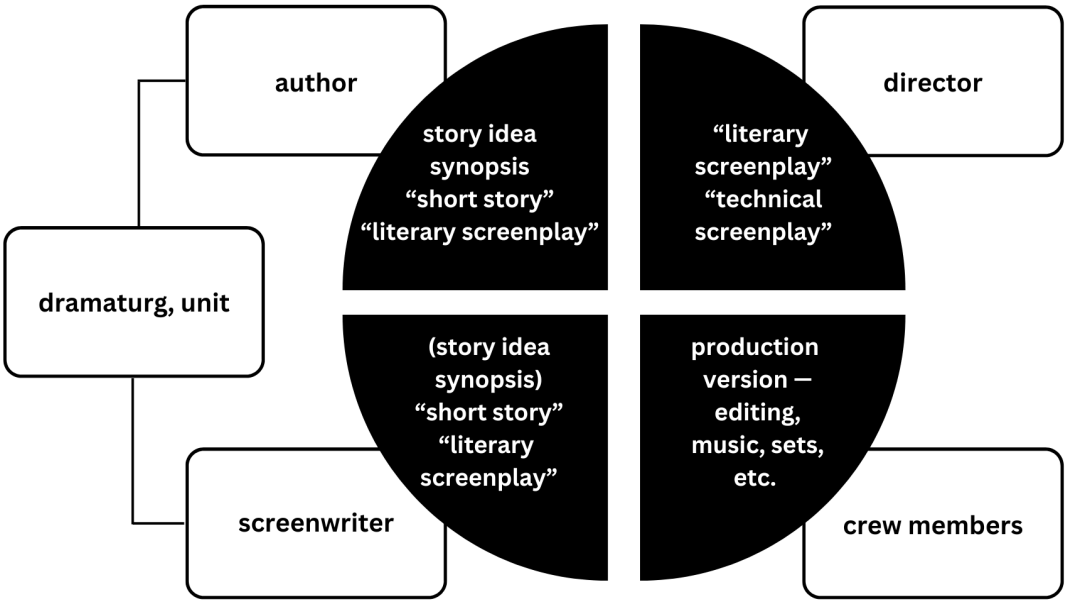


Figure 3. Micropolitics of screenplay development (Szczepanik, 2013: 84)

Screenwriting can then be seen both as a practice and as a discourse (Maras 2009: 10). As a practice, screenwriting encompasses processes, techniques, and devices that take place at different times. From the discourse perspective, screenwriting is a creative construction that has evolved and keeps evolving. This evolutionary aspect makes it, along with dramaturgy, a source of inspiration for the VR playwriting practices this dissertation proposes.

2.3 From dramaturgy and screenwriting towards Virtual Reality playwriting

Rouse (2016: 105) identifies Virtual Reality as a media of attraction and argues that conventions and standards can be detrimental to experimental artists who want to explore the

medium. While I agree that VR currently is a media of attraction, I find that proposing conventions and standards for the medium can aid playwrights and screenwriters in drafting works for Virtual Reality, which is my main goal. Therefore, my artistic research started with finding overlapping philosophies that ease the transition from writing for cinema and theater to writing for Virtual Reality.

While in the late 20th century, artistic research was "dominated by postmodern theories that contested the very concept of originality" (Dixon 2011: 45), the theoretical methods used to analyze digital performance are focused on evaluating the digitalization of theater technologies, techniques, and aesthetics. Dixon (2007: 363) considers that since actors and audiences agree to act under a suspension of disbelief, theater is a kind of Virtual Reality. This assessment is also supported by the desire for virtuality in theater, exemplified on how the body of the performer is externally changed using costume, makeup, lighting, and movement and internally modified through focus and characterization (Dixon 2007: 153).

Audiences can access VR environments and even have the chance to interact with the objects inside using technologies such as Head-Mounted Displays and screen projections (Miller 2004: 87). This technological mediation is what classifies VR plays as a subgenre of digital theater. Denominated by Dixon as digital performance (2007: 3), digital theater encompasses works in which computer technologies play a crucial role in content, techniques, aesthetics, or delivery. What makes VR plays different from other expressions of digital theatre is that the technology of Virtual Reality can generate a sense of embodiment by convincing the senses of an audience member to the point that they feel present in the virtual environment (Tricart 2018: 90).

Technology is so deeply embedded in Virtual Reality narratives that it erodes the boundary between the real and the performance (Chatzichristodoulou 2017: 319). Therefore, VR plays have the potential of being a "via positiva" for theater, adding new digital elements that might attract some audiences and be unpalatable to others (Dixon 2007: 28).

From the audience perspective, we can contrast traditional theater and VR plays with the comparison table developed by Machon (2013:54). The following table breaks down my experience as an audience member of the VR play "Dream" staged in March 2021 by the Royal Shakespeare Company (2021). In this VR play, the audience follows a faery walking

through a forest when suddenly a storm hits. The audience participates by clicking and sending sprites to the faery for the character to survive the storm and finish the play. The environment the audience observes is digital, while the faery actions are performed live by a cast member wearing body movement trackers.

Traditional Play	VR play
You will buy your ticket from the box office in advance or on the door.	You will reserve an online ticket.
You will enter the theatre from the street, usually via the main doors of the theatre building.	You will access the performance through the Internet using a web browser (either via a VR headset or a computer).
You will sit and wait for the event to begin.	You will wait for the performance to begin.
If you are with friends or family you will be chatting about everyday matters, waiting for the lights to go down.	You will not be able to interact with other viewers.
A programme may provide information about the performers, the production, the creative team.	The website will provide information about the performers, the production, the creative team.
You are you.	You will become part of the world by becoming a character.
You are here to watch a piece of theatre.	You are here to immerse yourself in the world of a VR play.
You are waiting for it to begin.	You wait for it to begin.
The curtain and/or the lights are raised revealing another world.	The experience starts, regardless of your current real location or actions.

Table 4. Comparison of the audience's experience in a traditional play and a VR play.

As we can observe in the above comparison, live and virtual performances are more similar than different. VR playwrights should focus on crafting performances and encounters using the materialities of the Virtual Reality environment (Chatzichristodoulou 2017: 323). Paraphrasing Misak (2018: 44), a VR play can engage an audience and leave an impression through collaborative creation. Depending on the degrees of freedom, a concept I define later in this chapter, the audience can participate in the story by choosing where to look, move, talk, etc., enabling a more profound sense of immersion.

The format of the VR play proposed in this dissertation draws a lot from the established conventions of the contemporary screenplay starting in the late 1970s (Price 2013: 209). The influence is unsurprising since screenwriting was developed based on vaudeville theater writing practices (Steiger 1986: 246). Beyond this historical link, we can think about VR playwriting as the evolution of screenwriting towards space-writing (Reyes 2022: 100). Hameed and Perkis (2018: 6) denominates this practice as spatial storytelling, in which immersive narratives follow four possible strategies: drafting stories in a space that evoke pre-existing dramatic associations, creating virtual stages where performances can happen, embedding narrative data into the *mise-en-scène*, or enriching stories with narrative resources. Thus, the VR play is in a state of evolution, which builds on the literary screen and stage plays and reformulates the relationship between story development and media production (Millard, 2010: 22–23).

Since my goal is to aid current playwrights and screenwriters to draft Virtual Reality plays, I decided to structure the development process of a VR narrative using the workflow described by Szcepanik (2013: 86–87) as the basis. The resulting creative workflow establishes the VR play as the counterpart of the literary screenplay (Szcepanik 2013: 86–87) also known as the author's version (Price 2009: 69–70), in Virtual Reality narrative production. Thus, the VR play marks the completion of the author's work and separates the creation process of a story from its interpretation within a medium.

2.4 VR playwriting

Writing for VR requires the writer to learn not only about the technological capabilities of the medium but also grow their narrative skills as Virtual Reality is an artistic form in its own

right, just like film or theater (Aylett; Louchart 2003: 2). As the medium matures, I hope future academics may use the term VR play just as they use teleplay, stageplay, and screenplay to refer to the written document which guides the production of VR theater.

It is necessary to know which narratives Virtual Reality can tell to understand what a VR play can capture on the page. Dooley states that narrative Virtual Reality works encompass documentaries, story-based dramas, and hybrid stories that have a beginning, middle, and a climax (2017: 2). The first category, documentaries, involves the recording of *actualities* and journalistic work (Dooley 2017: 5). The second one, story-based drama, is denominated by Tricart (2018: 2) as an interactive VR experience in which the audience moves freely in an environment, inside which they may interact and decide the outcome of a narrative situation. Finally, VR executive producer Grant Anderson defines hybrid stories as the seamless mix of cinema, gaming, and theater (Tricart 2018: 88). Based on the previous concepts, I propose that VR plays are written theatrical texts that lead to the production of narrative Virtual Reality works, specifically story-based dramas and hybrid stories due to the dramatic roots of both.

Hameed and Perkis (2018: 10) state that Virtual Reality narratives favor believability over realism by transporting physical objects into the virtual world to give a sense of familiarity, promoting spatial literacy, requiring participation both at an individual and collective level, and creating virtual spaces that allow congregation. Yan et al. (2021: 1) further specify that immersive virtual plays involve the encounter between a real performer and a real audience in a virtual environment. Therefore, interactive narratives are co-performances in which authors and performers communicate within a storytelling system (Tanenbaum; Tanenbaum 2008: 273).

Developing a narrative for Virtual Reality goes beyond using a different writing style. It is crucial to remember that VR plays are a type of computer-based narrative; thus, it is inherently procedural, participatory, spatial, and encyclopedic (Murray: 2016). It also requires a change in the writer's thinking process, making it akin to the work of a magician, who directs the attention of the audience where they want it in real-time through cues (Dooley 2017: 9).

This act is called orchestration by Benford and Giannachi (2011: 14), and includes all the combinations or juxtapositions of embedded computer-generated elements over a performance set in any point across the virtuality continuum. This concept is not new, as orchestration on the page influences how directors handle elements such as props, sets, lighting design, and sound effects during the performance (Benford; Giannachi 2011: 215). By considering orchestration, writers can include cues on the page of a VR play in such way that their teams are capable of producing a complex hybrid structure that intertwines real-life with the virtual (Benford; Giannachi 2011: 19).

It is important to note that VR plays are similar to stage plays since both mediate the processes between the proposition and the realization of a performance (Macdonald 2010: 93). What we see on the page, is therefore not an exact play-by-play of what goes on-stage but instead what inspired it. Reyes (2022: 88) suggests approaching VR playwriting as a choreography of narrative elements, interactive objects, and perceptive counterpoints across space and time.

The complex skills required to create VR stories entail that the background of writers doing VR plays is often interdisciplinary. This kind of background was also observed in screenwriters active during the professionalization of cinema, whose craft evolved parallel to the screenplay until it reached its contemporary form in the 1930s (Price 2013: 2). This interdisciplinarity is also tangible on how early storyboards, previews of the Virtual Environment, and interaction possibilities can affect the writing process of a VR narrative (Dooley 2018: 187).

Based on the screenplay development organization by Szczepanik (2013: 86–87), this dissertation proposes the following order that situates the VR play in the category of literary play, the main point of inspiration for all other creative processes and documents involved in the staging of the final piece.

Format	Function
Theme	Written pitch of the story..
Story idea	Formatted description of the story idea and the main characters. In the case of adaptations, this is the original text.

Synopsis	Summary of the main storyline and characters, which does not contain dialogue. It also describes the Virtual Reality environment in which the action takes place.
Treatment	The text covers the narrative following the intended scene sequence. It describes the main characters, main plot, subplots, and critical dialogue.
Step Outline	This text breaks down the treatment into numbered scenes, depicts all plot lines and scenes, and may contain more dialogue. It is very close to the subsequent Literary Screenplay.
VR play	This document depicts the main narrative path, its subplots, dialogue, scenes locations and timing, and critical visual, dialogue, and sound cues. It is equivalent to the literary screenplay (also known as author's version) in cinema.
Technical Screenplay	Also known as "Director's Version" or "Shooting Script". It contains technical appendices, numbered shots, and shot parameters (camera angles, movement). It may also elaborate on interactive elements, axial space orchestration, and potential narrative paths.
Further production and post-production texts	Documentation created by other crew members for production and post-production based on the VR play. Some examples include musical scores, additional dialogues, storyboard adaptations, and continuity texts.

Table 5. Document sequence of a VR play production based on Szczepanik's screenplay development organization (2013: 86–87).

By understanding the VR play as the literary play for Virtual Reality theater, we can specify that its objective is to depict a story set in Virtual Reality with "the illusion of choice when in

fact they are creating a series of audio and visual cues that result in a preconceived narrative experience" (Dooley 2017: 10).

2.5 Current approaches to VR playwriting

Reyes (2022: 87) views screenwriting for Extended Reality as writing stories for immersive technologies, an invisible mediation to guide users across a virtual space where a narrative happens. The creative use of VR currently resembles the first decade of cinema "in the sense that both have started with the recording of 'actualities' or documentary/journalistic work, before the shift to narrative storytelling occurred" (Dooley 2017: 5).

VR as a form is becoming institutionalized, and as it does, several creative experiments have emerged and can be considered proper expressive works (Rouse 2016: 97). The following examples reflect this, each taking a different approach towards writing a VR narrative. One approach splits the VR environment into two halves (Ross; Munt 2018: 201), another contains a bird's eye view (Ross; Munt 2018: 202), one splits the VR environment as a sphere (SpeedVR 2016), another marks interactive elements through text formatting (Vargas 2018), one identifies the position of elements within a sphere using colors (Luthy 2017) while another adds an introduction to explain the text organization (Gorman 2020).

While these examples do not convey all the attempts towards VR playwriting that have taken place, they share an understanding of point-of-view, the split of the perceptual sphere, and the use of the camera position to create narrative meaning in Virtual Reality which is critical for space-writing according to Reyes (2022: 87). It is essential also to consider the historical context of these approaches to understand their structural differences since most were written before the popularization of headsets that began with the launch of the Oculus Quest 2 in Autumn 2020.

FADE IN:

EXT. FOREST - DUSK

A small open patch in a forest. The surrounding trees tower above and daylight is disappearing.

SOUNDS

00:00-END Birds chirping *FRONT 180*

01:15 Distant bear roars *BEHIND*, fluttering of a flock of birds through trees *BACK MOVING TO FRONT, SURROUND.*

02:00 Leaves crackle *LEFT*

02:08 Leaves crackle *FRONT*

02:23 Branches crack *RIGHT*

4:35 Within 20 feet bear roars *FRONT*

Visuals

FRONT	BACK
04:50 Grizzly bear steps out of the trees and stares at us 05:35 Bear charges right past us	3:15 Deer right behind us, in our face, our arms feed it a candy bar and we pet the head 5:55 Bear tackles the deer; starts ripping into it and biting
LEFT	**RIGHT**
01:26 Flock of birds flying out of the trees	01:26 Flock of birds flying out of the trees 02:32 Dark brown blur moves behind some branches

Figure 4. VR play approach based on the audiovisual format (Ross; Munt 2018: 201)

I used the example above to write a VR play that was analyzed by the participants of my first workshop, which I describe in the next chapter. I found it interesting how it divides the page according to two spatial directions and how the scenes were units of action set within a space, delimited with a format very similar to the conventions present in the BBC's screenplay (2008) and theater (2004).

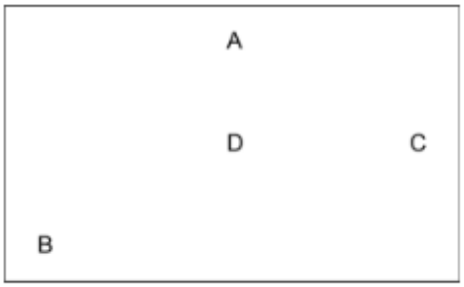
1. INT. CLASSROOM – DAY

ALAN, a man in his mid-fifties, stands in the middle of a classroom.

ALAN
Please copy this paragraph in your script for when I talk. You will now listen to birds and water.

The sounds of birds chirping and water pouring are heard.

ALAN
It is time to keep moving.



Alan: A
Birds: B
Water: C
Camera: D

CUT TO:

Figure 5. VR play proposal incorporating a bird's eye view (Ross; Munt 2018: 202)

From the example containing a bird's eye view, I was compelled by the role of the bottom of the page. The first image of the bottom section organized the space by identifying the position of the objects using the camera as a center. The second bottom image fulfilled a more creative role by displaying an image representing the scene's mood. At first, giving up so much writing space deterred me from adding this section, but by my fourth creative work, I had learned the benefits of having these two pieces of critical information.

OPENING: No opening Fade in to the scene. This is an interactive video.

Title: Script with No Name

FADE IN

VIEWER POV: The camera with an eye line of 167 cm from the ground.

1. INT. CLASSROOM - DAY

//INTERACTIVITY: The audience can move around the classroom by means of controllers.//

ALAN, a man in his mid-fifties, stands in the middle of a classroom.

ALAN
Please copy this paragraph in your script for when I talk. You will now listen to birds and water.

<BIRDS are heard chirping from the left.>
<WATER pouring into a jug heard chirping from the right.>

ALAN
It is time to keep moving.

CUT TO:

2. EXT. GARDEN - NIGHT
//INTERACTIVITY: The audience can move around the garden by means of controllers. They can pick up flowers.//

Alan sits in a garden bench, surrounded by flowers while the stars shine above him.

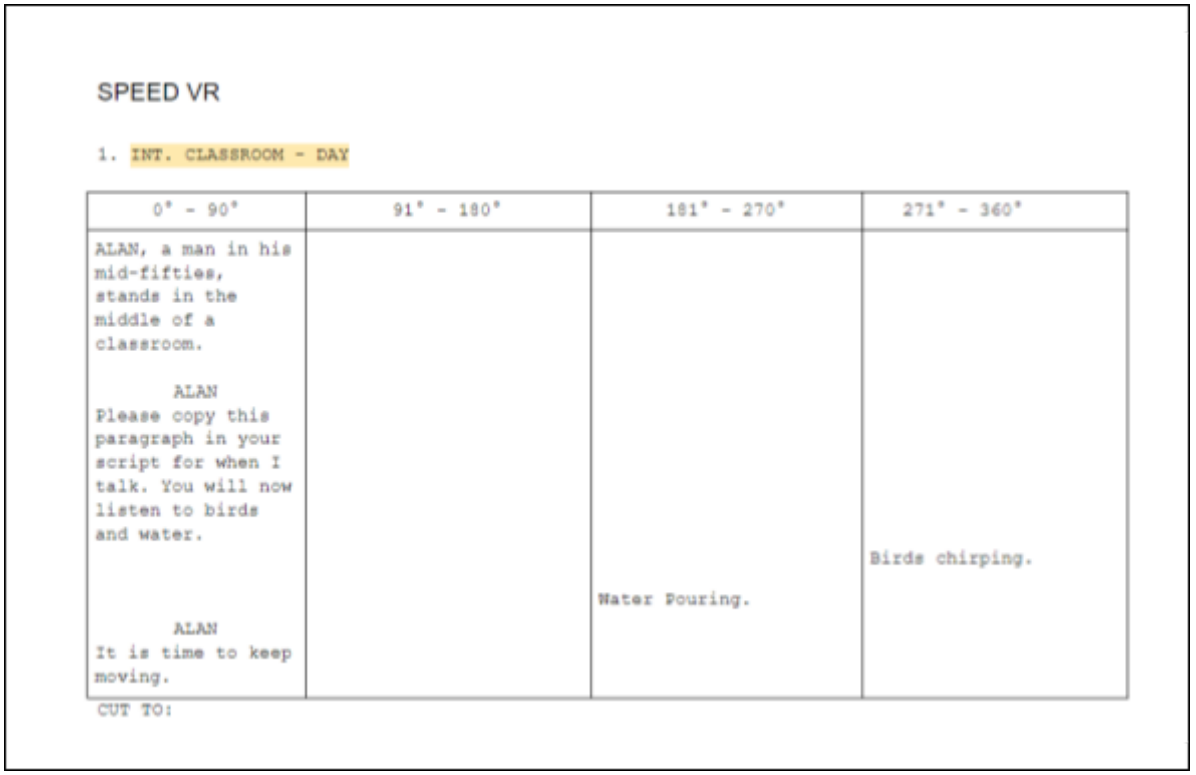
ALAN
Welcome to a virtual reality experience.

FADE OUT

Figure 6. VR play proposal by Evette Vargas (2018)

The example above (Vargas 2018) follows certain screenwriting conventions embedded in the writing software Final Draft, and uses formatting to identify interactive elements. I followed its cinematic approach to transitions, headers, and dialogues in my third creative work. I also explored replicating its way to establish interactivity and point-of-view using color. This is a

limitation since the information it conveys disappears in printed text, which often uses only black ink.



SPEED VR

1. INT. CLASSROOM - DAY

0° - 90°	91° - 180°	181° - 270°	271° - 360°
ALAN, a man in his mid-fifties, stands in the middle of a classroom. ALAN Please copy this paragraph in your script for when I talk. You will now listen to birds and water. ALAN It is time to keep moving.		Water Pouring.	Birds chirping.

CUT TO:

Figure 7. VR play proposal by Speed VR (2016)

Two other approaches impressed me, but I found they worked better as derived documents from the VR play. The now-defunct company SpeedVR developed the above example, which approaches the VR environment as a sphere, splitting it into four sections covering all 360°. While the division and identification of scenes follow cinematic conventions, the dialogues do not, as they are spread across each column and not centered. As a technical screenplay (see Table 3 on page 24), it effectively aids a director to organize and further elaborate how they want to represent what the VR play describes. The landscape page orientation and page structure require a complete departure from theatrical and cinematic conventions, thus making it less easy to read.

I found the same issue in the Cooper-Tieche approach to VR playwriting depicted on the next page. It is too technical for an interdisciplinary team, which might lack a background in Virtual Reality, to read and understand from the get-go. It also changes the orientation and loses meaning if the text is printed in black and white, as it happens with the Vargas example

(2018). Despite these limitations, the Cooper-Tieche approach facilitates understanding the narrative by using color to break down the action within a sphere.

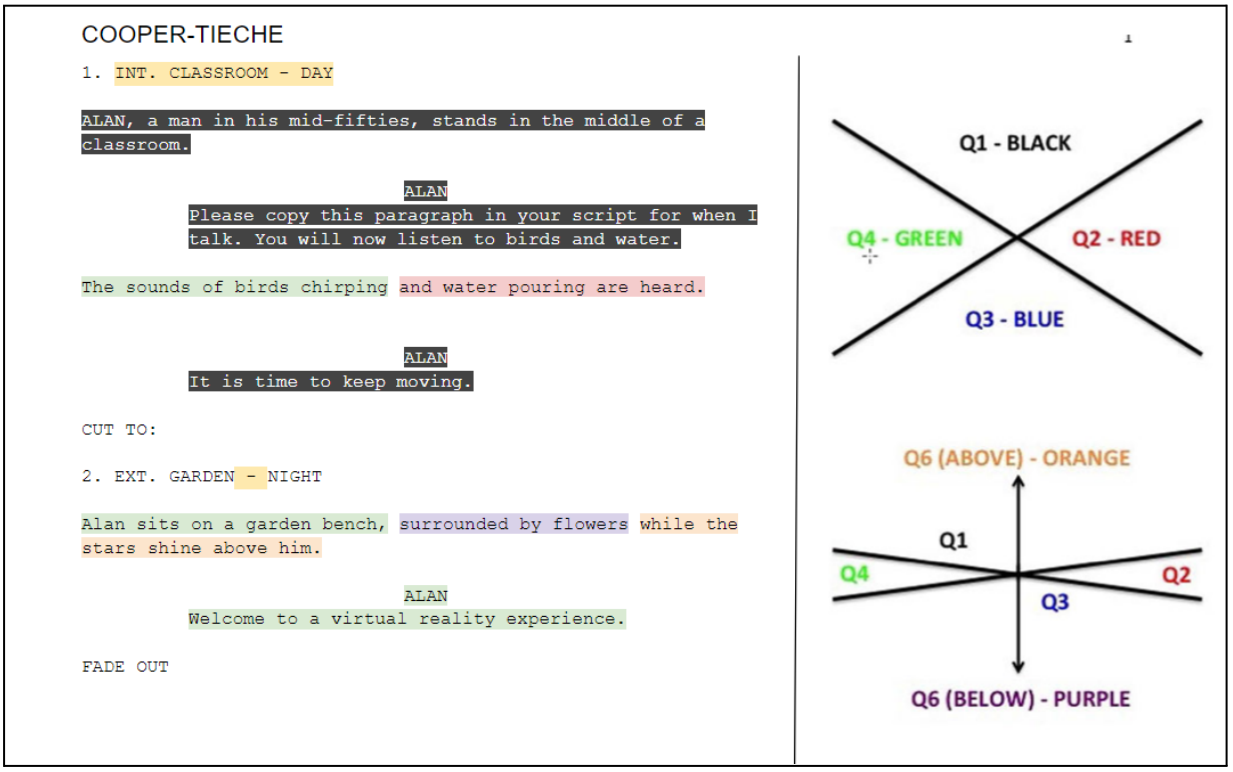
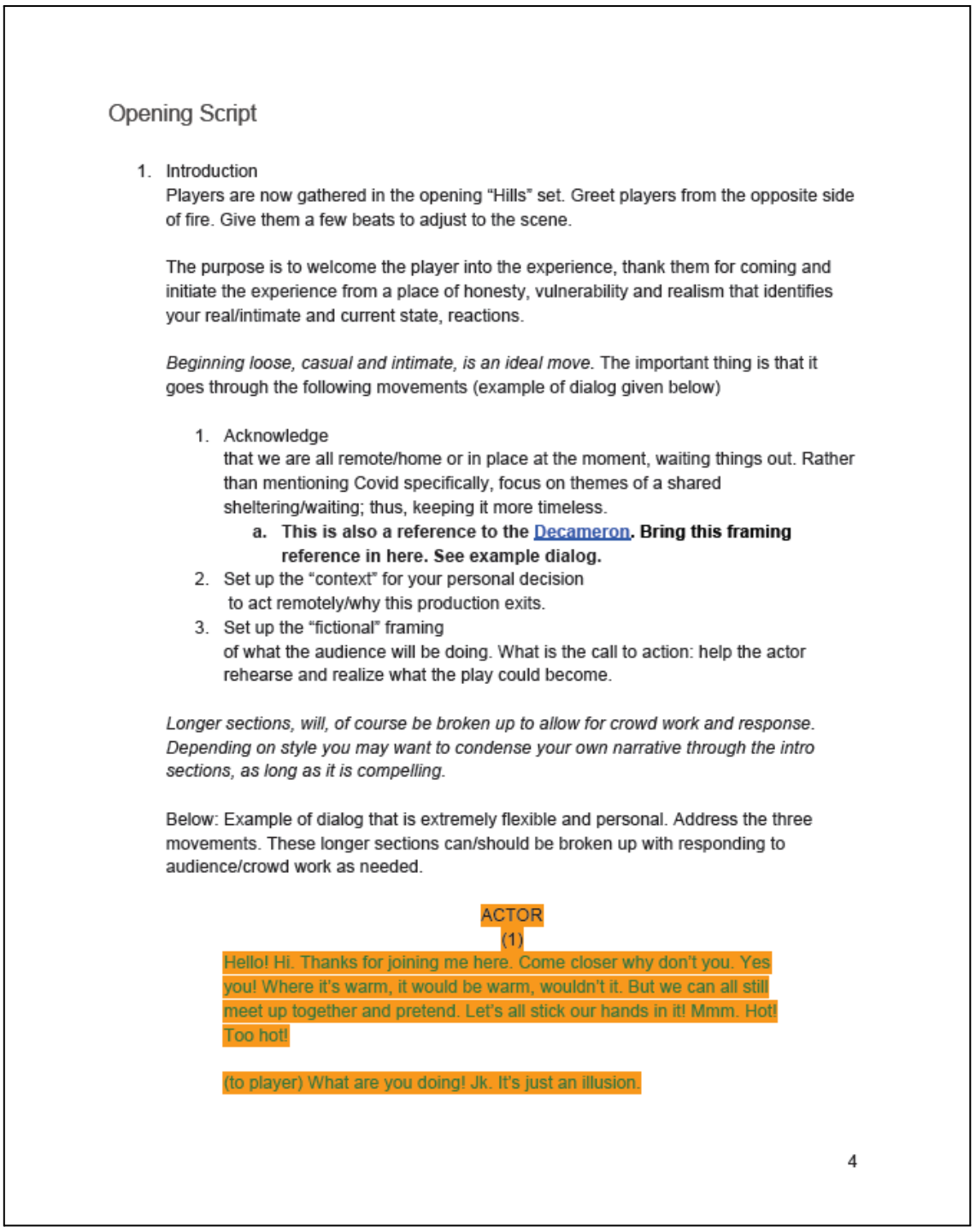


Figure 8. VR play proposal by Aja Cooper and Gary Tieche (Luthy, 2017)

The final example is a script by Samantha Gorman (2020), divided in four sections: an introduction, an outline of the narrative, the support text for the performance, and an appendix. The first two sections aid the reader in understanding the theatrical text since it uses specific colors as performance directions.

In contrast to the first two sections, the performance text reads less organized, mainly due to the lack of scene numbering and crossed-out lines. This format disorganization is understandable if we consider it part of the internal documentation of a performance collective, but it may provide some difficulty for external readers to know what the resulting VR performance portrayed and omitted. While the order of the documentation shares some similarities to the text development sequence I propose in this dissertation, one significant difference is that I decided to create a structure in which the theatrical text could work separately from production notes and lengthy introductions.



Opening Script

1. Introduction
   Players are now gathered in the opening "Hills" set. Greet players from the opposite side of fire. Give them a few beats to adjust to the scene.

   The purpose is to welcome the player into the experience, thank them for coming and initiate the experience from a place of honesty, vulnerability and realism that identifies your real/intimate and current state, reactions.

   Beginning loose, casual and intimate, is an ideal move. The important thing is that it goes through the following movements (example of dialog given below)

   1. Acknowledge
      that we are all remote/home or in place at the moment, waiting things out. Rather than mentioning Covid specifically, focus on themes of a shared sheltering/waiting; thus, keeping it more timeless.
      a. **This is also a reference to the Decameron. Bring this framing reference in here. See example dialog.**
   2. Set up the "context" for your personal decision
      to act remotely/why this production exits.
   3. Set up the "fictional" framing
      of what the audience will be doing. What is the call to action: help the actor rehearse and realize what the play could become.

   Longer sections, will, of course be broken up to allow for crowd work and response. Depending on style you may want to condense your own narrative through the intro sections, as long as it is compelling.

   Below: Example of dialog that is extremely flexible and personal. Address the three movements. These longer sections can/should be broken up with responding to audience/crowd work as needed.

   ACTOR
   (1)
   Hello! Hi. Thanks for joining me here. Come closer why don't you. Yes you! Where it's warm, it would be warm, wouldn't it. But we can all still meet up together and pretend. Let's all stick our hands in it! Mmm. Hot! Too hot!

   (to player) What are you doing! Jk. It's just an illusion.

4

Figure 9. Third section of the VR play approach by Samantha Gorman, which is the theatrical text (2020)

From all these early explorations, I learned that my research could take many creative paths while ideating and formatting the page of a VR play. The decision to preserve some of their elements and combine it with others inherited from theater and cinema was influenced by the observations of Chiarulli (2021: 119), who points out "a structural continuity between

playwriting and screenwriting, and the belief that intersections between screenwriting and its narrative ancestor are significant."

These early proposals show creative ways to depict the technological possibilities of Virtual Reality. In Evette Vargas' approach (2018), each essential interactive element or action marked with italics and purple font. The Cooper-Tieche proposal (2017) highlights certain parts of the text, which reference a spatial axis printed on the right side of the page, so the reader can infer the highlighted element's location according to its color. Gorman's script (2020) provides further creative context with a final section detailing best practices learned in a previous production. I want to continue their exploration of VR playwriting and lower the entry barriers for more practitioners by leveraging the mainstream practices of the existing stagewriting and screenwriting communities.

I explain this with Szczepanik's assertion that writing formats emerge from the techniques of a community rather than a top-down political shift (2013: 75). Early in my career, I learned that writing structures and conventions result from a methodology, and many of these methods are community-based. Thus, my research focuses on evolving the conventions and processes familiar to the large community of dramaturgs and screenwriters that adhere to the writing conventions of the BBC, as well as bringing some elements from the examples above that effectively capture the essence of a VR narrative.

Since I aim to introduce Virtual Reality as a medium of artistic realization to writers who might not be familiar with it, I considered it necessary to do an academic review of the basic terms that help to understand this medium. While Virtual Reality language and its evolution merit an in-depth research, the brief definitions below will aid newcomers to grasp the narrative possibilities VR offers.

2.6 Virtual Reality Terminology

As previously mentioned, Virtual Reality is a media of attraction, characterized by being unassimilated, interdisciplinary, seamed, and participatory (Rouse 2016: 98). Thus, I argue

that Virtual Reality is a field that is still deciding its terminology, which has intimidated many artists who might benefit from exploring it.

During my early research, I spent many hours introducing creatives to Virtual Reality, which inspired me to write my second creative work—a practical handbook. While this text is a practical approach to understanding the potential that VR offers for theater, I decided also to do the same from an academic perspective and list all the notions a writer unfamiliar with Virtual Reality must know to write for this medium.

2.6.1 Virtual Reality

Virtual Reality has multiple definitions due to its interdisciplinary nature (Dolgunsöz et al. 2018: 1). The first person to use this term was inventor Morton Heilig, who designed a mask for stereoscopic viewing in 1960 and used "Virtual Reality" to describe what was seen through this mask (Dooley 2018: 176). The definition proposed by Ryan (2015: 25) points out three main factors that characterize Virtual Reality:

1) It is made from digital data generated by a computer.
2) VR is immersive since it shows a virtual world through a display.
3) VR is an interactive system offering users a matrix of choices.

Virtual reality is a technological medium that engages the audience through an imaginary environment, narrative, and interaction (Yan et al. 2021: 1). The digital nature of the medium is also present in the definition by Dolgunsöz et al. (2018: 2) who describe Virtual Reality as a computer-based technology:

> "While software connected to a computer processes the visual stimuli, hardware (VR goggles) displays visual content for the wearer. The users' sense of presence and interactivity are provided by the hardware, which is the basic characteristic of the VR applications".

In other words, Virtual Reality is a medium in which a person enters a virtual environment and interacts with it using technologies such as Head-Mounted Display (HMD), surround speakers, cameras, manual controls, and movement trackers.

From the perspective of physics, Reyes (2022: 90) models Virtual Reality as a sphere that can split into six sections: horizon, upper hemisphere, lower hemisphere, zenith (the highest point of the upper hemisphere), and nadir (the lowest point of the lower hemisphere). This spherical understanding of VR matches Laurel's (2016) conceptualization of Virtual Reality as a medium consisting of a 360-degree stereoscopic view of an environment with spatialized audio, in which viewers can act via movement or influence the narrative through choices. Understanding VR as a sphere also fits Larsen's (2018: 14) more ample definition of Virtual Reality, which describes it as a moving image projected in an immersive environment, such as a Head-Mounted Display (HMD) or a spherical screen.

Virtual reality allows the viewer to be inside and outside a virtual experience (Giannachi 2004: 123). Rouse (2016: 98) states that Virtual Reality (and Extended Reality as well) are media of attraction, a classification that also applies to cabinets of curiosity, vaudeville shows, dioramas, panoramas, and theme park attractions. Thus, it also has the following characteristics:

- It is unassimilated, which means it is still a novelty, there are no artistic conventions, codified practices, or formalized means of criticism (Rouse 2016: 100).
- It is interdisciplinary, drawing from multiple art forms and techniques (Rouse 2016: 101).
- It is seamed, in the sense that the audience can perceive the "edges" between the performance and the reality. This seam is necessary for the audience to truly appreciate the construction of the virtual (Rouse 2016: 101).
- It is participatory because the audience has to accept to participate and engage actively.

According to Milgram and Kishino (2003: 2), the environment that the user sees in Virtual Reality may replicate the properties seen in its real-world counterparts, although it can also display a world in which the natural laws governing time, space, mechanics, and material properties do not apply. This flexibility allows the use of Virtual Reality in various fields, including medicine, education, tourism, gaming, sports, and advertising (Dolgunsöz et al. 2018: 280).

As of 2023, most Virtual Reality productions attempt to create environments that the audience can explore and examine. These environments are more engaging and fascinating

“when the systems and the associated animated, interactive, three-dimensional representations are designed well” (Edsall; Larson 2006: 27). Harmann and Fox (2021: 13–16) state that experiencing a story set in a virtual environment enhances the moral or normative significance of an action since it expands the self. Virtual Reality may feel real to the audience because the represented environment can closely resemble the real world and display objects that can move, can be manipulated, or have other rich sensory features (Hartmann 2021: 9).

Considering the above, it is unsurprising that one issue hindering Virtual Reality adoption is the audience's physiological limitations. In a 2018 interactive exhibit, “nine percent of participants reported at least mild nausea, and 11 percent reported some level of disorientation” (Huse; Strom 2019: 39).

Virtual Reality became a more mainstream medium after I started my research in 2019 since Facebook decided to change its focus from being a social media network to VR headset production. Eventually, the company changed its name to Meta to evoke the concept of metaverse, which is a misnomer of the medium I explain next.

2.6.2 Metaverse

Park and Kim (2022: 4211) define Metaverse as a three-dimensional world in which daily life includes both the real and the unreal. Mystakidis (2022: 486) defines the metaverse as the “post-reality universe”, a multiuser environment that combines physical reality with the digital world. Therefore, this term is not exclusive to Virtual Reality, as it also encompasses online multiplayer video games, open game worlds, and experiences in augmented reality (AR) and Mixed Reality (MR).

The metaverse can be conceptualized as a “mirror world”, reproducing actual places in the virtual and adding extra information to them (Park; Kim 2022: 4211). An example of this is Google Earth, a maps application in which users can find information about the displayed locations, including 3D views, tridimensional building models, data particular to the specific address (such as opening times, reviews, and website links), and even provide virtual shopping experiences (Park; Kim 2022: 4211).

Since the concept of metaverse involves the replication of the real in the virtual and theatrical works are often fictional, I prefer to use Extended Reality rather than metaverse to refer to the category encompassing Virtual Reality and other hybrid media that combine the real with the virtual.

2.6.3 Extended Reality (XR)

Initially denominated Mixed Reality by Milgram and Kishino (1994: 3) and as Layered Reality by Jarvis (2019: 27), this is a field that studies the intersection of human and machine interaction. Alternatively, Extended Reality is a continuum to organize creative works in which an entirely virtualized environment is at one end with the natural environment standing on the opposite side (Milgram and Kishino 1994:3).

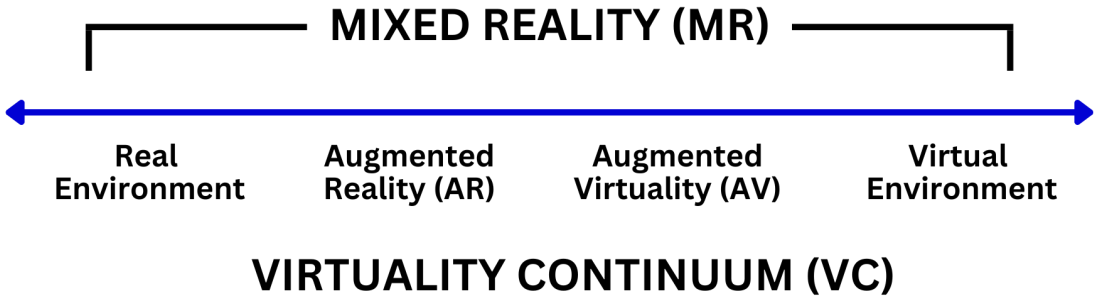


Figure 10. Extended Reality (XR) continuum (Milgram and Kishino 1994:3).

Extended Reality thus is a continuum of media expressions that display real objects and virtual objects together and connect the natural environment with a virtual one (Milgram, Kishino 1994: 12).

In accordance to this definition, Extended Reality performances encompass theatrical performances staged across the continuum of Mixed Reality (Benford; Giannachi 2014: 2). Below I present an example which relies on a tridimensional projection presented within a real environment known as a hologram (Novella 2022:166). In an Augmented Reality experience titled *ABBA Voyage*, a live audience experiences an ABBA concert consisting of a holographic projection of the pop group, depicting them as young as they were in the 1970s, pre-recorded audio tracks, light effects, and confetti.

Figure 11. Picture of the holograms used in *ABBA Voyage* (ABBA, 2022).

As we can see in the variety of elements used in *ABBA Voyage*, the relationship between performance and Extended Reality media is complex and hybrid (Benford; Giannachi 2011: 7), since it employs interfaces to connect real and virtual spaces, shift roles, and even scale time. It is important to note that Augmented Reality works are more accessible that more virtualized narrative experiences, as viewers can access AR productions using a smartphones.

2.6.4 Augmented Reality (AR)

According to Huse and Strom (2019: 36), Augmented Reality encompasses applications that put computer-generated objects over the real world. Augmented Reality can also be understood a hypersurface, in which neither the image or the material dominates since the virtual overlays the real. This allows the exploration of the relationship between binaries such as image/form, inside/outside, structure/ornament, ground/edifice (Benford; Giannachi 2011: 134).

Usually viewers use their smartphones to access AR applications, which means it lacks the full immersion of Virtual Reality. As Novella (2022: 164) points out AR “does not replace our ability to see the world; it overlays graphics onto the outside world.”. Writing theater for Augmented Reality (and thus Virtual Reality) requires the writer to think as an orchestrator of the participant’s experience, using their humanity to balance the virtual overlays, with the narrative elements, and the use of technology (Benford; Giannachi 2011: 227).

An example of an AR experience is the game *Pokemon GO!*, released in 2016, which became one of the most popular apps worldwide. After opening the game, players can use their smartphone's camera to catch virtual *Pokemon* monsters, which appear overlaid over the image of the natural environment seen by the camera lens (Novella 2022:164). The type of *Pokemon* available depended on the player's actual location, with the experience itself designed as a hunting experience with opportunities for collaboration between players in the same geographical position. I still remember the thrill of catching a *Mr. Mime* in Lisbon in 2016 because it was a coveted *Pokemon* unavailable in North America.

Beyond gaming, Augmented Reality has become popular due to social media camera filters. Users use them to record themselves and appear as fully digitalized characters, enhance their appearance with virtual makeup, or even play mini-games. Augmented Reality has also been used in the production of theater to visualize design or the positioning of objects on stage (Huse; Strom 2019: 35).

AR allows reality "to be augmented and expanded with virtual bodies and virtual realities, highlighting diverse states of the self and reality, exploring ' the virtual' as the full potential of human experience" (Ryu 2017: 122). Unlike Virtual Reality, AR does not produce motion sickness, is more portable, and never disconnects from the real world (Novella 2022:164).

The format proposed by this dissertation, which I call VR play, might also be helpful for playwrights looking to incorporate AR or other Extended Reality applications into their narratives. Ideally, every work across the Extended Reality spectrum would be preserved using a custom documentation strategy (Takeo Magruder 2012: 35). However, such a granular approach towards the documentation of digital art is often impractical, unaffordable, and not realistic (Takeo Magruder 2012: 35).

Using the writing conventions of the VR play, a writer working with AR and hybrid XR experiences can still properly document their creation, a task that includes saving the most critical parts of their narrative and highlighting its crucial elements, thus preserving the essence of their work for future audiences (Abbott 2012: 67).

2.6.5 Storyworld

To understand what a storyworld is, it is necessary to define first the concept of space. Hameed and Perkin (2018: 8) define space as an experiential environment and more than a mere container. Doreen Massey argues that spaces are the product of interpersonal relations, a combination of unevenness, never completed and never untouched (Smith 2019: 62). When a space provides performers with the possibility of experientially intense or immersive performance, it becomes a type of site known as *chora* (Smith 2019: 62). Therefore, we can define the storyworld as a *chora* that stands in suspension (Smith 2019: 62), that is "built" to be witnessed, and where both the real and the performative can occur (Benford; Giannachi 2011: 45). By experiencing a performance in a storyworld, the audience can create their own unique narratives and reflect back afterwards (Hameed and Perkis 2018: 10).

The goal of a storyworld is to "support the stories set in them" (Wolf 2013: 29), which requires creatives to slow down the narrative to bring details and descriptive richness that can impact the audience's experience (Wolf 2013: 29). The complexity of a storyworld may require participants to use or even create maps to navigate the environment; and it is up to the writer to define a strategy to ease navigation (Benford; Giannachi 2011: 19). It is then essential to keep in mind that world-building is not the purpose of a VR play, as storytelling should remain the focus of the audience (Wolf 2013: 30). Creating a VR play goes beyond defining a time, a space, an order, and world which encapsulates these concepts (Wolf 2013: 29).

From the perspective of immersive theater, we can define storyworlds as interiors, to which the audience is invited to become immersed (White 2012: 224). Furthermore, the structure of a storyworld brings the audience into the narrative and offers the promise of further depth (White 2012: 230). Thus, dramaturgs and performers should approach storyworlds as virtual places to explore creativity, fantasy, and reordering (Dimopoulous 2021: 338–363).

For Reyes (2022: 89), the creative activity of Virtual Reality starts with the assembling of a storyworld. This task requires having a functional perspective of the space, which can become more precise by answering the following questions suggested by Dimopoulous (2021: 338–363):

- What is the guiding vision?

- From general to specific, how can we describe the place?
- Where does the place fit in the storyworld?
- What is the political and geographical context of the place?
- What makes this place special?
- What characterizes the place?
- What is the layout?
- What are the boundaries of the place? What lies beyond or near these boundaries?
- Are there any landmarks?
- How do the streets and space outside the place look like?
- What is considered normal in this place?

According to Reyes (2022: 9), the borders between reality and digital reality are blending, and thus all storyworlds can be considered real no matter the technology used to build them. This means storyworlds can be built for plays across the Extended Reality spectrum, including AR, 360° video, and VR. Audience members access a storyworld through sensory stimuli (Reyes 2022: 9). In the case of Virtual Reality productions, one of the most popular ways to achieve this is by using a Head-Mounted Display, or HMD.

2.6.6 Head-Mounted Display (HMD)

Also known as headsets or VR goggles, they are devices that a user can wear to access the Metaverse, watch a VR performance, or play a 360° game. The origins of HMDs can be traced to the invention of the stereoscope in 1836, designed by Sir Charles Wheatstone (Kurland 2018: 7).

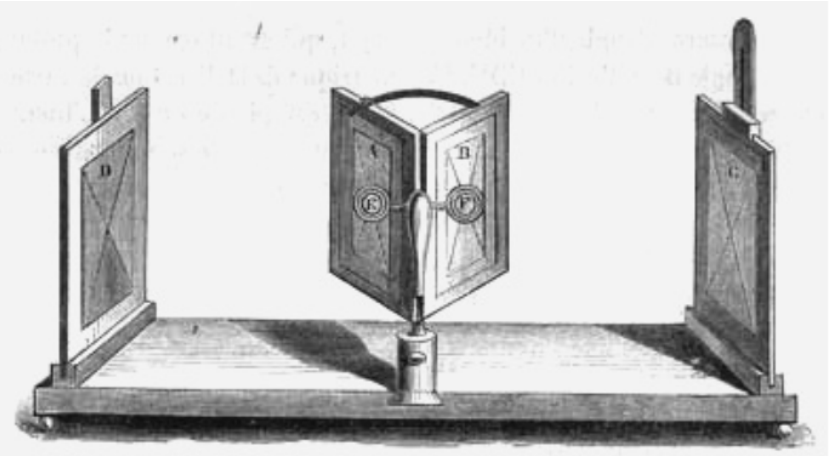


Figure 12. Wheatstone's stereoscope (Kurland 2018: 7).

By 1851, Sir David Brewster had developed the first handheld stereoscope by fitting a small box with optical lenses to view backlit glass photographic slides and front-lit photo prints (Kurland 2018: 7). According to Kurland (2018: 7), stereoscopes were a popular form of home entertainment up until the 1920s. Viewers used stereoscopes to see "stereo cards" on various subjects, such as pictures of exotic locations, news, and narratives.

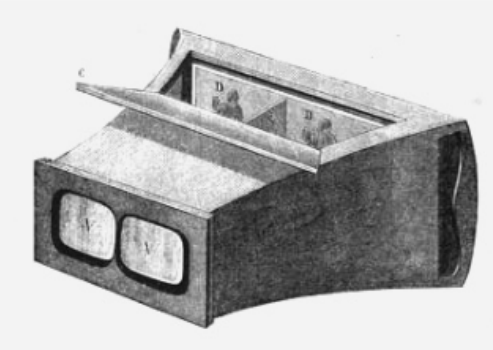


Figure 13. Brewster's stereoscope (Kurland 2018: 7).

The stereoscope gave way to the ViewMaster, characterized by using a circular reel with seven stereoscopic slides that the viewer manually advanced (Kurland 2018: 11). In 1968, Ivan Sutherland and Bob Sproull built the first actual VR Head-Mounted Display, nicknamed *the sword of Damocles*. The device was tethered to a ceiling arm, and could "track the wearer's head to determine where they were looking and then render a real-time stereoscopic image as a computer" (Kurland 2018: 12–13).

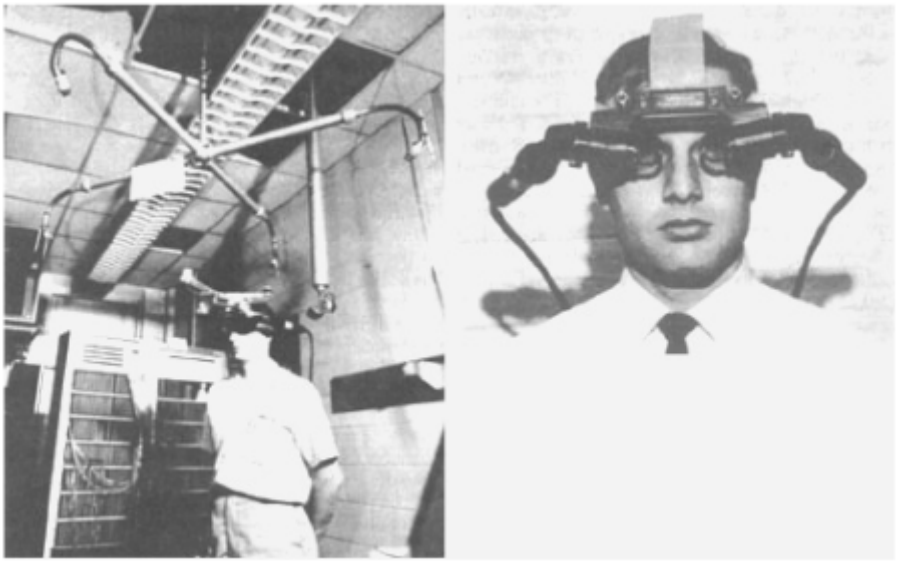


Figure 14. The *sword of Damocles* (Kurland 2018: 12).

VR headsets were used for scientific and military purposes during the 1970s and 1980s. The first consumer Virtual Reality headset was released in 1991, with the release of a VR arcade system that allowed users to don a VR visor, a VR gun, and a heavy belt connected to an Amiga computer (Kurland 2018: 13). The contemporary HMDs got their start in 2012 with the creation of a handheld cardboard viewer called the FOV2GO. Created at the University of Southern California (USC). By using FOV2GO with a smartphone, viewers can manually play VR content with limited interactivity.

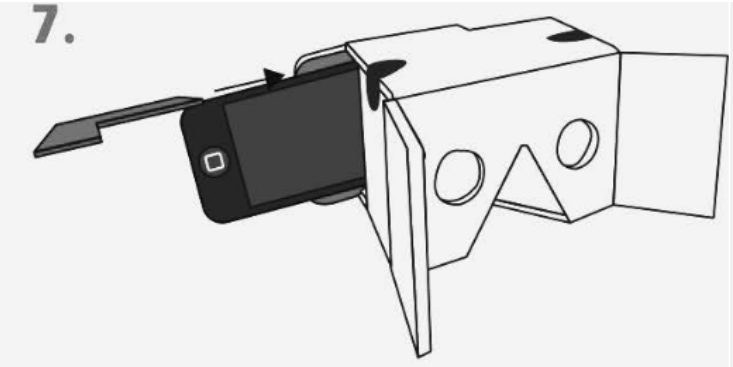


Figure 15. The FOV2GO (Kurland 2018: 12).

As of 2022, the most popular headsets in Europe are the Oculus Quest 2, HTC Vive, Playstation VR, Valve Index, and Pico Neo 3 Link (Spendelow 2022: accessed April 25, 2022). The main characteristic of these contemporary headsets is the addition of peripherals, such as microphones, headphones, face trackers, manual controllers, and body trackers, allowing users to enhance their immersion in the VR environment.

According to Novella, the current VR HMDs offer a 110-degree view, enough to create a sense of immersion with a small amount of tunnel vision (2022: 159). This can lead to the user to experience motion sickness, “which results from the disconnect between what the user's eyes are seeing and what their vestibular system is sensing. This is the part of our body that identifies motion and the direction of gravity” (Novella 2022: 160). This reflects on the shorter runtime of Virtual Reality plays, which usually borders on 10 minutes because “wearing a head mounted display is not feasible for long periods of time, and some Virtual Reality experiences have been known to produce health problems in users” (Dooley 2017: 4).

Current headset designers and manufacturers work to improve the resolution, eye-tracking technology, and the system's weight. Going beyond the technology, it is the responsibility of VR playwrights to define the place inside the storyworld from which the audience observes the story. As I observed in my first creative project, localizing the viewer's location inside a storyworld is a small but critical decision since it defines their point-of-view.

2.6.7 Point-of-View (POV)

Charles et al. (2010: 1681) define point-of-view as the standpoint of a character on a narrative action. Every character had their representation of a set of events, thus leading to the generation of story variants according to the POV. Larsen argues that using a third-person perspective in VR may not satisfy audiences, as placing the audience as the protagonist's sidekick, and using a second-person POV may result in more immersion (Larsen 2018: 73).

In Virtual Reality, there is a trend towards narratives that play out in first-person and third-person, using specific elements which allow the audience to interact or further their own sense of immersion (Dooley 2018: 176). As the years have gone by, I have experienced Virtual Reality and Extended Reality plays that have offered me a variety of points of view:

- In *Dream* (Royal Shakespeare Company 2021), I was an unseen companion to the protagonist who was able to throw "sprites" to aid the protagonist to achieve its goal.
- In *The Choice* (Popinska 2022), I was an interviewer interacting with a woman who had aborted using a set of predefined questions.
- In *Water and Coltan* (Kötter 2021), I was a visitor in Ghana who witnessed the different coltan mining processes.

With some or all of their scenes set in Virtual Reality, none of these works offered the same experience of sitting down to watch a play on the stage. Each experience was unique not just because it redefined my POV as an audience member but also because they offered ways in which I could interact with each of the pieces.

It is pertinent to mention that "virtual reality projects vary greatly in terms of format, technical specifications and exhibition methods" (Dooley 2017: 163) and the examples mentioned are no exception. As previously stated, case-by-case documentation of digital artworks often results impractical(Takeo Magruder 2012: 35). A format built in previous

writing conventions such as the VR play aids to capture the narrative essence of all kinds of XR works, their interactive capabilities (albeit not all potential interactions), and the particular point-of-view that the audience occupies in a determined project. Yan et al. (2021: 5) recommends VR artists to make clear the identity of the audience from the start to allow them to adapt to their identity, understand their POV, and know where they stand in the plot if they fulfill a narrative role.

We can also study the point-of-view from the perspective of physics. For Reyes (2022: 91), the point-of-view of the audience member, or interactor, should be the same as the point-of-view of the camera because they stand in the center of the physical sphere that is the VR environment and receive all the stimuli it provides. Furthermore, there are four considerations for using POV as a way to create meaning in virtual environments: the fact that the audience has a body, the height of the camera, the distance between an object and the camera lens, the relation of the camera to the ground (Reyes 2022: 97–98).

The possibility of interactivity is perhaps the most intriguing storytelling possibility for VR playwriting. As Yan et al. (2021: 4) point out, writers working with VR plays should consider the audience's need to explore the environment and device ways in which they can interact with the narrative.

2.6.8 Interactivity

Interactivity allows the audience to further the plot or initiate events in a performance (Biggin 2017: 124). According to Miller (2004: 33), interactive stories predate modern entertainment, as storytellers have brought audiences into their narratives through cognitive, emotional, and pictorial involvement (Striner et al. 2019: 15).

More recently, the interactive narrative experiments in novels, theater, and film introduced the concept of hyperlinking (Miller 2004: 33). A hyperlinked story may be unpredictable, have multiple narrative pathways or parallel stories, and offer the audience ways to peek into the storyworld and its characters. Based on this definition, this dissertation proposes that a VR play is a subgenre of hyperlinked text in which users can interact with its elements.

The audience is passive in traditional theater, but interactivity can convert them to be "an active agent who is involved in the unfolding narrative" (Dooley 2017: 161). The spectrum suggested by Striner et al. (2019: 220–221) helps to better understand this role change, since it classifies interactivity according to the agency of audience members.

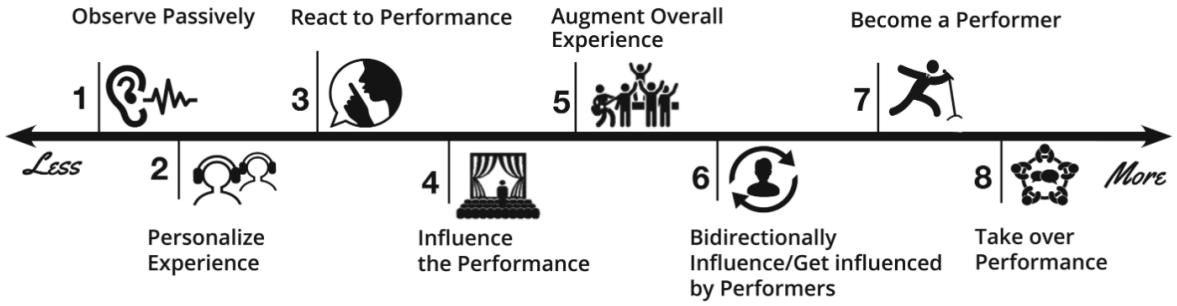


Figure 16. Spectrum of audience interactivity for entertainment (Striner et al. 2019: 221).

The concept of audience interactivity has surged across film, theater, and other types of entertainment, bringing with it new language and practices (Striner et al. 2019: 214). The interactive nature of participatory theater, which includes live-action role-playing (LARP), improvised theater, and historical re-enactments, has led to "emergent narratives" in which the performance is created through the interactions and relationships happening live (Dooley 2017: 5). It is vital for writers to consider the way the audience will interact with the play. This has been explored previously in immersive theater, where audience members participate "by wandering freely and choosing to explore they bring about their own experience, curating their own series of events as they discover them," (Biggin 2017: 124).

Interactive stories are always non-linear, and "even when interactive works include a central storyline, players or users can weave a varied path through the material, interacting with it in a highly fluid manner," (Miller 2004: 30). While Striner et al. (2019: 215) refer to this concept as transmedia narrative, Murray (2016: 36) denominates it as multiform story, further describing it as a single narrative situation which spins off into multiple versions that can be exclusive to a single audience member. Since Virtual Reality works fall into the category of media of attraction, writers should consider the push and pull between the story and the attraction (Rouse 2016: 103). In other words, interactivity and dramatic structure must create tension in a Virtual Reality play, although they are not a conflict to be solved but a characteristic of the emerging medium.

Miller points out that a pleasant interactive experience is characterized by being participatory, having something at stake, establishing specific rules, offering a guide that aids in finding the narrative path, setting, obstacles to overcome, and having an end goal (2004: 33). In other words, the audience should interact not just for interactivity's sake, but to advance the story either diegetically or emotionally. The basic rules and structure of a VR play should be self-evident and self-explanatory so users can experience and interact with the piece as soon as they put the visor on. It is essential to let the user acclimate before starting to direct the viewer's attention through visual, sound, and action cues (Dooley 2017: 5–8). There are always limits to how much a user can interact in a Virtual Reality play, just as it happens with other theaters:

> "Headphone theatres are immersive but not participative, engaging audiences sensuously and affectively without inviting contributions; karaoke theatre allows the amateur to claim his/her space in the cultural happenings, but there still is a distinction between those performing" (Chatzichristodoulou 2017: 317).

Yan et al. (2021: 1–3) classify the interaction of immersive virtual plays into three categories: individual-based, scenario-based, and narrative-based. Individual-based interaction refers to the individual expression of opinion, emotion, comments, and physical contact. Meanwhile, scenario-based interaction refers to the actions that the audience can perform with virtual props. Lastly, narrative-based interaction happens when the audience can affect the narrative, which is possible when the VR play offers a variety of narrative paths.

With interactivity, VR plays can go beyond simulating reality and achieve a sense of presence in (and about) Virtual Reality. Thus, interactivity in Virtual Reality is an intermedial process that involves re-evaluating the roles between the creator and the viewers (Paatela-Nieminen 2021: 429). The appeal of Virtual Reality is particularly evident when it facilitates decision-making among the viewers (Edsall; Larson 2006: 26).

Interaction is both a challenge and an opportunity for a writer working with a VR play (Dooley 2017: 1). This is echoed by Striner et al. (2019: 214), who point out that defining the rules for interaction might be tricky for writers and artists working with VR. In addition, Yan et al. (2021: 4) state that interaction can affect the audience's experience, particularly if there is an uneven occurrence of interaction frequency or types.

With ever-changing technology, there is a need to further study how audiences can interact with a rich multiform story (Striner et al. 2019: 214). For practitioners defining the interactivity of their VR works, Yang et al. (2021: 5) suggest giving the audience choice over the narrative and increasing the freedom to explore the vitual environment. As of 2023, most users access Virtual Reality narratives using Head-Mounted Displays and other peripherals.

2.6.9 Peripherals

Peripherals are tangible objects that allow users to simulate themselves better in the virtual space and help them experience simulated smells, weights, textures, etc., corresponding to the space they are accessing through VR. Compared to other media, VR has the potential to create a richer environment (Ryan 2015: 69), but peripherals are still in the early stages of development. According to Novella (2022: 167), peripherals include:

- Data gloves, which users can wear to grab objects.
- Face cameras, which replicate the user's gestures into their Virtual Reality selves.
- Volumetric cameras, which record objects and actors to replay them in Virtual Reality.
- Hand joysticks and controls, which allow users to do actions.
- Treadmills, on which users can walk to move around the Virtual Reality space.
- Motion sensors, which users can wear so their physical movements are replicated in VR.
- Motion cameras, which records the movements of the users and replicate them in Virtual Reality.
- Smell diffusers, to represent the smells present in the Virtual Reality environment.

Mapping this functionality for peripherals is quite complex, requiring sophisticated software, sensors, and artificial muscles (Greengard 2019: 110). But is it essential? As a child raised in the 90s, I was enthralled by the first Super Mario Bros. and spent hours in that 8-bit world. Every technological upgrade on that particular game resulted in an immersive experience, regardless of the controls at my disposal. Sometimes, even watching my brother play was enough to keep me enthralled by the world of Super Mario.

Therefore I agree with Greengard that “the goal is to create an environment that appears real enough to trigger desired responses in the mind and the body” (2019: 96). In other words, peripherals aim not to recreate reality but to facilitate immersion.

2.6.10 Immersion

For the purposes of this dissertation, which is to introduce writes non-familiar with VR technology to VR playwriting, immersion is defined as the extent to which the observer can experience a place and its contents (McCain et al. 2018: 10). From a storytelling perspective, immersion can also be understood as a highly intense, temporary, and fleeting state through which the audience may become engaged with the narrative (Biggins 2017: 118). Ryan (2015: 127) identifies three kinds of immersion in narratives: spatial immersion via a response to setting, temporal immersion via a response to plot, and emotional immersion via a response to character. Alternatively, Hameed and Perkis (2018: 5) categorize the immersion of computer-based media into five types: absorption & engagement, strategic and tactical immersion, imaginative immersion, challenge-based immersion, ludic immersion, and narrative immersion.

Zhang et al. (2017: 2) organize these and more immersion classifications into two broad types: embodied immersion and empathetic immersion. The first one covers all the immersion classifications dealing with the “nondiegetic, situated, physical, sensory (motoric), perceptual, spatial, egocentric, and visceral”. In the other hand, empathetic immersion encompasses the categories covering the “diegetic, mental, imaginative, fictional, cognitive & emotional, psychological, narrative, exocentric, vicarious, and self-presence” (Zhang et al. 2017: 2).

According to Reyes (2022: 100), immersive stories can be done without computers, as can be seen in attractions, interactive theater, and art installations. Birringer (2017: 104) argues that immersion is dominated by visuality, visual stimulation, and even point-of-view (POV). This technological perspective allows quantifying the immersion level (Hameed; Perkis 2018: 3) by measuring factors such as multiple sensory modality and consistency between physical and virtual movements (Huang et al. 2021: 746).

Virtual Reality technology is able to create environments that the brains of the viewers may mistake as real (Misak 2018: 41) and increase the sense of embodiment, or how much viewers estimate they can manipulate and move in the virtual space in parallel to their natural motion and body movement (Huang et al. 2021: 745). In other words, the viewer feels more immersed when they are allowed to see, hear, feel, and interact more authentically within a virtual space.

The immersion offered by a VR experience results from the relationship between the virtual place and the imported in-real-life knowledge of the audience in terms of social context, spatiality, and physical movements. Thus, immersion can be understood as a process in which the reader is plunged into a narrative to capture their attention (Ryan 2010: 94). Once the person is inside a virtual place, the laws of this virtual world overrule the principles of the real world. What is felt is real, because it is real what is felt. The structuralist notion that fictional characters are linguistic constructs does not prevent the audience from feeling empathy toward them. Being immersed in a virtual place causes the In-Real-Life concerns and surroundings of the audience to fade from their consciousness.

Thus, immersion can be conceptualized both as a physical and a mental state (Biggin 2017: 117). Virtual Reality has the plasticity and the illusion of absorption, which means the viewer feels physically present in the non-physical world shown (Birringer 2017: 107). Audiences in a virtual storyworld first experience spatial immersion before achieving emotional immersion (Zhang et al. 2017: 5). The key factor that enables the audience to immerse emotionally is engagement (Striner et al. 2019: 216).

Through immersion, the audience discovers an artistic-sensorial environment to which they may connect or disconnect (Birringer 2017:106–116). There is also a ritual-communal aspect of immersion in theater, in which audiences step in, come closer, touch, listen, and act within the performance. It is important to note that any immersive experience needs to have a return, a moment in which the audience leaves the "altered state" that is the virtual environment and returns to the boundaries of reality (Jarvis 2019: 13). The challenge for the VR playwright is to create Virtual Reality plays that expand the synaesthetic perspective and embodiment of the audience. (Birringer 2017, p. 116).

2.6.11 Audience

According to Schechner (1994), traditional theater snuggles the audience by giving them no responsibility to respond to the performance. Modern culture has also taught the public to favor rectangular, hard-edged spaces, and expect performances to be framed by a stage or the borders of a screen. There is a cultural draw to preserve this boundary, yet real-life places are often experienced without these borders and favor wondering.

Without the familiar delimitation of the stage and free of the container that is the frame, the VR audience can explore the virtual place through action (Schechner 1994: 1–40). Current popular Head-Mounted Displays, such as Oculus, Playstation VR, Valve Index, and HTC Vive, allow the audience to move, speak, and grab objects inside the virtual place. In other words, the audience of VR theater is more active in the sense they may take up the roles of bystander, spectator, customer, participant, or player (Striner et al. 2019: 216). Therefore, the VR playwriter should think about the audience as interactors who have a body they can manipulate in the virtual world (Reyes 2022: 97).

Audiences in virtual places get a similar experience to what Machon (2013: 17–25) observes in immersive theater showgoers. In traditional theater, the audience is physically thrown into a new context, detached from the everyday world they have come from. This new environment has its own rules and regulations with elements of theater in the mix, creating a multidimensional performance in which the participant can interact using their virtual body. Such act also implies that the immersed participant is not only a spectator of the narrative, but also a performer of it (Jarvis 2019: 76). This notion led to VR artist Char Davies to coin the term *immersant* to refer to an audience member who explores a virtual environment using a mediated copy of their selves (Jarvis 2019: 77).

Jaller and Serafin point out that is crucial to prepare audiences for VR performances in which they will be required to be active (2020: 2). This preparation encompasses the paths leading into amusement attractions, virtual tutorials, and hands-on workshop. With the current VR headsets and controls, the audience can draw space relations out of volumes and visual cues. In other words, VR plays allow the audience to roam within a story digitally through the act of embodiment.

2.6.12 Embodiment

Whether they are part of the storyworld or not, the audience has a body (Reyes 2022: 97). Jarvis (2019: 3) defines embodiment as a type of perceptual immersion inherent to gallery-based installations and immersive performances. Through embodiment, an audience member extends their self beyond their own skin (Jarvis 2019: 7), in an immersive experience that allows them to "feel" what Zhang et al. (2017: 2) calls the self-other.

For embodiment to occur, the audience needs to be aware that their self-other is having a bodily inside the virtual enviroment which requires sensory or motor adjustment (Zhang et al. 2017: 2) . Alternatively, Reyes (2022: 97) understands embodiment through the awareness that the audience has in relation to objects and the others. The practice of audience embodiment has been long criticized by art historians such as Michael Fried, who reacted against closing the distance between artwork and spectator, opposing the incorporation of audience bodies into theatrical pieces (Jarvis 2019: 40).

Indeed, the immersive act of embodiment helps to transport the audience mentally and physically into a virtual environment (Machon 2013: 63). This illusion has been used not only for entertainment but also for therapy, physical rehabilitation, and other social purposes (Jarvis 2019: 9).

Virtual embodiment has yet to achieve the depth offered by theatrical immersion, which entails the incorporation and involvement of the whole body of the spectator (Jarvis 2019: 49). While the audience can inhabit a mediated version of their self, this does not mean they have an unlimited range of action, as their agency is regulated controlling the degrees of freedom of their self-other.

2.6.13 Degrees of Freedom (DoF) and Agency

This is the ability to move physically in both the real and virtual worlds (Tricart 2018: 56). This scope of motion splits in six directions with two categories:

- Translation, including the Forward/Back, Up/Down, and Left/Right orientations.
- Rotation, which encompasses Pitch, Yaw, and Roll.

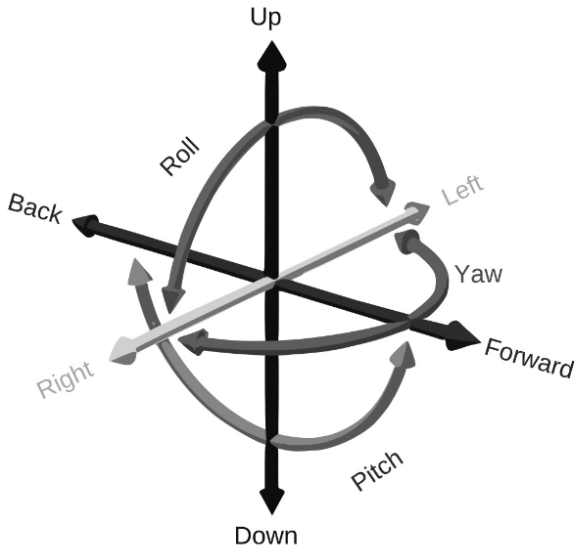


Figure 17. Movement directions for the six Degrees of Freedom (DoF) (Tricart 2018: 56).

I consider that the DoF is a reflection of how much agency, or power to take meaningful action (Murray 2016: 124), the audience has. For Murray (2016: 124), agency is an aesthetic pleasure on its own more than just mere participation or activity.

Writers may use the establishment of degrees of freedom to specify physical agency on the page. Depending on the number of movement axis available, writers may describe the bodily agency of the audience as 1DoF, 2DoF, 3DoF, 4DoF, etc. that allows the creation of VR plays with varying levels of participation throughout the narrative. For example, the XR play *Water and Coltan* (Kötter 2021) was split in 12 segments that took place in 12 different rooms. The first room the audience wore a HMD and watched a 360° video in which they had agency on where to look, making this part VR play a 3DoF experience. The following rooms included a performances with a live actor, a self-guided exploration of an art installation, another performance with an actor appearing on a screen and broadcasting via Skype from another continent, and a mobile video, with each part of the play providing varying DoFs. The play ran like clockwork by assigning each room a determined level of agency, which kept the audience engaged with the narrative.

It is possible to develop both linear and non-linear immersive stories with varying the agency of the audience (Reyes 2022: 88). Defining the degrees of freedom on the page, and thus limiting the agency of the audience, is a practical guidance strategy to advance the story

(Tanenbaum; Tanenbaum 2008: 252). In other words, offering more agency to the audience is not a surefire way to make the narrative of a VR play more compelling. Playwrights can reduce and amplify the agency of the audience by with playing with their degrees of freedom to facilitate the dramatic encounter between the audience and the virtual performance.

Managing the agency of the participants in an interactive drama requires the writer to consider including certain training and guiding elements on the page so the audience knows how to perform their role (Tanenbaum; Tanenbaum 2008: 273). By doing so, the writer can ensure that the audience follows a particular narrative itinerary, known as trajectory.

2.6.14 Trajectories

Writing a VR play also implies thinking about the Human–Computer Interaction (HCI) concept of trajectories (Jaller; Serafin 2020: 1). This concept embodies both past and planned actions, perspectival points-of-view, and facilitates the temporal continuity of a virtual experience spanning different possibilities (Benford; Giannichi 2011: 15).

To create trajectories is to define paths the audience can take, which must smoothly run and have the possibility to evolve throughout the VR performance. Therefore, structuring trajectories into the page of a VR play involves thinking about the potential and actual itineraries available in a Mixed Reality theatrical performance.(Benford; Giannichi 2011: 15).

Jaller and Serafin (2020: 4) refer to trajectories both as spectator interfaces and as part of orchestration. Since trajectories are the mechanisms through which interaction triggers action sequences, they turn an audience member into an active part of the virtual performance (Benford and Giannachi: 125). Trajectories foster audience engagement, support the performance, and provide the necessary interaction that is inherent to public spectacle (Benford; Giannachi 2011: 126).

We can distinguish between canonical trajectories, which are inherent to the original work, and participant trajectories, which are unpredictable (Benford; Giannachi 2011: 66). Since the VR play intends to capture the essence of a narrative in Virtual Reality, this dissertation suggests that writers should focus on thoroughly describing the canon trajectory and bringing the elements required for participant trajectories, without fully describing each potential narrative path as that can be done further down the production process.

2.7 Key Takeaways from Chapter 2

Based on the conventions of writing traditional theater and contemporary cinema, as seen in the examples of scripts from the BBC (2020), this dissertation states that the process of developing a VR play involves the creation of a theme, story idea, synopsis, treatment, step outline, and the draft itself.

VR plays depict dramatic stories meant to be staged in Virtual Reality; thus its writing process derives from dramaturgical and screenwriting practices. It can be categorized as a subgenre of digital theater, since it engages an audience through technology and offers them the added benefit of co-creation. VR plays are similar to screenplays and stage plays in the sense that they all are literary works and production blueprints for a certain medium.

Virtual Reality, often abbreviated as VR, is a computer-generated experience that offers immersion and interactivity. Calling it metaverse is incorrect, as VR is part of the metaverse but not its full extension. Extended Reality, or XR, is a better semantical spectrum to organize experiences according to how much takes place in the virtual space and categorizes them as Mixed Reality (MR), Augmented Reality (AR), and Virtual Reality (VR) works.

Some concepts writers should consider while writing a Virtual Reality play include abstract concepts such as immersion, interaction, point-of-view, and trajectories; as well as tangible technologies such as Head-Mounted Displays and peripherals. In the next chapter I connect these concepts in the analysis of my creative works to answer the question of how writers can create Virtual Reality plays.

3. Creative Works Analysis

This chapter discusses four creative works in which I used different approaches to understand Virtual Reality playwriting: a writers' workshop, a practical handbook, an Extended Reality (XR) performance based on an existing theater play, and an original XR play. It is important to note that these works were affected by two historical events: the COVID-19 pandemic and the release of Oculus Quest 2, which made VR a mainstream technology.

Paradoxically, cheaper consumer headsets were released in the same period in which people avoided physical contact and sharing objects that touched your face was pretty much unthinkable. Writing these observations in 2023, I can see how my research evolved from remote-based to real-life production. Despite the historical restraints of the pandemic, I find my early research just as valuable as the post-pandemic one since it gave me great ideas on how writers can draft plays for Virtual Reality.

3.1 Creative Work I: VR Introduction Workshop for Writers

3.1.1 Starting Points

During my first year of research, I focused on studying writing manuals and finding explorations of VR playwriting. While I found an abundance of theater and cinema writing studies, I was dismayed by the lack of the same for Virtual Reality plays. After realizing that most writing conventions for the screen were rooted in community, and since my aim was to help writers unfamiliar with VR to write for this medium, I decided to conduct a workshop in which the participants were part of the target audience of my thesis. Based on the notion that writing for the screen is a collaborative process (Dooley 2018: 180), I decided to organize a workshop with five other writers to discuss the current challenges of telling a story in Virtual Reality, and give them a chance to propose how a VR play format should look.

I had a romanticized idea of introducing them to Virtual Reality by using one of the headsets available at the VR laboratory of the Estonian Academy of Arts, and then discussing the potential writing approaches in a classroom. The structure of the final workshop was defined

after two test runs, in which the times and content of the event were adjusted according to test user feedback. On March 11, 2020 I did two test runs and scheduled a workshop for a few weeks after. Two days later, the Estonian government declared a shutdown of all education centers that limited public interactions in some way or another until Autumn 2021.

As the weeks of the first pandemic wave progressed, I noticed a societal shift, making virtual encounters more acceptable than ever. People attended Zoom parties, worked remotely, and became more active online. This convinced me to make the workshop happen in a remote format, with some concessions, which I discuss in the next section.

3.1.2 Practical Methods

I decided to organize a workshop via Zoom video call. I used the workshop modeling from Tavella to split the time of the event into different sections and put practical exercises between theoretical explanations and group discussions.

Scripts	Outcomes
1. Networking	Each participant checks their online connection. After this is verified, they introduce themselves.
2. What is Virtual Reality?	Group discussion on the VR technology and its capabilities.
3. Task: Create your own VR image.	360° image made individually.
4.Reading of test script.	Heatmaps.
5. Survey.	Survey responses.
6. Task: Adapt a prompt for VR.	VR play proposal made individually.

Table 6. Workshop modeling adapted from Tavella (2018: 68)

The workshop began with technical tests and a brief networking session. The workshop took place on the third month of lockdown, so checking that everyone had power, voice, and video connectivity was essential. In a round-robin order, they introduced themselves and their field of expertise. It was crucial for me for them to communicate this from the get-go to contextualize their comments to others.

In the previous chapter, I discussed technologies commonly used to access Virtual Reality narratives, such as Head-Mounted Displays and peripherals. Their inclusion was a suggestion by the workshop's test users, who indicated that introducing these terms would allow them to give more creative and useful input while talking about Virtual Reality.

The first individual task consisted of taking a panoramic shot of a space to introduce the concept of Point of View in VR theater. If participants could not take this picture, they were asked to share a 360° view of a place freely available via Google Street View. During the test run, this exercise was performed using actual VR cameras. The images produced were the subject of a group discussion in which participants shared the factors they considered while placing the camera.

For the next section, I developed a two-page script following the VR play format based on an audiovisual screenplay. I began the short play with a black screen and a soundscape in which an unseen narrator described the upcoming experience. A screen appears in front of the audience in which they observe some documentary footage. A crossfade transitions from the black space into a 360° video of a hallway, in which the narrator explains the significance of cues and transitions in Virtual Reality. The video ends back in the black space, with the narrator instructing the audience to remove the headset.

Participants were asked to read this VR play and then answer a survey to provide feedback about its formatting. The sample script was displayed on a website that tracked the clicks and scrolls made by the users while reading. After the survey, participants had a new individual task in which they were asked to adapt a 1-paragraph short story into a 1-page play for Virtual Reality. For this task, participants could suggest a playwriting format or use the VR play proposal based on the audiovisual screenplay (Ross; Munt 2018: 201) as a template.

3.1.3 Location

The workshop was planned to be held at the Estonian Academy of Arts. Two test runs were conducted twice on March 12, 2020. The final workshop took place on May 30, 2020 via Zoom, with 5 participants from Estonia, Finland, Mexico, and the US. It lasted 02:40 hours.

3.1.4 Transmission

Due to COVID-19 lockdown rules, the workshop was fully online. Participants answered the survey using a website and uploaded their works to a shared Google Drive. Five 1-page explorations of VR plays were produced. I also obtained heatmaps of each sample script page, three 360° images submitted by the participants, and five survey responses.

3.1.5 Key issues

As previously discussed, the VR play is an evolution of existing formats. I was interested in knowing if an approach based on the audiovisual format (Ross; Munt 2018: 201) could be easily adopted by a group of professional writers. I learned that writing in columns was not hard, but had problems deciding where to write scene breaks and transitions.

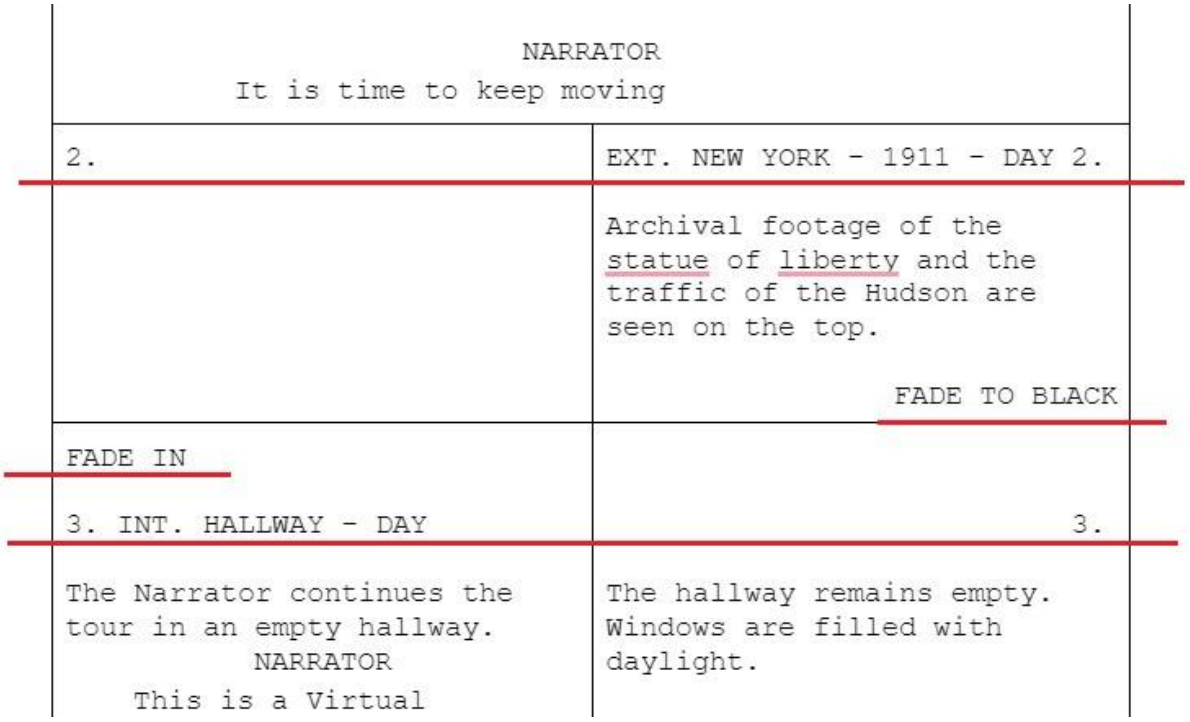
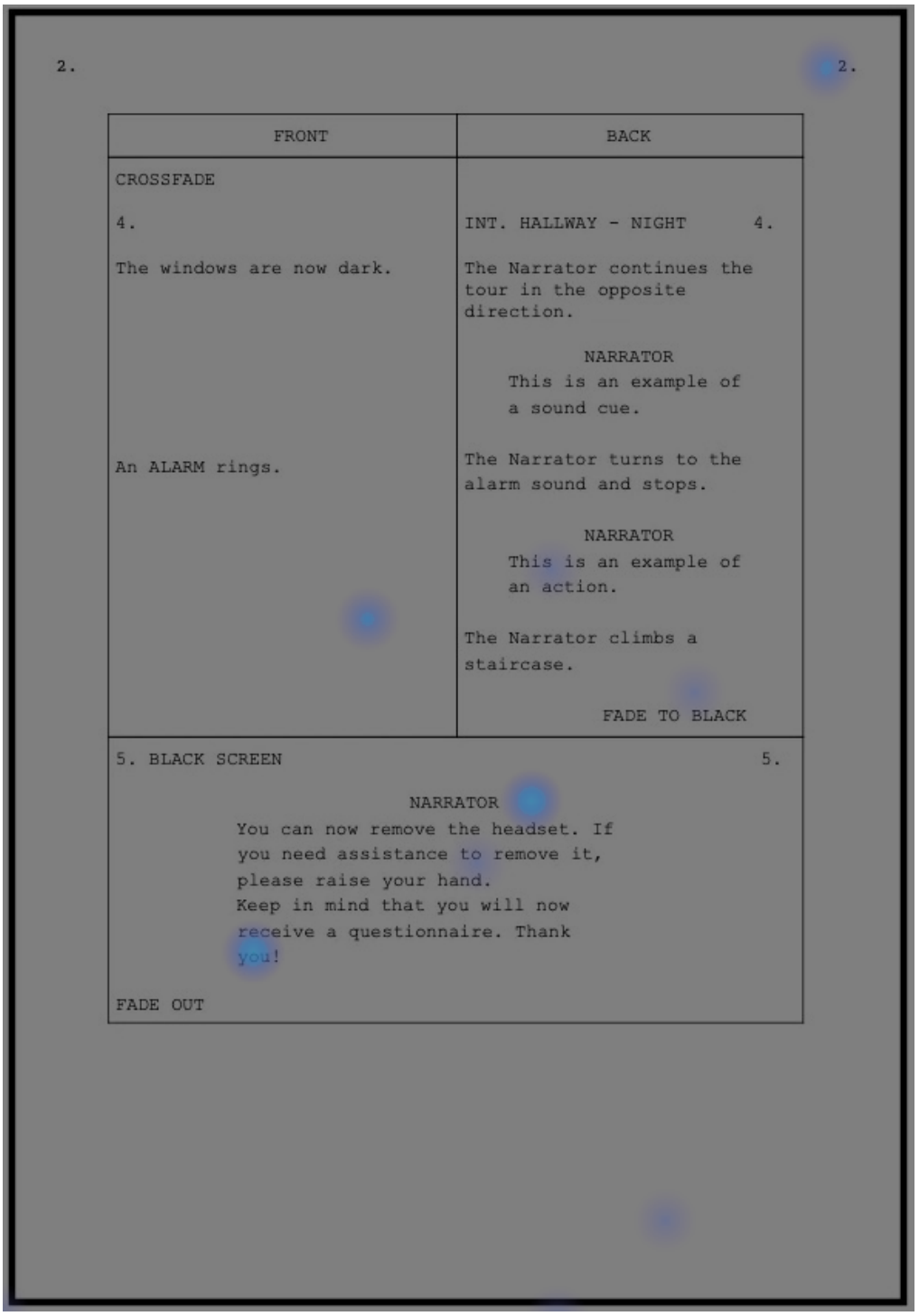


Figure 18. Part of the test script indicating the most problematic areas to write.

Despite the apparent organization of the format, the test script seemed messy. I couldn't locate transitions, and the lines between rows were confusing. And why was the first and the final scene on both columns? Despite my hesitation, I presented it to the workshop participants. The heatmaps confirmed my VR proposal had a long way to go.



2. 2.

FRONT	BACK
CROSSFADE 4. The windows are now dark. An ALARM rings.	 INT. HALLWAY - NIGHT 4. The Narrator continues the tour in the opposite direction. NARRATOR This is an example of a sound cue. The Narrator turns to the alarm sound and stops. NARRATOR This is an example of an action. The Narrator climbs a staircase. FADE TO BLACK

5. BLACK SCREEN 5.

NARRATOR
You can now remove the headset. If you need assistance to remove it, please raise your hand.
Keep in mind that you will now receive a questionnaire. Thank you!

FADE OUT

Figure 19. Heatmap from Page 1 of the test script.

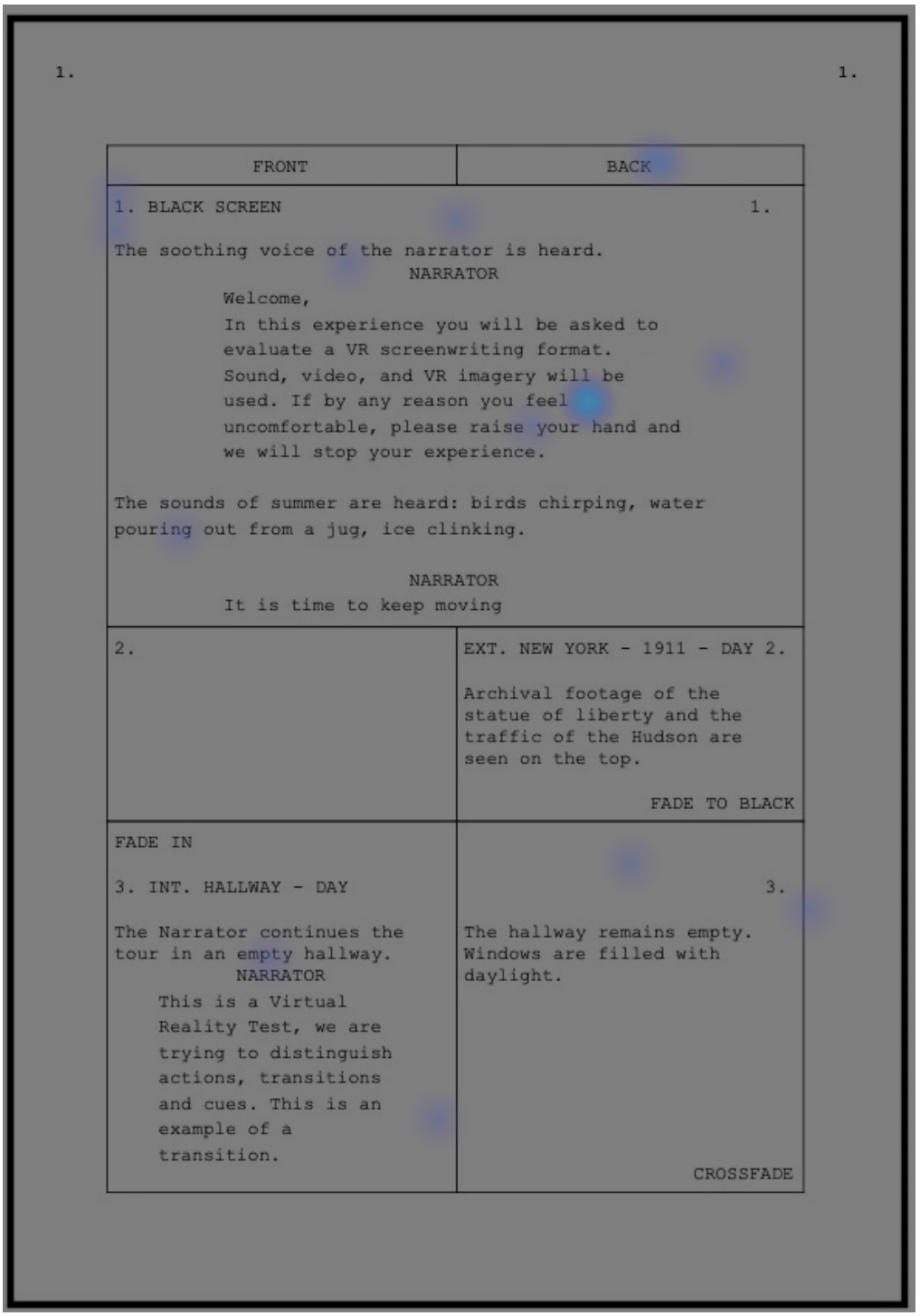


Figure 20. Heatmap from Page 2 of the test script.

The most clicked areas, highlighted in blue, were two dialogue lines which were also formatted in the traditional screenwriting format. The sections split into two columnsdid not show any active spots with the same intensity. This convinced me that the two-column audiovisual format was less engaging and compelling to click than a single-column format.

I asked participants to mark in a grid where they thought the camera and main character were located during the scene in which the Narrator tours an empty hallway. While the camera was positioned in different grid parts, participants put the character in only three squares.

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30

Figure 21. Main character placement according to the participants

After reading the test script, most participants identified as audience members, while two thought they were an unseen character. This question taught me that verbally establishing an object's position is extremely hard and might cause problems for VR play production since much of planning derives from knowing the audience's point-of-view (POV).

The 1-page VR plays written by the participants showcase a variety of approaches towards the 360° space (see Appendix 1 for the complete works).

FOREGROUND	MIDGROUND	BACKGROUND
1. INT. ELEVATOR - DAY		
1.1 Soothing jazz music. The door chimes as it opens. A couple waits in the corridor.	1. 2 LAUREN and her husband TEO step into an elevator. Lauren is wearing a short dress, while her husband wears a suit and a fedora hat.	1.3 People transit the hallway.

Figure 22. A participant's VR play showing a fragmentation of a scene into three sub-scenes according to the distance to the POV.

Scene 1. INT. HALLWAY. POV HUSBAND. The margin of the fedora hat partially covers the lens of the camera.

First shot starts from the detail of a newspapers, New York Times maybe???, showing the date. The wife is in front of him. When exploring around one can see the beautiful marble details of the hallway and the statue of Aphrodite.

The elevator creates a clink sound announcing it's arrival. The sound is the cue that determines the husband to step closer to the elevator door.

CUT

Scene 2. INT. ELEVATOR. POV WIFE

LAUREN

Are you hot?

Figure 23. A participant's VR play splitting scenes according to changes in POV.

The participant's proposals showed two main concerns: the organization of the space and establishing the point-of-view. One of the participants attached an image at the end of their VR play to reflect the scene's mood. Due to my difficulties writing the test script, I was unsurprised when just 2 participants used the format based on the audiovisual screenplay, while three preferred to create their approaches.

The concern over establishing a point-of-view was also present in the exercise that required them to take a 360° picture or source one from Google Maps. While most participants submitted a 360° image of a place to which they had an emotional connection, one respondent chose to take a picture from a spot where they could see more potential interactive objects and actions.

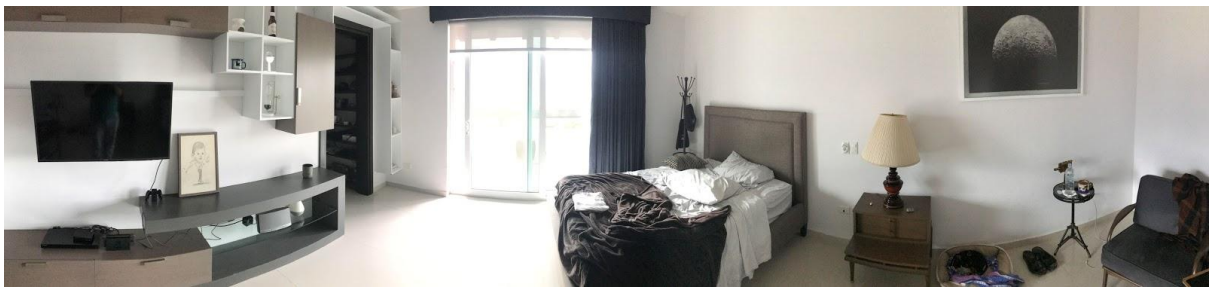


Figure 24. 360° participant picture, in which the camera was set to depict the biggest number of potential interactive objects.

This image led to the only discussion of interactivity as part of the VR play. As I look back to this May 2020 workshop, I realize that the low awareness the participants and myself had about interactivity could relate to the fact that the Oculus Quest 2 had not yet reached the consumer market. Just a few months before the release of Oculus Quest 2, interactivity was not a priority as big as POV or the organization of the space was then.

From this first workshop, I learned a VR play needs to first clearly establish its POV and find a way to organize the space. In addition, I needed to see how to convey elements such as the eye-line height, mood, location, time of the narrative action, and interactivity. The gap between what the writers knew about Virtual Reality and what the medium could do, made me aware of the need to scale knowledge sharing. Workshops always have limited capacity, even more so during the pandemic. The next step was clear: I needed to develop a training handbook to improve my understanding of writing for VR.

3.2 Creative Work II: Handbook to Introduce Writers and Creatives to VR

3.2.1 Starting Points

During my second year of research, I decided to write a handbook (attached in Appendix 2) that would leverage the artistic skills of writers and introduce them to the medium of Virtual Reality. By performing the exercise explained in the handbook, writers could later reflect and "think what they need to see about setting and its effect on them as a player/reader and, subsequently, their own readers," (Misak 2018: 45). Simply put, writers would learn how to write for VR by working directly with this medium.

I designed a two-part exercise that compared the production method of cinema against the production of a 360° video, which means that the writer also writes two scripts: a traditional screenplay and a VR play. At this point in my research, I did not have settled on a format to write for Virtual Reality. Therefore, I decided to do five interviews with producers and distributors of Virtual Reality content who were attending the 2021 South by Southwest festival, a festival that showcases innovative storytelling in cinema, XR, VR, and music. The interviewed participants were Kim-Leigh Pontin, Creative Director of Nexus Studios (US);

Cedric Gamelin, CEO of gaming company Arrivant and former Senior Producer XR at Emblematic Group (US); Loren Hammonds, Vice President and Curator of Immersive Programming at the Tribeca Film Festival (US); Ulrich Schrauth, artistic director of the "VRHAM! Virtual Reality & Arts Festival" (GE); and Jimmy Cheng, Director of Content & Business Operations at Digital Domain (TW).

My interviews were limited to 15 minutes, in which I asked them about which storytelling techniques or formats they used to create stories for this medium. These interviews were a great start for organizing the ideas for the handbook.

3.2.2 Practical Methods

The handbook describes the production of two pieces for different mediums, which requires writers to draft two different scripts and use them as the seminal documents of their production. To better convey the instructions, I included pictures in the handbook produced during the test run of the handbook itself as well as snapshots of the documents derived from the scripts developed for the handbook. I also considered essential to include the storyworld questions formulated by Dimopoulos (2021: 338–363), since the test run of the handbook, the questions that rose most frequently were about the vision, the character and layout of the place, and how far the camera could "see".

By including these questions, I wanted writers to create VR plays with detailed place descriptions and scenes, so decisions could be made on how much the audience can interact with the space. These questions were needed to help them to be aware of the access and technological limitations of the piece from the start.

The handbook created includes two links to the recordings of the exercise described. My reasoning behind this is based on the notion that producing a video is a resource-intensive process. Although many schools may be able to follow the handbook and complete the exercise, I also had to consider that this handbook could be read by writers who did not have a team with whom to do the exercise.

3.2.3 Location

The test run of the handbook took place during June 19-20, 2021 in the BlackBox of the Estonian Academy of Music and Theater.

3.2.4 Transmission

After the experiment was completed, I finalized the draft of the handbook for writers who want to experiment practically with VR, a short VR play and a traditional screenplay, and the two supporting recordings (a 360° video and a short film) which serve as support for the handbook.

3.2.5 Key issues

In my early research interviews for the handbook, none of my interviewees mentioned following a determined format or methodology for writing for Virtual Reality. Their background were interdisciplinary, which was also the case with early screenwriters (Price 2013: 2). The tools and methods they used to draft VR plays included: a writing application called Twine (https://twinery.org/), a spreadsheet with four columns that split the scene action, the environment, the special effects, and the production difficulty, a storyboard with captions and axis added, a writing format very close to traditional dramaturgy, with added camera moves and cues (technical, sound, interactive) and a visual-based workflow that includes a vision board, mood board, storyboard, 3D storyboard, with the storyline and text created in parallel.

I found it interesting that no practitioner mentioned using a traditional screenplay or play as a basis for a Virtual Reality performance. But why? In the words of Pontin (2021): “If I’m writing a script I would use standard scriptwriting, but that's a habit, ”. Proposing a new writing method for a medium involves proposing a new set of habits for writer, director, and production team.

During the test run, I found challenging to discuss how the space would look in Virtual Reality with the creative team when we were reading the VR play version of the exercise. The team was getting lost discussing the technical aspects of the technology and how to apply

them to the exercise. Once I pointed out that the script was meant to be interpreted and that they had the freedom to do so, the production could move on.

Like the workshop, the handbook and its test run also helped me to realize how important it is to establish the point-of-view even on the page as Charles et al. (2010: 1681) mention. After watching the Day 1 and Day 2 exercises back-to-back, I realized that the VR play could have benefitted from having a moving character that provided more visual tension. I also learned to clarify the audience engagement level at the beginning of the script, as it was very confusing for the team not to know this. I observed that sound, special effects, and edit cues had to be marked, particularly if they are directional (i.e. “half of the world fades to black”, “a blast comes from the right”, etc.) or essential to the narrative. In addition, camera movement, practical lighting, and key props should also be specified if the story depended on them. At this point of my research, I started noticing the need to make the “mood” of the story clear, which became more evident as my exploration of VR playwriting continued.

After including the lessons learned from its test run, the handbook became one of my favorite documents to introduce creatives into my work. It helped toillustrate the production aspect of the form and make it less daunting. As I felt more confident drafting scenes for Virtual Reality, I decided to take my experimentation to both live and virtual stage.

2.3 Creative Work III: *Constellations* XR play adaptation

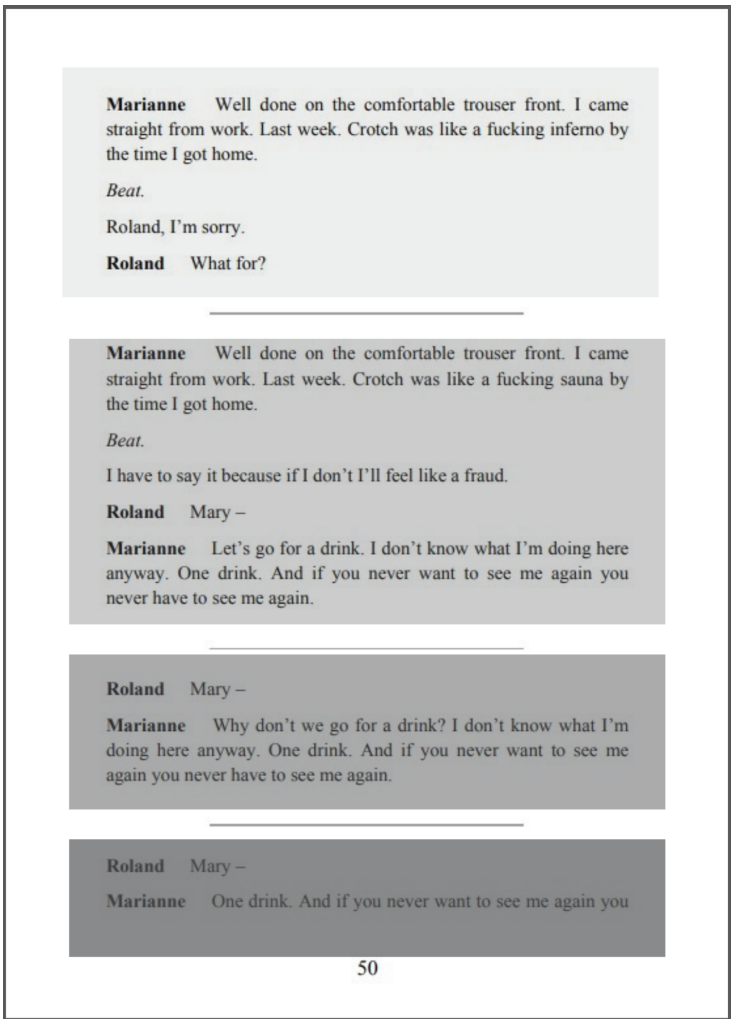
2.3.1 Starting Points

After the handbook helped me introduce a team of technicians and creatives into Virtual Reality, the improving COVID-19 conditions around the world allowed me to finally adapt a stage play into an Extended Reality (XR) play: this is a live stage play that included a VR act. I chose Nick Payne’s *Constellations* (2012) as it allowed me to use VR beyond the gimmick. The scenes of *Constellations* repeat the memories of a couple over and over with different outcomes, with one of its characters delving on the possibility of alternative realities:

> **Marianne:** In the quantum multiverse, every choice, every decision you’ve ever and never made exists in an unimaginably vast ensemble of parallel universes. (Payne 2012: 25).

2.3.2 Practical Methods

I decided to adapt a scene for 360° video, which the audience would watch with VR headsets just before the final act. By then the motif of memory repetition is clear, as well as the existence of a mysterious VR headset in the house of Marianne, one of the leads. After the audience watches the scene, the live stage actors appear again to complete the play. I started the adaptation by breaking down the selected scene into segments and identifying each "parallel universe" with a different color.



Marianne Well done on the comfortable trouser front. I came straight from work. Last week. Crotch was like a fucking inferno by the time I got home.

Beat.

Roland, I'm sorry.

Roland What for?

Marianne Well done on the comfortable trouser front. I came straight from work. Last week. Crotch was like a fucking sauna by the time I got home.

Beat.

I have to say it because if I don't I'll feel like a fraud.

Roland Mary –

Marianne Let's go for a drink. I don't know what I'm doing here anyway. One drink. And if you never want to see me again you never have to see me again.

Roland Mary –

Marianne Why don't we go for a drink? I don't know what I'm doing here anyway. One drink. And if you never want to see me again you never have to see me again.

Roland Mary –

Marianne One drink. And if you never want to see me again you

50

Figure 25. Breakdown of a *Constellations* scene, each color represents a different universe.

My intention while writing the adaptation was to make the audience wonder about the role of the VR headsets in the story, and use it as a plot twist: what seemed to be a VR headset was in fact a "memory artifact" which Marianne used to record her life for her lover.

While writing the VR play scene, I really valued the input of my producer, and director of photography. Their feedback included downsizing from four to three scenes, adding transitions, enriching scene headers with a word to define the mood, including additional characters to create a more believable storyworld, and add sound/visual cues/actions to reinforce the mood. This resulted in a draft with a much clearer orchestration of elements.

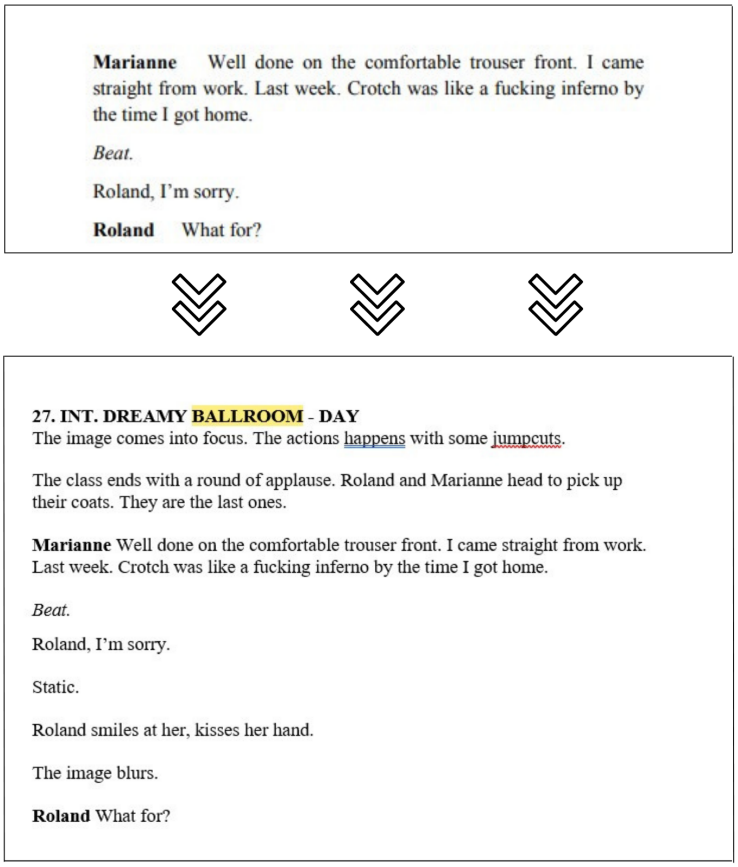


Figure 26. Comparison of the original and the VR play adaptation of *Constellations*

From the first draft's feedback I learned that I needed to specify more the locations, specially if they are already chosen or played a role for the narrative. I also confirmed the lessons learned while developing the handbook, in relation to include music cues, note any key objects with sound.

There was a lengthy discussion on the point-of-view (POV): was it Marianne's? her lover Roland's? the audience's? Thus, I understood that a VR play should mark POV switches just like scene transitions are marked in a traditional screenplay. For *Constellations*, I decided to specify a POV height and establish we were watching from the audience's POV. In addition, I

followed Evette Varga's suggestions on how to cue sounds, actions, and interactivity. I also included two images to depict the narrative focus and the mood of the scene.

//INTERACTIVITY: This is an in-rails play, in which the viewer may look in 360°.

1. EXT./INT. DREAMY BALLROOM - DUSK 1.

VIEWER POV: The camera with an eyeline of 1.60 m from the ground.

We follow Roland into a sunny dance classroom. He throws hastily his jacket and approaches the already busy dancefloor.

It is springtime. A waltz is played on a speaker, . Five couples dance around the floor, with varying levels of skill. Their outfits are sunny, pressed, ready for a night out in town.

<The mood is cheerful, with the occassional laugh as someone gets stepped on>

An INSTRUCTOR goes by each couple making small corrections to their posture. The Instructor greets Roland with a nod, Roland approaches as the instructor waltzes away with the man of the couple she was helping. Roland approaches the now available partner, who is distracted fixing her shoelace. It's Marianne. Roland grins on surprise. He gently stands next to her.

ROLAND
Hello, Marianne.

Marianne springs up.

MARIANNE
Roland. Wow, hi - Hello. How are you?

ROLAND
Yeah, I'm fine, thanks.

Figure 27. Format of final draft of *Constellations.*

3.3.3 Location

The hybrid play occurred thrice from May 25-27 2022, while the VR play segment was shot in April of the same year.

3.3.4 Transmission

The first and third act took place live on stage during three presentations in May 2022. I pre-recorded the VR second act using 360° video, which resulted in a stereoscopic video that was streamed into Oculus devices given to the audience after the first act.

Due to budget constraints, only 10 audience members wore VR headsets. The rest of the audience was able to watch the VR play on a flat screen.

3.3.5 Key issues

The scene of *Constellations* I selected to adapt into a VR play scene, presented several challenges. The scene consisted in four repetitions of a couple reconnecting after their breakup, with each re-encounter having different outcomes. The count of repetitions was completely subjective, as the scenes were not numbered in the play, and each encounter was split in segments that were presented in a non-consecutive manner. The original play also lacked clear "cuts" or transitions between scenes. The time, space, and mood of the scenes were also not specified. In addition to the vague scene details, drafting this VR play adaptation forced me to think on who was going to read it and write in according to what they needed to know, which I relate to the concept of micropolitics discussed by Szczepanik (2013: 75).

There were additional questions regarding what should be on the page. My assistant director Sushant Bhat suggested including the camera positioning in the script, but we agreed it might constrain the editing process. On a whim, I drew a floor plan and a shot list on the back of the first scene page. It was only then that I understood how complex is to represent a trajectory on the page, as I had to think about the possible movements through the space (Benford; Giannichi 2011: 15) and choose the one that best suited the narrative due to the limited agency of the audience. Thus, a virtual play must consider the setup, devices, and borders involved in the virtual performance from the very start. I decided then that my last creative work needed to include a two-dimensional bird's eye view of the place layout so the team could identify where performance and interactions happen.

My improvised floorplan, which preceded my adoption of the bird's eye floorplan, was used long into the pre-production process until I decided to formalize it in an organized shot list that was internally discussed with the cinematographer and split the takes between "must-haves", "good-to-have", and "experimental".

LOCATION	SHOT NUMBER	DESCRIPTION	HORIZONTAL DISTANCE LENS-OBJECT (X)	VERTICAL DISTANCE LENS-FLOOR (Y)	FRONTAL CAM VIEW	CATEGORY	Notes
Heldeke	1	American Shot Marianne and Roland	100 cm	165cm		Must-have	Master
Heldeke	3	Entrance of Roland, follow, front-side	50 cm	165cm		Must-have	Only frontal camera.
Heldeke	4	Follow MS Roland, front-side	50 cm	165cm		Must-have	Only back-camera
Heldeke	5	Follow MS Roland, back-side	50cm	165cm		Must-have	
Heldeke	6	Bar, Two-Shot Medium	65cm	165cm		Must-have	Camera can be placed on table.
Heldeke	7	Detail, hands clapping	20cm	Not applicable		Good-To-Have	
Heldeke	8	Detail, lips of Marianne, last line	20 cm	Not applicable		Good-To-Have	We can turn off, one camera side, if we lose focus, change to ECU
Heldeke	9	Detail, Rolands eyes	20cm	Not applicable		Good-To-Have	We can turn off, one camera side, if we lose focus, change to ECU
Heldeke	10	Detail, hands of Roland and Marianne touching	20 cm	Not applicable		Good-To-Have	We can turn off, one camera side, if we lose focus, change to ECU
Heldeke	11	Over the shoulder, couple number 2	50 cm	165cm		Experimental	Only do if we have time.
Heldeke	12	Roland POV, entrance and first lines	50 cm	165 cm		Experimental	Only do if we have time.
Terrace	13	American Shot Marianne and Roland	100 cm	165cm		Must-have	Master
Terrace	15	Entrance of Roland, follow, front-side	50 cm	165cm		Must-have	Only frontal camera.
Terrace	16	Follow MS Roland, front-side	50 cm	165cm		Must-have	Only back-camera
Terrace	17	Follow MS Roland, back-side	50cm	165cm		Must-have	
Terrace	18	Detail, hands clapping	20cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Terrace	19	Detail, lips of Marianne, last line	20 cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Terrace	20	Detail, Rolands eyes	20cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Terrace	21	Detail, hands of Roland and Marianne touching	20 cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Terrace	22	Over the shoulder, couple number 2	50 cm	165cm		Experimental	Only do if we have time.
Terrace	23	Roland POV, entrance and first lines	50 cm	165 cm		Experimental	Only do if we have time.
Stage	24	American Shot Marianne and Roland	100 cm	165cm		Must-have	Master
Stage	26	Entrance of Roland, follow, front-side	50 cm	165cm		Must-have	Only frontal camera.
Stage	27	Follow MS Roland, front-side	50 cm	165cm		Must-have	Only back-camera
Stage	28	Follow MS Roland, back-side	50cm	165cm		Must-have	
Stage	29	Detail, hands clapping	20cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Stage	30	Detail, lips of Marianne, last line	20 cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Stage	31	Detail, Rolands eyes	20cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Stage	32	Detail, hands of Roland and Marianne touching	20 cm	Not applicable		Good-To-Have	Only if needed, check light continuity
Stage	33	Over the shoulder, couple number 2	50 cm	165cm		Experimental	Only do if we have time.
Stage	34	Roland POV, entrance and first lines	50 cm	165 cm		Experimental	Only do if we have time.

Figure 28. Initial Shot list of *Constellations*

The shot list also specified the height of the camera both in the x and y-axis in order to keep some sort of coherence in open shots. I decided to include some abstract details that we could play while editing the material, and to shoot them only in 180° degrees, in order to create combinations that covered the 360° view. Since they were abstract, we did not specify a height for these kind of shots. From this enormous list, Sushant organized the shooting so we covered as much as possible from this list in the two days we had for production.

TIME	#SHOT	CAM	DESCRIPTION	CAST	EXTRAS
07:30	**PREP**				
08:00	1	100 x, 165 y	American Shot Marianne and Roland	M, R, I	E1-E6
09:30	2	50 x, 165 y	Follow MS Roland, front-side	M, R, I	E1-E6
10:20	3	50 x, 165 y	Follow MS Roland, back-side	M, R, I	E1-E6
11:00	4	65 x, 165 y	Bar, Two-Shot Medium	M, R	E1-E6
11:40	5	20 x, NA y	Details, hands clapping	M, R	
12:30 – 13:00 LUNCH BREAK					
13:00	6	20 x, NA y	Detail, lips of Marianne, last line	M, R	E1, E2
13:20	7, 8	20 x, NA y	Details: Roland's eyes + hands touching	M, R	E1, E2
14:00	9, 10	50 x, 165 y	Over the shoulder, couple number 2 + Roland POV	M, R	E1, E2
14:40-15:30	**MOVE**				
15:30	11	20 x, NA y	Details, hands clappnig	M, R	E1, E2
16:00	12	20 x, NA y	Detail, lips of Marianne, last line	M, R	E1, E2
16:30	13	20 x, NA y	Details: Roland's eyes	M, R	E1, E2
17:00	14	20 x, NA y	Detail, hands of Roland and Marrianne touching	M, R	E1, E2

Figure 29. Shot list Day 1

Beyond these production issues, we also received some feedback regarding the pacing of the VR play. To those familiar with the story, the video's pacing was fine. But audiences watching the VR play for the first time described that the editing made the story run faster than it was. This opens up an entire area of storytelling exploration that this dissertation cannot cover, which I suggest other artists to research: the editing grammar of VR plays. Finally, my *Constellations* adaptation led me to conclude that a VR play is the literary script of the Virtual Reality medium since it provides essential information from which the team can derive their production documents.

After finishing *Constellations*, I dreaded creating a final VR play for this research due to financial limitations. But then I saw a picture that made me change my mind and convinced me to explore Extended Reality (XR) again, to convey how that digital performance-making was becoming part of everyday life.

3.4 Creative Work IV: *Magical Girl Factory* XR play

3.4.1 Starting Points

In July 2022, a Reddit user published a video of a former Chinese factory, showing a group of women selling products while live streaming from the former production floor. One of the top comments explained the scene:

> "Just asked my Chinese wife. she says the blue signs are 'booth' numbers, and the girls will likely be on a contract where they sign up to do streaming for either tips, or for selling products. In this case she said it looks a lot like them are doing short personalized content clips, getting paid to sing a birthday song for a person, have a chat with them, etc. 'Hire a pretty girl to send your friend a message'" (bpkiwi, July 2022)

Figure 30. Stills from the Chinese factory video (esberat, 2022)

This inspired me to write a play about the possibilities of post-humanities, entertainment, and the economy. I decided to finalize my research (and thus answer the research question: "What do we keep and add to the page format of a screenplay to turn it into a VR play?") by drafting

a play that combined both a live and virtual stage. To prove the application of my methodology proposal, I also produced scenes 3 and 6.
With this work, I wanted to draw parallels between the death of 19th-century industrialization and the rise of content creators, who earn their income by selling products or videos online, often aided with augmented reality filters (AR). There is a rising proletariat, but instead of products, the workers sell illusions using AR versions of themselves. Some will become influencers, Internet celebrities, but many will just make ends meet.

3.4.2 Practical Methods

It was hard for me to conceptualize the final work of this research. Although I was initially keen on doing a full VR play, I found more compelling to explore the combination of VR, AR, and the live stage to enhance the theme of industrial transition present in the play.

Water and Coltan by German artist Daniel Kötter (2021) was a big inspiration for this play. Kötter's work takes the audience through twelve rooms that alternate between VR segments (seen through Oculus Quest headsets), video (seen in mobile phones or screens), and live performance (both through video stream and in real life) with varying degrees of freedom.

I decided that my play would begin with a 360° video and end with a live performance. By doing so, I could better convey the transition between the death and rebirth of industrial production. The first segment shows an empty old factory, with a voice narrating the decay of a city's industry. The final part takes place live in the old factory, where the audience watches performers recreatiing the scenes seen in the Chinese video. This contrast between the real and the unreal would also be present in the other segments. Regarding methodology, I followed the workflow suggested in Chapter 2, which includes developing a theme, storyline, synopsys, treatment, a step outline before moving on to draft the VR play. All these documents are in Appendix 4.

3.4.3 Location

To test the production feasibility of this version of the VR play, I recorded scenes 2-4 and 7-22, which are the pre-recorded VR and mobile phone videos the audience watches during the performance. The recordings were made in Tallinn, Estonia on January 13, 2023.

3.4.4 Transmission

To create a VR play that extended the language to include the capabilities of Virtual Reality, I first had to create the text using Final Draft 10 and then edit the exported PDF with Adobe Illustrator to add the graphic elements. After writing the play's text, I changed the default margins in Final Draft to have enough space for the floor plan and mood pictures. I used Illustrator to add the different image spaces and zoom into the floorplan of the space.

As I approached finishing the first draft of this VR play, a peer asked me if my research was about using AI to write plays. For this person, the study of dramaturgy and Virtual Reality entailed the author being virtual as well. Although I found this thought very compelling, AI-assisted writing is entirely out of the scope of this research as it merits its own dissertation.

However, I had long learned to appreciate the input of my creative community so I spent some time exploring text generation using Chat GPT, an AI-powered tool that generates texts based on user prompts. The tool was impressive enough that I decided to use it for scene 11, and I foresee that the creative writing applications of AI will become a field of study in the near future.

3.4.5 Key Issues

While creating the first draft, going from outline to page was very straightforward. The only major change added in this new iteration was finding how to place the VR space blueprint and whether to use one or two reference images. In the end, I set up a bottom margin of 3 inches to have enough space to add the reference images and the floor plan.

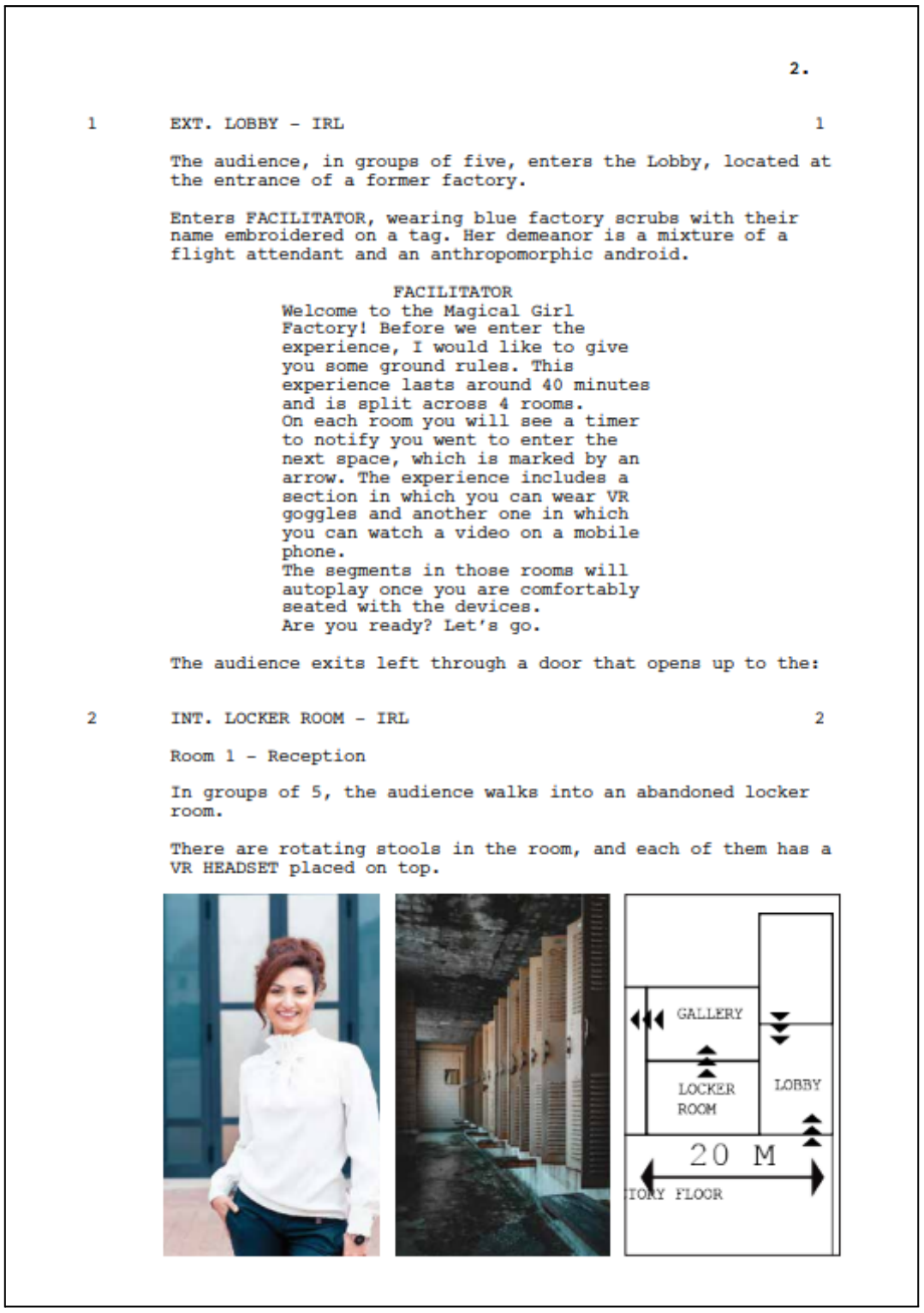


Figure 31. Final page format with reference images and floorplan

The next question was the scale of the floorplan itself. The space that I had envisioned originally for the installation was a cellar. However, I decided to change the venue to Põhjala Tehas, an actual former factory in Tallinn, Estonia. As the scale of the installation grew, it

was impossible to depict it on every page. I then decided to use a different scale to describe the space changes throughout the performance and include a complete floor plan at the beginning. The phrase *dramatis spatialis* came to my mind as I annexed the floorplan, although I decided against putting this term on top of the page.

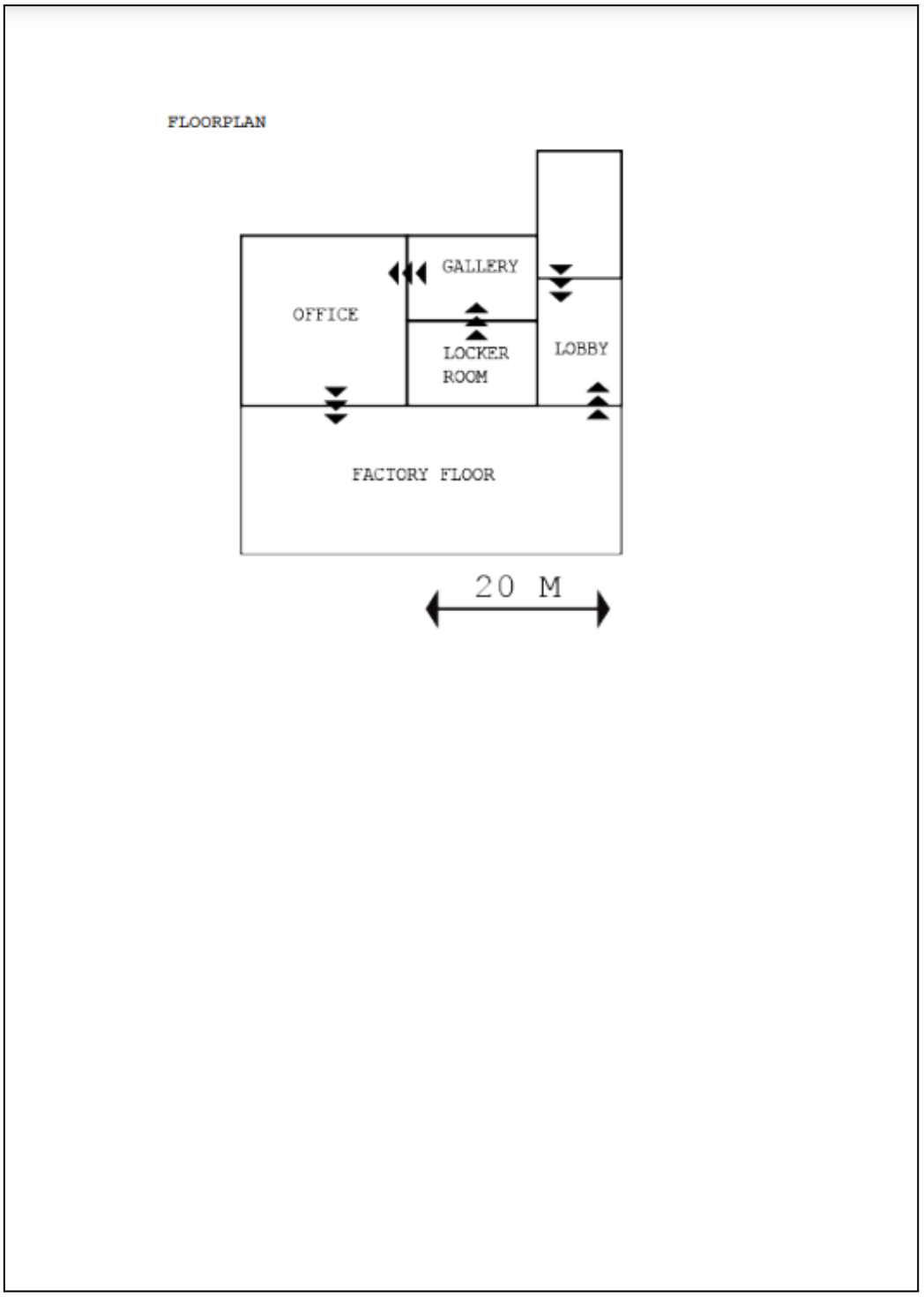


Figure 32. First page of the VR play featuring the full floorplan

The inclusion of the floorplan and the mood board images continued to be a struggle throughout the writing.The space and scene did not change on some pages, while in others I had three different scenes plus a floorplan change within a single page. Although I tried my best to keep things uniform, I had to become more flexible and allow the bottom part to have from one up to three sections that could be used to place the mood images and the floorplan.

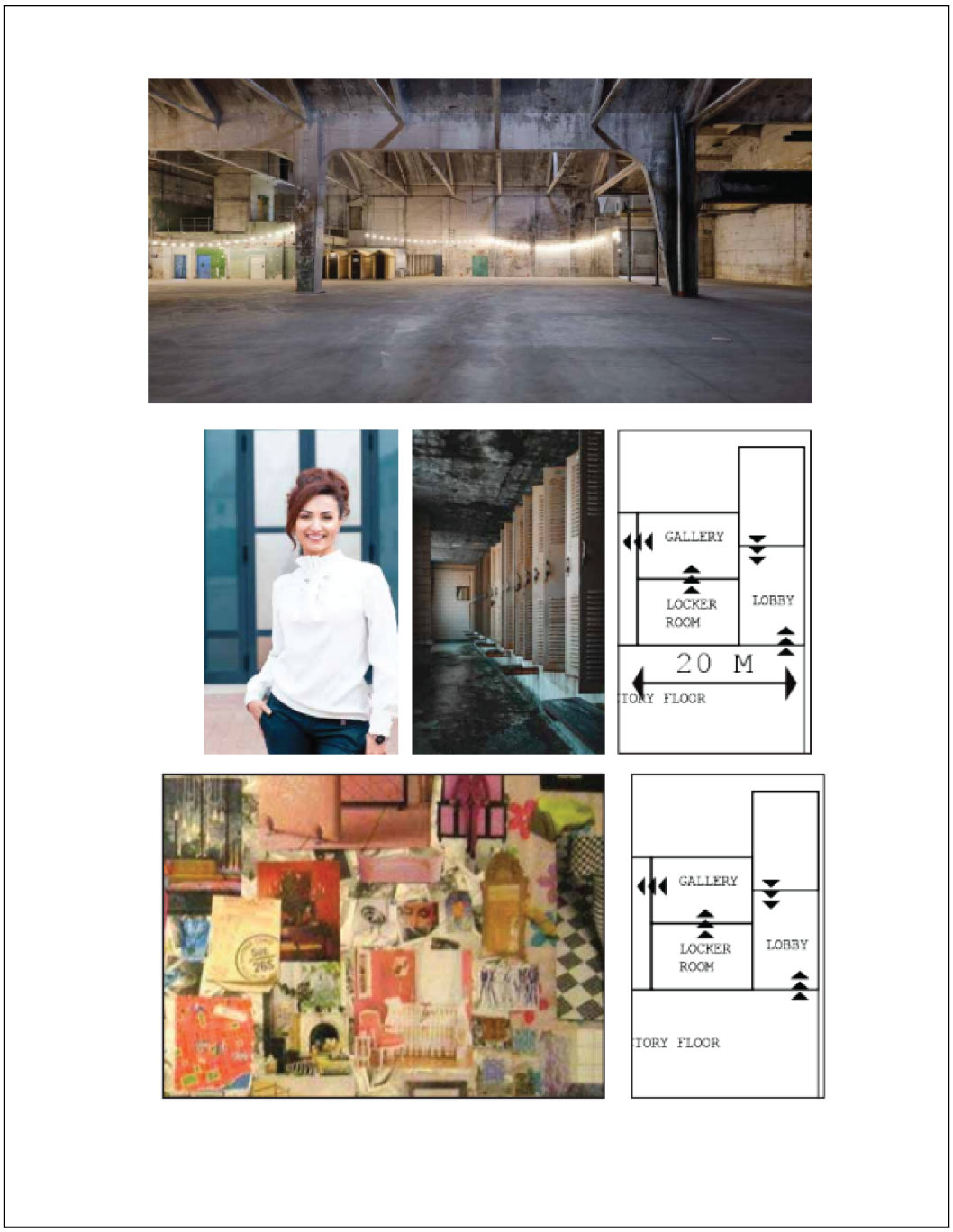


Figure 33. Examples of bottom image layouts featuring floorplans and moodboard images.

Writing the performance was simple. Instead of a main character, the audience follows the fall and rebirth of industry. The mood board allowed me to convey the tone of the performance, while the floor plan kept things organized within the space.

The pre-recorded segments' casting consisted of Zoom interviews, in actors read scene number 5. When I sent the script to the actors, I was relieved to see that they understood the overall arc of the story. I had two calls that were very memorable for the different effects that reading the script had. After I sent the table reading, one of the applicants decided to cut the audition short since "I was searching for people to make TikToks, not TikTokers by themselves". This could spur a whole discussion of its own, regarding virtual characters and the concept of self. I understood that while I consider virtual characters and the self are independent, this is not the case for everyone. In another case, after an otherwise successful reading, I had an actor that was okay with working with augmented reality filters but was against working with a particular scene that combined a filter of a female body wearing a dress with his head. Again, it seemed that many discussions on VR emerged from the page: consent, gender, acting versus being. I was not disappointed on his refusal, I was glad that he was able to read what the play required from him before moving forward with a bad assumption.

After the final actors were selected, I sent them the full script. The feedback I received was very eager and I was heartened to see that they understood the concept of the play and their roles. They understood they were not the leads, but rather they were representations of the main issue that I was exploring. We did notice differences between the timing during table reads and the performance recordings. I noted that actors spoke way faster during the recordings than during the table reads, an issue I blame on the fact that I was recording the performances with a smartphone. In a world that values the immediateness offered by mobile devices, people apparently prefer to talk faster.

One of the issues I wanted to avoid while writing this piece is to avoid gender bias. After finding that my first draft had only female characters, I decided to rewrite it so it could be more balanced. It was during this time that I decided to use Chat GPT to generate the text for scene 11 based on a prompt. I was pleased with my overall edits and the new scene I added to make the experience more gender-balanced. Surprisingly, I got interesting feedback from the actor playing scene 11. He found the characters following the archetype of "smart man, dumb

woman", an interesting observation because even if I relied on a machine to write with less bias, the bias still existed.

In the last scene I recorded for the mobile section, one of the actresses told me she was very thankful for giving her a "safe space" to fulfill a dream: to sell stuff on Instagram. It really meant a lot for me, since I was trying to find a way to use dramartugical means to explore in a "safe space" those virtual spaces so prevalent in the lives of so many: social media, live streams, and Virtual Reality.

3.5 Key takeaways from Chapter 3

One of the lessons from the writers' workshop is that it is possible to introduce Virtual Reality as a medium. According to the proposed VR play page formats, an ideal format for a VR play should establish a clear POV, eye line height, mood, location, time, and points of interactivity. There was a knowledge gap among writers between what VR can and cannot do, which confirmed a need for a more hands-on introduction to bringing them into the medium.

Thus, I created a handbook as my second creative work. During the test run of the manual's exercise, I confirmed my first work's observations regarding the need to establish music cues, sound effects, camera height, and POV while writing a VR play. The resulting handbook was used to train new creative collaborators for later projects.

My third work was adapting *Constellations* by Nick Payne, to create an Extended Reality (XR) play that combined the live stage with a VR scene. In addition, I included the VR headset as a dramatic artifact. During the production of this piece, I confirmed what Dooley (2018: 178) affirms regarding the collaborative nature of VR playwriting since the feedback from the creative team was vital to improve from the first draft to the final draft.

Since it was an XR performance, it was necessary to mark the breaks between what happens in real life, what takes place on a screen, and what is experienced in full Virtual Reality on the page. Therefore, writers must include the space transition cues to help readers understand what is taking place and where the audience access it.

Finally, I applied the lessons learned from the three first creative works to write an XR play titled *Magical Girl Factory*, which combines VR segments with live performances. While writing this work, I included a floorplan to establish the location of objects a design of the space, which made things much more straightforward. After four years of research, my current writing approach towards the VR play is to consider it an interdisciplinary practice combining the writing practices from different artistic disciplines, which will still require more experimentation.

4. Conclusions

“It’s already been a big day. But we do have one more thing.”
-Tim Cook, CEO of Apple at the WWDC 2023.

On June 5, 2023, I had the most cathartic experience a researcher can have: validation. During the 2023 World Wide Developer Conference, Apple unveiled the Vision Pro, a novel headset with a dial that regulates what the user sees in real-life and in VR. The device also records and replays tridimensional videos, and I was elated to see an eerily familiar example. A man watching a memory. A ghostly image in the middle of a living room. A bittersweet smile. I wept with joy.
“I saw it coming! I called it!” I screamed at my husband.

Image 32. Comparison between the replay of memories in *Constellations* (top) and the 2023 WWDC’s Apple Vision Pro introduction (bottom).

With this case of technology imitating art, I was happy to validate that this dissertation is and will become more relevant. Just like Apple, theater does have one more thing to explore.

4.1 Format of a VR play

This dissertation explored the question of how a writer drafts a play for Virtual Reality, with the aim of enabling playwrights and screenwriters to create VR plays. The result of this research is a play format, explained below, and a methodology described in the next section.

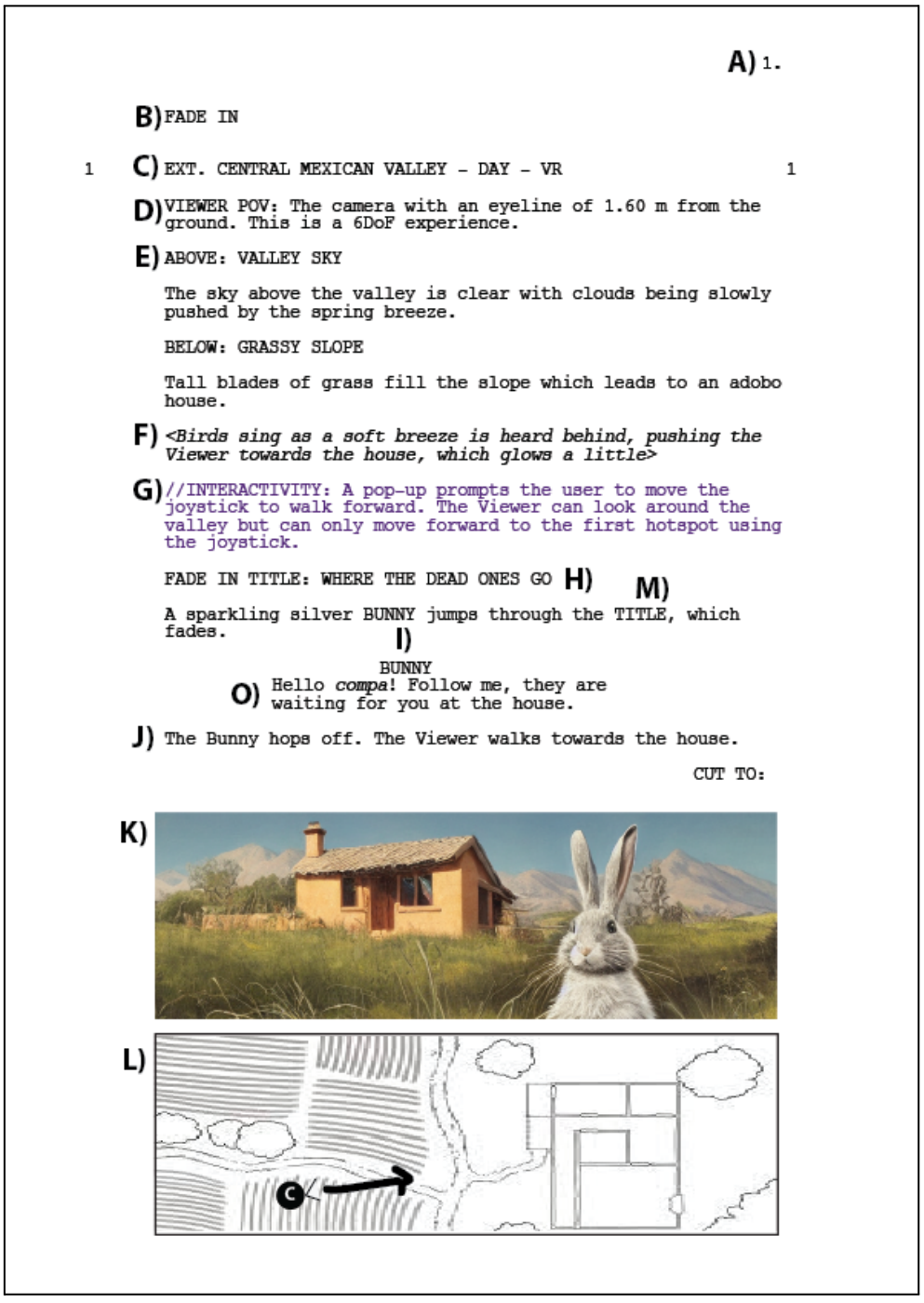


Figure 34. Example of a VR play page.

Below, I briefly describe each element included in this sample page, identified on the example page with a capital letter before each item.

A) Page number: Located at the top of the page.

B) Scene transition: Marks the transition between VR scenes or between mediums. Ex: FADE IN, FADE TO WHITE, FADE TO BLACK, CONTINUES IN VR, CONTINUES IN AR, CONTINUES IN IRL. Please note that IRL stands for “In Real Life " meaning that the story continues outside the VR headset or AR device.

C) Scene header: Follows the traditional structure of “SCENE NUMBER.INT/EXT. SPACE - TIME OF DAY” and adds an optional element for hybrid productions that specifies if the action occurs in VR, AR, or IRL.

Example: The second scene of a VR play, which takes place inside a cottage, in the morning, in VR would appear as: 2. INT. COTTAGE - MORNING - VR

D) Point of View (POV): The first line a scene sequence in a VR play specifies the camera position in terms of the Y-axis and the audience's point-of-view. The sentence is preceded by VIEWER POV.

E) Support subheaders: This gives additional information regarding the scene’s environment ABOVE, BELOW, BACK and in FRONT of the point-of-view. The support subheaders are entirely optional.

F) Audio FX: These sound and music cues are added in italics and contained within <>. Example: <*An eagle scream swoops down into the audience*>

G) Interactivity: This identifies interactions and interactive objects with a purple font, and a double //. Example //The WATER BOTTLE can be picked up, and be thrown into the trash bin.

H) Titles: They are graphic text overlays, which on the page are preceded by the cue TITLES:

I) Character: In the first mention and dialogue lines, characters' names are capitalized.

J) Action: Action lines appear as prose and are formatted to the left side.

K) Mood image: An image reference is added to every scene, which conveys the mood of the scene depicted, particularly the POV of the audience.

L) Scene Floormap: A scene floormap is added to every scene to specify the camera position under the mood image.

M) Props: Objects that are essential to the play or which are used by the main characters, appear capitalized.

O) Dialogue: Each dialogue line is preceded by the character's name, it appears on the center of the page and is formatted to the left side.

Special Fx (not pictured): Any kind of special effect is preceded by the letters FX in bold font. Ex. **FX:** A gust of wind envelops the audience, and they fly together with Dorothy.

As the experimentation with VR as a digital stage progresses, I expect this page format to evolve as it did during this dissertation. Still, it provides a valuable point of departure for playwrights and screenwriters entering Virtual Reality.

4.2 VR play development methodology

Playwrights interested in developing a play for Virtual Reality may follow the upcoming workflow to help develop a VR play. It is essential to consider that VR playwriting depends a lot on iteration. From the logline to the final draft, it is vital to receive feedback from the get-go to avoid doing draft revisions (which take longer than editing a synopsis) and improvisation on-site.

Format	Role in creative development
Theme	Written verbal pitch of the VR play.
Story idea	Any formalized description of the story idea and the characters. This category also alludes to any original text that will be adapted to VR.
Synopsis	Summary of the main storyline and characters, does not contain dialogue. It also describes the world in which the action takes place.
Treatment	Text structured like in the final VR play, contains the main plot and any subplot, describes characters and key dialogue.
Step Outline	Takes the treatment and structures it through numbered scenes, depicts all plot lines and scenes, may contain more dialogue, it is very close to the subsequent Literary Screenplay.
VR play	Also known as the "Author's version". Contains the definitive visual, dialogue, and sound cues. Specifies all locations and times in which the action takes place.

Table 7. VR play creative development documents

This list omits the Technical Screenplay and further development documents since they are derived from the VR play and are written by other members of the production.

4.2 Lessons from exploring XR playwriting to devise the VR play

As I mentioned in Chapter 1, I decided to conclude my research using the questions of the Critical System Heuristics framework (Ulrich; Reynolds 2010: 243). First of all, the VR play is a creative product that serves the interests of writers, directors, and creatives working in the production of Virtual Reality theater. Regarding the question "What ought to be the end result?", the answer is the VR play—a seminal document in which writers convey a story envisioned for VR. The VR play facilitates team communication by being the single source of truth from which othe production documents are derived, including the director's play, storyboards, dialogue lists, mood boards, etc.

The VR play's suggested methodology improves theater research since it expands the reach of the field to a new medium and enables writers to craft stories designed to be partially or fully produced in Virtual Reality. As the technology of headsets continues to develop and VR becomes more accessible, I hope this work inspires more playwrights and screenwriters to write VR plays and explore the narrative capabilities of the medium.

More than a format or a method, my artistic research taught me that VR playwriting is about collaboration and creative transparency. I also learned that it is important that writers new to Virtual Reality invest time to experiment with the medium. In this sense, some hands-on experience can be earned by doing the exercise depicted in the handbook of my second creative project.

The answer to the question "Who should be able to change the VR play's content?" is a bit complex. The VR playwriter needs to open up its early creative process to include the input of their creative team, at the very least the producer, director, and director of photography (or production design in the case of animation). Feedback enriches the VR play by clarifying what needs to be on the page and which elements are better left for interpretation. That being said, the final draft of a VR play is a duty exclusive of the playwright. That being said, due to the complexity of the medium VR writers might not have the final call on subsequent creative documents that elaborate further on the VR play, such as narrative design, technical screenplay, and additional dialogue.

The question “What resources and other conditions should the VR play decision-maker control? ” is answered by all the elements present on the page of a VR play. The main narrative thread, critical cues or sounds, key props, essential interactions, floorplan displaying the PoV, an image reflecting the scene's mood, and important dialogues should appear since the VR play is the seminal document of the production.

Interaction designs, technical breakdowns of interactions, non-essential dialogues, and other creative interpretations do not belong on the VR play page. These documents are the task of experts that ought to be brought in.

Finally, screenwriting and dramaturgy are the answer to the question “On what storytelling perspectives ought a VR play be based?”. As I have mentioned before, VR plays are currently in an early development stage. Thus, long-standing writing conventions and methods of playwriting and screenwriting are shaping the language and development process of stories set in this new medium.

Every artistic research comes with its limitations, and this dissertation is no exception. In the next section, I discuss this dissertation's drawbacks to provide a more contextualized overview of my work.

4.3 Research limitations

This dissertation has inherent limitations since it is qualitative artistic research. From the perspective of post-structuralism, it is valid to question how my interest in the topic influenced the page format of VR plays and the methods I used to develop it (Flick 1992: 62). In other words, this research is not an objective work, and neither are its results.

That being said, practice-based research such as mine certainly advance the study of Virtual Reality and VR playwriting. It is also important to note that the results of my research were not the ones I expected at the beginning. The field has evolved so much in such a short time that the things I found relevant about VR playwriting back then are not the same as the ones I found critical to include in the 2023 version of the VR play page format.

Another limitation of this research is the reliance on the page as a storytelling device, which only allows for little user interaction. Further research is needed to explore more interactive storytelling tools such as hypertext, an enriched text that includes links to other media, or narrative design tools such as Twine (2022), which allows drafting non-linear narratives.

I agree with Dixon (2011: 42) that there are three main challenges in the artistic research of digital performance: the search for new theories and paradigms, which include developing new methodologies, the inclusion of multidisciplinary practices, perspectives, and knowledge from established disciplines and emergent ones, and the development of considerable tech skills and technical problem-solving. This dissertation approached these challenges by writing from posthumanist perspective work. In other words, I wrote my research for playwrights and screenwriters who are in the process of what Dixon (2007: 153) defines as "becoming the media".

From Facebook pages to TikTok channels, creative writers are more active in media while also not thinking much about the technology involved. Thus, I saw the opportunity to write the first dissertation that expanded the study of theater studies to include Virtual Reality. By doing so, I fulfilled my goal of creating a method and a format for writers to find artistic growth through VR playwriting.

Despite the limitations mentioned above, I am very satisfied with the results of my artistic research and foresee many paths for further exploration, as I detail below.

4.4 Future paths of research

I believe this dissertation will be the first of many dedicated to study how a writer drafts a play for Virtual Reality. As the technology of the field progresses and VR headsets become even more accessible, I hope writers use this dissertation as a stepping stone to find artistic fulfillment, just like I did.

During my research, I started noticing potential avenues of inquiry that intrigued me regarding artistic playwriting. The plausible research questions of my peers were very helpful

while developing the second, third, and fourth creative projects. I list below some I found intriguing and merit their exploration.

- Is it possible to develop a body movement method to Virtual Reality?
- How do we direct a VR play?
- How does the light design can be explored in Virtual Reality?
- Is it possible to define a screen grammar for Virtual Reality editing? What are some early explorations of this?
- What is the historical growth of VR in the arts industry?
- How can funding bodies help promote VR education?
- How can we incorporate Augmented Reality (AR) into theater?

As the field evolves, I look forward to the emergence of more writers creating plays set in Extended and Virtual Reality settings. This work is merely a first exploration of what I think will become its own writing discipline, and it has been developed with the aim to inspire dramaturgists and playwrights to draft plays for VR and find artistic fulfillment by doing so.

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List of Creative Works

- *VR Writing Jam* - Documentation of writers' workshop. (May 30, 2020)
- *So you want to write for the metaverse: A hands-in handbook for writers working with VR* - Practical Handbook (June 19-20, 2021)
- *Constellations* - VR play adaptation (May 25-27 2022)
- *Magical Girl Factory* - Original VR play (January 13, 2023)

Töö lühikokkuvõte

Loovuurimus „Drafting the VR-play: Exploring Extended Reality Theatre to Propose a Method for Virtual Reality Playwriting“ („Kuidas kirjutada VR-näidendit: uurimus laiendatud reaalsuse teatrist eesmärgiga luua näidendikirjutamise meetod virtuaalreaalsuse jaoks“) on kirjutatud doktorikraadi taotlemiseks Eesti Muusika- ja Teatriakadeemia doktoriõppe loomingulises harus. Uurimistöö vastab küsimusele, kuidas kirjanikud saaksid luua näidendeid, mis on mõeldud lavastamiseks (osaliselt) virtuaalreaalsuses. Virtuaalreaalsus ehk VR on arvutiga loodud interaktiivne meedium, mis tekitab kasutajale kohalolekutunde virtuaalruumis.

Töö eesmärk on aidata näitekirjanikel luua laiendatud reaalsuse (XR) ja virtuaalreaalsuse (VR) näidendeid ja stsenaariume. Sellest lähtuvalt uuritakse väitekirjas VR-näidendi mõistet. VR-näidend on ka põhiline dokument, mida tõlgendavad lavastaja ja tema meeskond lavastuse loomisel. See annab raamistiku teistele VR-näidendi lavastamisega seotud loovdokumentidele.

Metodoloogia. Uurimistöös otsustasin järgida kvalitatiivset lähenemist, kuna minu teema on seotud sotsiaaluuringute ja teaduse metodoloogilise hübridiseerumisega (Flick 2018: 11). Seega ühendab minu interdistsiplinaarne doktoritöö VR-näidendi kirjutamise varajased vormid, olemasolevad kirjutamiskonventsioonid, akadeemilise kirjanduse ja minu kunstilised eksperimendid. Metoodika, mis toetab minu loovuurimust, hõlmab probleemi struktureerimise meetodeid (PSM), autoetnograafiat, intervjuusid ja praktika kui uurimuse (PaR) analüütilist raamistikku.

Minu loovuurimus pakub välja teatri ja kino konventsioonidel põhineva VR-näidendi kirjutamise formaadi. Draamakunsti ja virtuaalreaalsuse vastandamist võime jälgida 1980. aastateni. Töös käsitlen immersiivset teatrit, mida iseloomustab näiteks lava ja saali piiride kadumine ja publiku „sukeldumine“ keskkonda, kus etendus toimub. (Yan et al. 2021: 1) Kasutades arvutipõhist tehnoloogiat, võivad alates 2023. aastast virtuaalreaalsuse seadmed luua sarnase kogemuse.

Doktoritöös välja töötatud VR-näidendi formaat lähtub paljuski 1970. aastate lõpus alguse saanud kaasaegse stsenaariumi väljakujunenud konventsioonidest (Price 2013: 209). Me võime mõelda VR-näidendi kirjutamisest kui stsenaristliku kirjutamise arengust ruumi kirjutamise suunas (Reyes 2022: 100). Seega on VR-näidend pidevas arengus, tugineb ekraani- ja lavadraama kirjutamise protsessile ning sõnastab ümber loo arendamise ja loovprojektide tootmisprotsessi vahelise suhte (Millard 2010: 22-23).

Akadeemilisest vaatenurgast uurisin oma töös virtuaalreaalsuse narratiivi võimalusi. Käsitlesin mõisteid, mis on seotud dramaturgia, stsenaristika ja virtuaalreaalsuse terminoloogiaga. Selgitan mõisteid (näiteks laiendatud reaalsus, interaktiivsus, immersiivsus, publik jmt), mida autoritel on vaja tunda, et luua virtuaalreaalsuses toimivaid näidendeid.

Uurimistöö tulemusena osutan, et virtuaalreaalsuses lavastatavate lugude loomiseks puudub väljakujunenud meetod. Samuti juhin tähelepanu sellele, et lähtudes traditsioonilise filmistsenaariumi koostamise põhimõtetest, tuleks VR-näidendi kirjutamisprotsessis valida välja käsitletav teema ja loo idee ning koostada sünopsis ja laiendatud esildis, seejärel luua stsenaarium ning VR-näidendi mustand. Oluline on arvestada, et VR-näidendi kirjutamine sõltub olulisel määral iteratsioonist ja et tagasisideprotsess on lõpliku mustandi koostamiseks hindamatu.

VR-näidendid on mõeldud lavastamiseks virtuaalreaalsuses ja nende kirjutamisprotsess sõltub dramaturgilisest ja stsenaristlikust praktikast. VR-näidendi võib liigitada digitaalse teatri alamžanriks, kuna see kaasab publiku läbi tehnoloogia ja võimaldab koosloomet. VR-näidendid sarnanevad filmistsenaariumitele ja näidenditele selles mõttes, et need kõik on meediumispetsiifilised.

Mõned aspektid, mida kirjanikud peaksid virtuaalreaalsuses lavastamiseks mõeldud näidendi kirjutamisel kaaluma, hõlmavad kasutaja kohalolekutunnet virtuaalruumis (immersiooni), interaktiivsust, vaatepunkti ja kasutatud tehnoloogiat (näiteks kasutaja pea küljes olevad seadmed ja lisaseadmed).

Oma eespool esitatud uurimisküsimusele vastamiseks lõin neli loovtööd. Esimene loovtöö oli töötuba näitekirjanikele. Töötoast sain kinnituse, et virtuaalreaalsust on võimalik meediumina kasutada. Konkreetsemalt sain teada, et VR-näidendi ideaalne vorming peaks panema paika

selge vaatenurga (kes lugu jutustab), silmade kõrguse, meeleolu, vaataja asukoha, tegevuse toimumise aja, interaktiivsuse määra ja kasutatava tehnoloogilise seadme. Kirjanike teadlikkus selles osas, mida virtuaalreaalsuse abil saab teha ja mida mitte, erineb, seetõttu leidsin, et vaja on praktilisemat protsessi, et juhtida kirjanikke uue meediumi suunas.

Eelnimetatud probleemi lahendamiseks koostasin oma teise loovtööna juhendi. Juhendis toodud ülesande läbiproovimise ajal sain kinnitust sellele, mida olin oma esimeses töös täheldanud: VR-näidendis on vaja kirja panna info muusikaliste märguannete, heliefektide, kaamera kõrguse ja publiku vaatenurga osas. Tulemust kasutasin oma kolmandas töös uute loominguliste kaastöötajate koolitamiseks.

Minu kolmas töö oli Nick Payne'i näidendi „Constellations" („Tähtede seis", 2012) adapteerimine selleks, et luua laiendatud reaalsuse (XR) näidend, milles teatrietendus ühendatakse stseeniga virtuaalrealsuses. Adapteerimise käigus sain kinnituse Kath Dooley (2018: 178) teooriale selle kohta, et VR-näidendi kirjutamine põhineb koostööl: loovmeeskonna tagasiside oli võtmetähtsusega selleks, et jõuda adaptatsiooni esimesest mustandist lõpliku mustandini.

Kuna „Constellations" oli laiendatud reaalsuse lavastus, tuli näidendis selgitada seda, mis toimub reaalselt laval, mis toimub ekraanil ja mida publik kogeb läbi VR-prillide. On oluline, et VR-näidendite autorid lisaksid tekstile ruumi üleminekute märguanded, mis aitavad lugejatel mõista, mis toimub ja läbi millise meediumi seda vahendatakse.

Doktoriuurimuse kolme esimese loometöö leidude ja järelduste põhjal kirjutasin neljanda loovtööna laiendatud reaalsuse näidendi pealkirjaga „Magical Girl Factory" („Maagiline tüdrukute tehas"), mis oli kombinatsioon elavast etteastest ja VR-stseenist. Teksti kirjutamisel lisasin põrandaplaani, et näidata objektide asukohta ruumis. See täiendus muutis näidenditeksti palju arusaadavamaks.

Allpool esitan nimekirja võtme-elementidest, mida kirjanikud peaks võtma arvesse laiendatud reaalsuse (XR) näidendite kirjutamisel (hõlmab ka tekste, mis on mõeldud täielikult virtuaalreaalsuses lavastamiseks):

A) Lehekülje number

B) Stseeni üleminekud
C) Stseeni päis
D) Vaatepunkt (POV)
E) Toetavad alapealkirjad
F) Heliefektid
G) Interaktiivsus
H) Pealkirjad
I) Tegelane
J) Tegevus
K) Kujutis või pilt atmosfäärist
L) Stseeni põrandaplaan
M) Rekvisiidid
O) Dialoog
P) Eriefektid.

Kokkuvõtvalt, pärast nelja-aastast uurimistööd näen, et VR-näidendit saab kirjutada vaid kasutades interdistsiplinaarset metoodikat, kuna see ühendab erinevate distsipliinide kirjutamispraktikaid. Olen kindel, et VR-i kasutuselevõtt laieneb lähiaastatel veelgi ning sel teemal on potentsiaali veelgi rohkemateks eksperimentideks tulevikus. Loodan, et käesolev uurimistöö inspireerib näitekirjanikke ja filmistsenariste looma VR- ja XR-näidendeid.

Acknowledgements

I would like to thank and dedicate this work to the following people who are forever a part of my real and virtual selves.

To my father, Demetrio David Falcon Rostro, my first teacher and my favorite one. To my mother, Victoria Araujo Medina, who taught me the concept of hybrid work and evolution with her multiple careers. To Henri, for being an excellent husband and understanding the demands of my creative life. To my brothers, David and Jorge, who taught me never to give up. To Diego, Sofia, and Mariana, who I hope to inspire. To Irma and Rosario, for being patient with a family of know-it-alls.

To my best friends, Sergio and Yessica, for keeping me sane in my lowest lows. To my friends from Liceo, CIDEB, UDEM, KinoEyes, and EMTA for always supporting me. To my thesis supervisors, Madli and Marion, for believing in me and my work even when no one else would.

Appendixes

1. *VR Writing Jam* documentation

- Sample VR play based on audiovisual format
- Survey questions
- Participant proposals for VR play page format

1. Sample VR play based on audiovisual format

FRONT	BACK
1. BLACK SCREEN 1. The soothing voice of the narrator is heard. NARRATOR Welcome, In this experience you will be asked to evaluate a VR screenwriting format. Sound, video, and VR imagery will be used. If by any reason you feel uncomfortable, please raise your hand and we will stop your experience. The sounds of summer are heard: birds chirping, water pouring out from a jug, ice clinking. NARRATOR It is time to keep moving	
2.	EXT. NEW YORK - 1911 - DAY 2. Archival footage of the statue of liberty and the traffic of the Hudson are seen on the top. FADE TO BLACK
FADE IN 3. INT. HALLWAY - DAY	3.

The Narrator continues the tour in an empty hallway. NARRATOR This is a Virtual Reality Test, we are trying to distinguish actions, transitions and cues. This is an example of a transition. FRONT	The hallway remains empty. Windows are filled with daylight. CROSSFADE BACK
CROSSFADE 4. The windows are now dark. An ALARM rings.	INT. HALLWAY - NIGHT 4. The Narrator continues the tour in the opposite direction. NARRATOR This is an example of a sound cue. The Narrator turns to the alarm sound and stops. NARRATOR This is an example of an action.

	The Narrator climbs a staircase. FADE TO BLACK

5. BLACK SCREEN 5.

NARRATOR

You can now remove the headset. If you need assistance to remove it, please raise your hand.
Keep in mind that you will now receive a questionnaire. Thank you!

FADE OUT

2. Survey questions

1. In a scale of 1 to 10, how close was the script to describe the actual VR experience?

2. What role did you play in the VR experience (i.e. protagonist, antagonist, audience, author, etc).

3. Please draw the initial location of you and the NARRATOR at the hallway (just before the transition example).

4. What elements would you add to the script format?

5. Do you have any additional comments or suggestions?

3. Workshop Participant’s attempts to make a VR plays

Instructions for the participants:
This activity will take around 15 minutes
Please adapt the following text to a 1-page script for cinematic VR (this is a 360 video, with no interaction options).
In the next page we have attached a suggested format, but feel free to use another format option.

You can also draw or write by hand. Just take a picture and paste it in this document.

"New York, 1957. Lauren and her husband step into an elevator. Lauren is wearing a short dress, while her husband wears a suit and a fedora hat. Lauren asks her husband if he's hot, and he grunts a reply from under his wool hat. The elevator goes down one floor. A beautiful woman steps in, and Lauren's husband hurriedly takes his hat off. Lauren looks dismayed at her wedding band and fidgets with it, while her husband glances at the beautiful woman in front of them."

FRONT	BACK
FADE IN 1. EXT/INT. LOCATION - DAY/NIGHT 1. This is an action paragraph where you can describe a character, his or her actions, and add scene descriptions for the front of the camera. CHARACTER This is an example of a dialogue of a character that is in front of the camera. This is an action paragraph where you can describe a character, his or her actions, and add scene descriptions for the front of the camera. FADE TO BLACK	FADE IN 1. EXT/INT. LOCATION - DAY/NIGHT 1. This is an action paragraph where you can describe a character, his or her actions, and add scene descriptions for the back of the camera. CHARACTER This is an example of a dialogue of a character that is behind the camera. This is an action paragraph where you can describe a character, his or her actions, and add scene descriptions for the back of the camera. FADE TO BLACK

NAME OF PARTICIPANT: LAURIE

PROTAGONIST -- Who?! LAUREN

MECHANICS: Actions in (parentheses) occur regardless of user direction

CHARACTERS:

Protagonist

LAUREN, short dress late 1950s style, wedding band

Others

HUSBAND - Suit and wool fedora, wedding band

WOMAN - does it matter? Husband is painted as sleeze

INT. ELEVATOR

LAUREN

(left hand reaches for husband)

Are you hot?

(hand fails to connect)

HUSBAND

(grunts under hat, slouches)

SOUND: ELEVATOR DINGS

VISUAL: DOOR OPENS, WOMAN steps in

HUSBAND

(removes hat, straightens posture)

LAUREN

(twirls wedding ring)

NAME OF PARTICIPANT: ADRIANA

Scene 1. INT. HALLWAY. POV HUSBAND. The margin of the fedora hat partially covers the lens of the camera.

First shot starts from the detail of a newspapers, New York Times maybe???, showing the date. The wife is in front of him. When exploring around one can see the beautiful marble details of the hallway and the statue of Aphrodite.

The elevator creates a clink sound announcing it's arrival. The sound is the cue that determines the husband to step closer to the elevator door.

CUT

Scene 2. INT. ELEVATOR. POV WIFE

LAUREN

Are you hot?

HUSBAND

Maybe. I don't know

Sound cue - elevator clinks again

CUT

Scene 3. INT. ELEVATOR. POV beautiful woman. A Mesh Kentucky Derby Hat partially covers the camera. The woman sees the couple in front of her. Lauren looks dismayed at her wedding band and fidgets with it. Husband glances

NAME OF PARTICIPANT: SANTERI

OBS! The script bleeds just a smidge to the next page.

FRONT	BACK
FADE IN 1. INT. ELEVATOR - DAY MICKEY (to operator) Ground, please. LAUREN Jeez, you must be melting under all that. At least lose the hat. MICKEY I'm just fine as it is, thank you. Mickey hastily removes his hat and wipes	FADE IN 1. INT. Elevator - DAY A mirror-lined old elevator. An operator in a uniform is standing next to the operating crank. DING! The elevator door open and in walk LAUREN (37) - in a blue summer dress and MICKEY (40) - wearing a trench coat and a fedora hat. OPERATOR Very good, sir. The elevator dings as the doors open. In walks SAMANTHA (25) - not subtle red dress, long hair, the works. OPERATOR Where to ma'am?

some sweat off his brow. Lauren is watching, fidgeting with her wedding ring. Mickey tries to avert his gaze but it keeps wondering up and down Samatha. Mickey notices Lauren is watching and hastily looks at his watch and wipes off more sweat. FADE TO BLACK	SAMANTHA Oh, ground floor. The elevator dings. OPERATOR Ground floor, folks! Tips appreciated. FADE TO BLACK

NAME OF PARTICIPANT: SERGIO

FOREGROUND	MIDGROUND	BACKGROUND
1. INT. ELEVATOR - DAY		
1.1 Soothing jazz music. The door chimes as it opens. A couple waits in the corridor.	1. 2 LAUREN and her husband TEO step into an elevator. Lauren is wearing a short dress, while her husband wears a suit and a fedora hat.	1.3 People transit the hallway.
2.1 The door closes and the elevator descends.	2.2 LAUREN Are you hot, dear? Teo grunts from under his hat.	2.3 The elevator doors open and reveal a BEAUTIFUL WOMAN. She steps in and stands in front of the couple.
3.1 The Beautiful Woman flicks her hair and pops her lips.	3.2 Teo takes his hat off. Lauren follows the gesture with her eyes. She nervously fidgets with her wedding band.	3.3 The elevator music transitions into an opera-like melody.
4.1 Teo glances at the Beautiful woman.	4.2 Lauren clears her throat.	4.3 The Beautiful woman stands between them.

NAME OF PARTICIPANT: SAARE

FRONT	BACK
FADE IN 1. INT. ART DECO ELEVATOR - DAY The camera is inside the art deco elevator in the rear left corner. Elevator doors open and a couple steps in - a woman in a short, red circle dress, and a man in a suit and a fedora. They step to the right side of the camera- woman on the left, the man on the right. Doors close, and the elevator goes down. WOMAN "Aren't you hot, honey?" MAN *[mutters in a disgruntled fashion]* It's in the middle of the summer; of course it's hot. WOMAN "Why don't you take it off?" MAN *[sighs, but does not react.]* We'll be there soon enough.	FADE IN 1. INT. ART DECO ELEVATOR - DAY Behind is a mirror, and the elevator is full of reflective, metal surfaces.

The elevator stops, and dings. The doors open and a beautiful woman steps in and stops in front of the camera. The man immediately takes his hat off and glances at the woman coming in. Both smile at each other when their eyes meet. The wife notices this, and lifts her left hand as if to fix her hair. But instead of fixing it, she's clearly twiddling her wedding ring with her thumb. The awkwardness is palpable. FADE TO BLACK	FADE TO BLACK

2. *Practical Handbook for Writers and Creatives New to Virtual Reality*

So you want to write for the metaverse:
A hands-in handbook for writers
new to Virtual Reality playwriting

By Ana Falcon

Table of Contents

1. Exercise description

This handbook comprises a set of instructions for dramaturgs, screenwriters, and other creative professionals who are using Virtual Reality for the first time. This booklet is intended to be used in the context of a writing or media production undergraduate or graduate course. Due to the nature of the mediums used, it is recommended to read this handbook digitally in order to be able to open the videos attached (otherwise, please refer to the Appendixes for the full links to the video assets).

LINK TO DAY 1
LINK TO DAY 2

By following these instructions, the students will be introduced into Virtual Reality by writing and producing two short pieces. After the description of each step, the *In Action* section retells the actual events that occurred during the production of the example pieces.

The exercise final deliverables are a short film and a short VR non-interactive VR play. To end this exercise, students will find at the end a list of useful questions to consider while adapting an existing play or screenplay into Virtual Reality.

2. Necessary Crew and Equipment

The following is a list of critical and optional human and material resources needed for the exercise. While the list may seem daunting, the overall costs are on the low end of short film and theater production.

Critical Crew

- 3-5 performers
- 1 dramaturgist
- 1 producer
- 1 director
- 1 editor
- 1 sound designer
- 1 light artist
- 1 cinematographer
- 1 production designer
- 1 makeup artist
- 2 photography assistants (gaffer, camera operator)
- 1 assistant director
- 1 DIT
- 1 composer

Additional Crew

- Movement director.
- Production assistants.
- Musicians

Critical equipment

- 1 digital professional camera
- 1 360 camera
- 1 tripod
- 6 portable lights (plus their controllers)
- 1 set of cinema lights for an indoor shoot (key, fill, back plus filters and hardware)
- 1 set of theatrical lights or studio lights

- 1 background curtains
- 1 hard drive
- 1 editing bay
- 1 monitor compatible with the digital camera
- 1 cellphone or monitor compatible with the 360 camera

Additional equipment

- Backup camera
- Additional lighting
- Greenscreen

  Costumes
- FX makeup

The right crew for this exercise involves creatives experienced in stage and/or film productions. The use of inexperienced crews or amateur actors is discouraged, since professional equipment is being used. The right crew and actors will be able to follow the workflow of a stage or film production, while also open to explore their profession on Day 2.

In action

I decided to organize a team of young yet experienced specialists in filmmaking and stage. My producer Mattheus Pecanha (Brazil) was the only one with previous VR experience, in addition to short film production. He helped me source master students and local professionals from Tallinn University while I recommended Marshall Stay from the Estonian Academy of Music and Theater as a lighting artist and Sofia Steiner (MA graduate from Tallinn University) as Director of Photography. In addition we published an open call and met our actors and Production Designer.

Fig 1. Director of Photography Sofia Steiner previewing a VR shot during Day 2.

The first day was busy but the experience of the crew made it possible to finish on time and without any issues, even after starting late. The second day, in which we worked for VR, made the team feel more vulnerable about the hows. There was less "know-it-all" attitude than during the shoot of the 16:9 reading and more questions. "Is this alright?" could have been the motto of day 2.

The actors adapted well to the immersive space, but the production team was very hesitant regarding their own choices.

3. Developing a VR play

This booklet is understood as a VR play, the document that will detail the story to be represented in VR. The document is the equivalent to a cinematic script (also knownas a technical script) from which the crew can draft other production documents such as director's script, production breakdown, shot list, call sheets, storyboards, narrative design workflows, etc.

3.1 Delimiting the scope of the script

The following list of question will help writers to better define the reach of the script in terms of technical scope:

Accessibility

The audience will be able to watch this story via:

- ☐ Professional headsets (i.e. Microsoft Hololens/Oculus Pro, etc)
  Please specify:_____
- ☐ Consumer headsets (i.e. Oculus Quest, Pico Neo, Valve Index)
  Please specify:_____
- ☐ Mobile combo headsets (i.e. HTC Vive Flow)
  Please specify:_____
- ☐ VR viewers (i.e. Samsung Gear, Google Cardboard)
  Please specify:_____
- ☐ Website browser (i.e. Chrome, Safari, Firefox, Opera)
  Please specify:_____
- ☐ Projection (i.e. 360 screen, Screen)
  Please specify:_____

Interactivity

The audience will be able to:

- ☐ Click on objects/buttons
- ☐ Walk around through the space
- ☐ Control virtual objects (ie. shooting guns, opening doors/drawers/moving items)
- ☐ Interact with other audience members via chat/actions/voice.
- ☐ Send information (such as message to the crew
- ☐ No interaction will be possible.

The dramaturgist needs to choose or write a 1-2 page text with the following characteristics:

- More than 1 character but no more than 5
- 1 environment
- No time lapses
- No interactions
- No audience

A simple text will not overexert the crew over the two days of production. The dramaturgist needs to keep in mind that the participants are not familiar with VR production and will face challenges during the course of this exercise.

In action

I decided to write a poem to allow the production teams to express their needs and propose what should be included in future Virtual Reality screenplays.

> ***Honesty Plea***
>
> *Everyday, everyone lives in their bubble believing the pretty lies on screens.*
> *Is honesty forever lost?*
> *No.*
> *It lives in recognizing truth, as painful as it can be.*
> *It lies in choosing the rightful path,*
> *not giving a damn about the shortcuts.*
> *It lives on the educators,*

whom teach how to learn and ask why.
It survives despite the algorithms and firewalls,
in the hearts of children not afraid to question their elders.
Honesty lives in the bravest among us.
and will endure thanks to peer-reviews, skeptics, and moderators.
As it has survived monarchs, cliques, and bots.
It is not a question of how honesty will survive,
neither on how long we decide not to hear its desperate call.
As we try to sleep in the heart of the night
despite our soul telling us
It is time, it is time, it is time.

4. Creating a traditional script

Once the original text is chosen, the dramaturgist will choose with the producer the page format for the first day of production. The characteristics of this format should be:

- The format should follow a traditional playwriting or screenwriting format.
- The format should be known by all participants.
- No more than 4 pages (considering 1 minute of screen time per page).

IMPORTANT! Keeping in mind there is NO current universal format for VR scriptwriting, it is advisable to use both the traditional script and storyboard as a VR text for this exercise. This handbook includes a Self-Assessment and an Adaptation Checklist from which dramaturgs can later base their own VR writing format.

In Action

For pre-production purposes, a traditional script worked well. There were no costumes, dress, production, or casting issues. That being said, the technical disciplines of light and sound needed a lot more guidance.

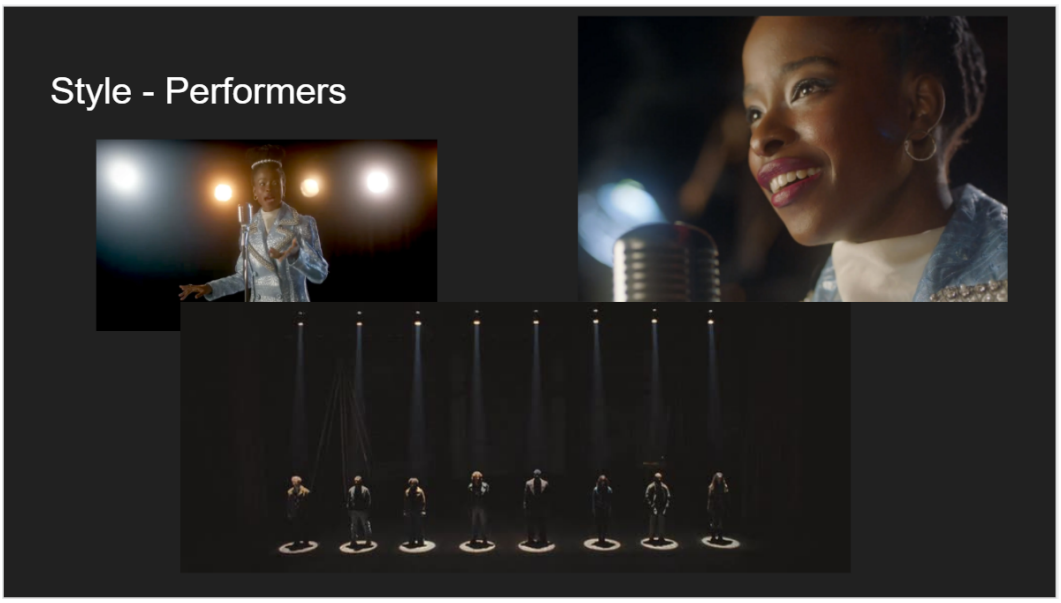
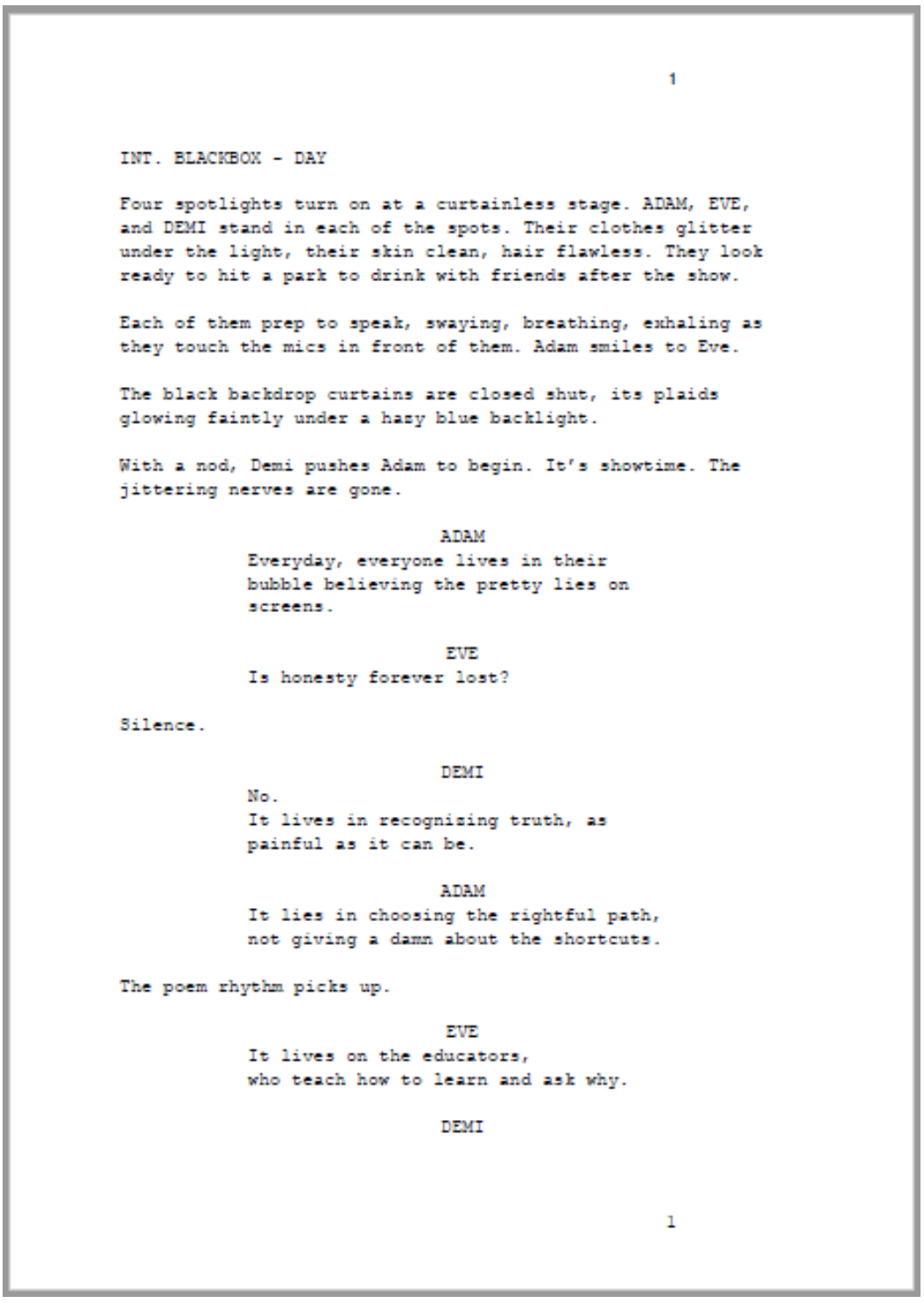


Fig 2. "Honesty Plea" moodboard



1

INT. BLACKBOX - DAY

Four spotlights turn on at a curtainless stage. ADAM, EVE, and DEMI stand in each of the spots. Their clothes glitter under the light, their skin clean, hair flawless. They look ready to hit a park to drink with friends after the show.

Each of them prep to speak, swaying, breathing, exhaling as they touch the mics in front of them. Adam smiles to Eve.

The black backdrop curtains are closed shut, its plaids glowing faintly under a hazy blue backlight.

With a nod, Demi pushes Adam to begin. It's showtime. The jittering nerves are gone.

ADAM
Everyday, everyone lives in their bubble believing the pretty lies on screens.

EVE
Is honesty forever lost?

Silence.

DEMI
No.
It lives in recognizing truth, as painful as it can be.

ADAM
It lies in choosing the rightful path, not giving a damn about the shortcuts.

The poem rhythm picks up.

EVE
It lives on the educators,
who teach how to learn and ask why.

DEMI

1

Fig 3. First page of "Honesty Plea" script. For the full screenplay, check Appendix 2.

Therefore, in addition to the screenplay I created a moodboard for the lighting artist and the Director of Photography to draw inspiration. This was useful since it later allowed us to discuss what we could explore during the exercise.

5. Storyboard and Adaptation Checklist

The director will draw a storyboard based on the script using a traditional storyboard format that can be understood by the rest of the crew.

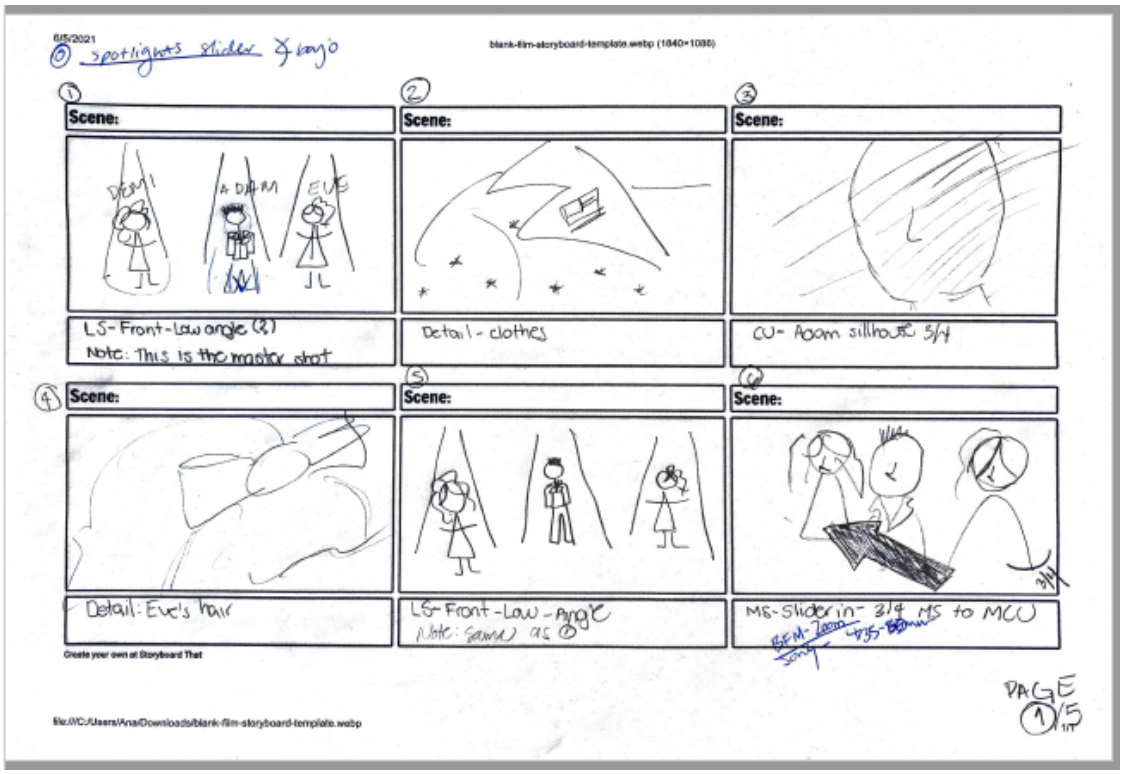


Fig 4. Storyboard for "Honesty Plea". For the full storyboard, see Appendix 3.

Once the storyboard is ready, the director should meet with the other production heads to discuss the following questions:

Playback

Are we creating with a particular Virtual Reality device on mind?

What are the quality settings we want for the digital recording of Day 1?

Are we projecting any of the pieces? If so, do we need additional considerations in other areas?

How much will the audience interact?

Direction

What are the differences in *mise-en-scène* between Day 1 and Day 2.

Will we work with the same cast in both days? If so, how are we differentiating Day 1 from Day 2?

Do the characters move differently according to the medium?

Do props need to be added/removed?

Which marks do we need to add/remove between both days?

Location

What characterizes the place?

What is the layout?

What are the boundaries of the place?

Photography

Do we want to achieve the same lighting between Day 1 and Day 2?

If the lighting changes, how lighting will change between Day 1 and 2? Why?

What is the lighting and camera placement for Day 1?

What is the lighting and camera placement for Day 2?

Editing

What are we looking for in a VR shot?

Are we using the shots from Day 1 to complement Day 2?

Are we doing any cuts in the VR?

Are we altering the axis of view?

Do we need to add or remove supers?

Sound and Music

How are we approaching the sound in VR: from a spatialized perspective, from a single position perspective, from a diegetic perspective?

What is the sound setup for both days?

Are we creating different compositions for Day 1 and Day 2?

It is then recommended to then have 2 or 3 production meetings from which a final storyboard can be drafted. In these production meetings, the team should:

- Explore the venue, its opportunities and limitations.
- Agree on a shooting schedule.

- Make a pre-lighting, if possible.
- Agree on the number of takes/experiments for Day 2.

IMPORTANT! The last point is critical. The intention is to achieve the introduction of the people to the medium, hence it is advisable to explore more than one camera position or movement on Day 2, keeping in mind the time and equipment constraints.

In Action

The subtext of the poem is the proposal of a moral compass based on honesty. Thus came the first question: "If we all have this moral compass, where does it live?". I proposed shooting in a place where dwelling was one of the connotations that people have, and decided on using a theater. Other options for this striated place could have been a forest, a field, even a house, but I decided that a theater could be "safer" to explore with a production team new to Virtual Reality.

During the pre-production meetings of "Honesty Plea" there was a long discussion about how "theater-like" the location should be, and after a site visit we decided to remove the seats with the intention of pushing the limits of the location.

Unexpectedly, the location manager forgot this production request so we worked as it was. I never considered a live audience, since I wanted to keep the attention on the compass.

6. Shooting Day 1

The first shooting day will be structured as a normal audiovisual production. It is important to follow the plan as much as possible and have enough coverage, particularly if the production plans to use Day 1 images in the final VR short.

In Action

The first key learning point from "Honesty Plea" is that space is everything for the mise-en-scène in Virtual Reality. Due to the current optics, there was a chance of creating a "void" and one of our worries was to be "too stranded" in nothingness.

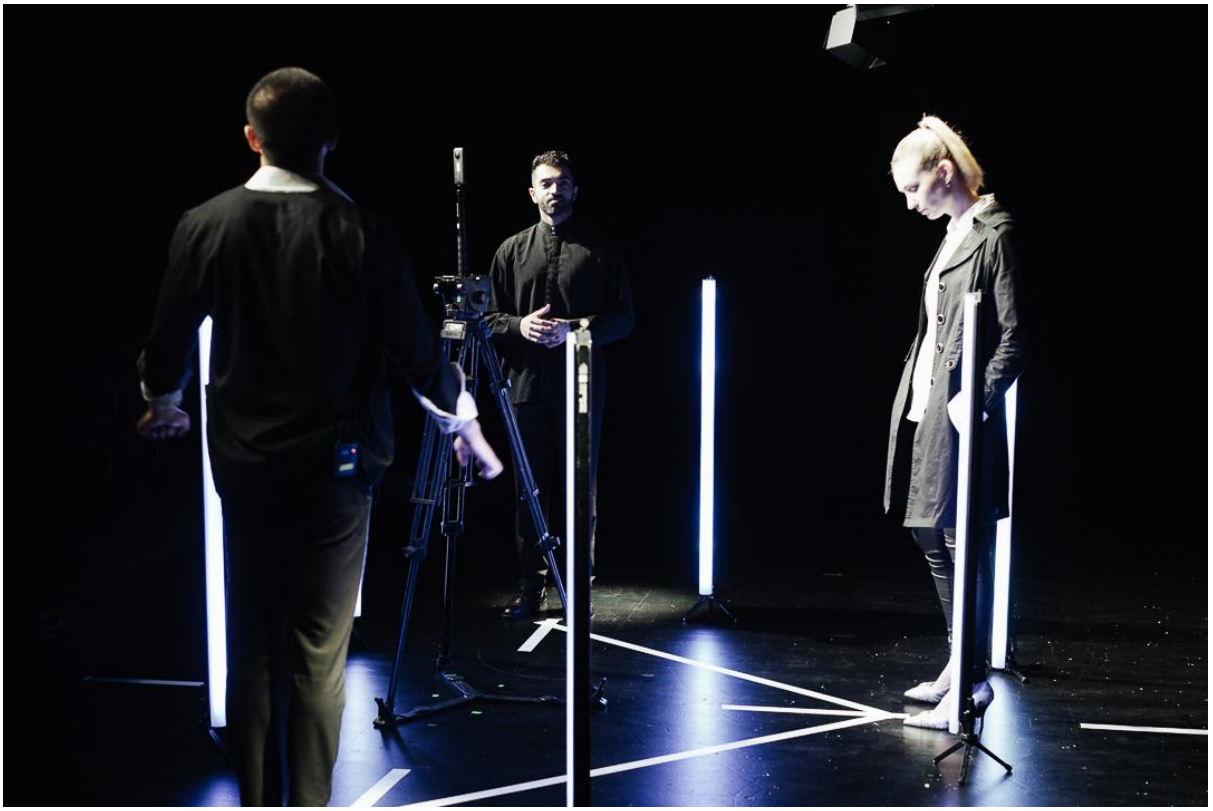


Fig 5. Mise-en-scène of Day 2

The Director of Photography of "Honesty Plea" suggested distance-controlled lights that we could place and thus fulfill the need of having more light while also delimiting visually the space. We did a scouting of the location, but did not arrange a pre-lighting and this was a mistake.

7. Shooting Day 2

The second day might result challenging to the production team, due to the inexperience with the medium. The director should go back to the answers on the checklist of step 5 in case of any creative hesitation.

In Action

Directing actors in VR is a challenge due to the marks they need to hit. Even the most simple choreography needs sharp timing, which makes VR akin to directing long takes. There are not many "cut tricks" you can play out in VR. Even if it is reading, it needs perfect timing since you don't have much wiggle room to edit the scene to make it faster.

On both days the remote-controlled lights were failing to connect to the application and therefore, were not manageable. I decided to forgo the programmed focus and just use them in their factory-setting format. I was glad we did not have critical lighting cues, but noticed we could have faced disaster if we did and the lights did not go off on time.

The Day 2 shoot included at least three different kinds of takes on the 360-camera, but the most interesting one was the handheld one. In one production meeting, a team member suggested having a live camera operator instead of a tripod. The Director of Photography volunteered to man the camera while wearing a dark morphsuit. I could have opted to use a lime green one (and attempt a full deletion of her physical person) but decided against it because it would add a new variable to the exercise.

8. Postproduction

Following the two shooting days, the director should give time to the editor to setup a first cut of both the short film and the Virtual Reality film. Overall it is expected to invest around 5 to 10 effective hours in post production, which can be spaced in sessions across several days.

The key aspect in editing is to select the material that works for both the editor and the director in terms of immersion, acting and drama, timing to place cuts and how any cuts will be introduced without compromising the immersion.

After the final cut is assembled, the director can work with the sound designer and composer on the soundscape of both the traditional and the VR recording. This is done in parallel to the color correction of the project.

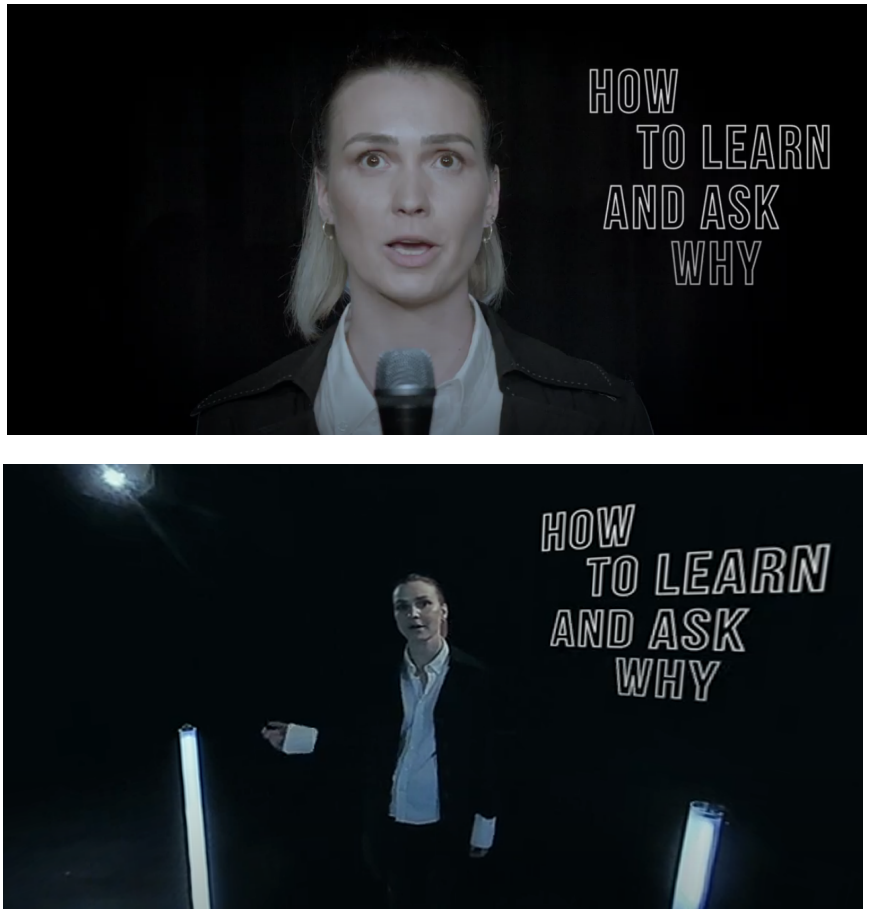


Fig. 6 Still comparison between Day 1 and Day 2.

In Action

The results in the morph suit VR take were mixed so I selected another shot for the final delivery. The reason is that I underestimated the audience's familiarity with morphsuits, and found its appearance moving the camera just too eerie. Much to my chagrin, just a couple of months after we wrapped up production, Kim Kardashian wore a Balenciaga morph suit to the Met Gala resignifying the piece, which is an artistic choice I could have made.

Soundwise, we had a lengthy discussion that ended in a stereo sound mix. The question was mainly about the device. We had 5.1 capabilities, but the Oculus Quest 2 device is stereo. So the choice was made.

Testing the cut was very interesting. We alternated between using a phone, and using the visor. It was quite interesting that I preferred the visor experience, while the editor preferred a phone. This raises the question if we should specify the "correct way" to watch immersive videos on the script page, which I'm still undecided on.

9. Assessment

The final two pieces are presented to the team in the same order as they were shot. First the traditional, then the VR. The team is encouraged to answer the following questions:

- What worked during Day 1 that also worked (either as good or even better) on Day 2?
- What could have improved the results from Day 2?
- What information would I have found useful to know before starting Day 2?

The second step in this assessment is for the dramaturgist to read the compendium of answers, so they can use it to create their own Virtual Reality writing format. Some useful questions that could aid the writer to further improve their page formatting are:

- Which concrete elements did the production team needed to perform better?
- What elements of the script and storyboard (if any) worked during Day 2?
- Which elements (cues, transitions, actions, etc) should be added to future writings intended to be performed in VR?
- Which elements are going to be left for interpretation?

In Action

While many things worked the same, I noted that photography, sound, and editing were the departments that faced more challenges while adapting to a new medium. I also realized there needs to be an exploration of what would happen if we shoot an improvisational performance.

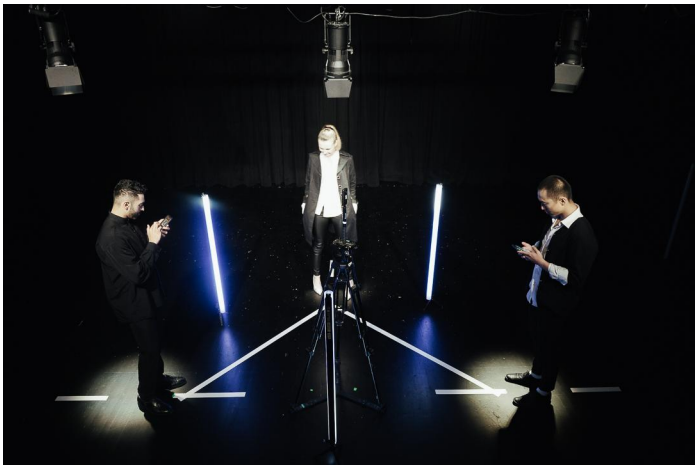


Fig. 7 Initial position of actors on Day 2

If hitting the mark is key for lighting, then what happens if there is no mark at all? Therefore, the script needs to define (at least the initial) spots where the characters stand. This would aid to create the secondary marks through the scene or forgo them in case of improvisation.

The exercise made me wonder as a dramaturgist whether a Virtual Reality script and a traditional script could be used in parallel. It is now my opinion that a VR script could be the equivalent of the director's script in cinema but for Virtual Reality performances (at least in my practice), while the traditional script (with a few modifications) could be used for production and sales purposes.

10. Conclusion

Re-evaluating our creative practice and adapting it to a new medium is a challenge. Beyond technology, is a process of questioning our approach to the craft. It is however necessary to do it for the survival of the performing arts. While the basics will stay the same, an exercise such as the one described in this handbook will aid practitioners to recognize the adaptations of their craft to the medium.

Once the basics are mastered, artists can create their own language, their own grammar for Virtual Reality. Eventually, the adoption of the medium will evolve enough to develop a predominating format. But for now, it is an opportunity for emerging and well-established artists to explore their own craft.

11. Appendixes

Appendix 1

DAY 1 SHORT FILM

https://youtu.be/6M-JmUPj6u8

DAY 2 VR SHORT FILM

https://youtu.be/xnWFqovrA08

3. *Constellations* VR play adaptation

Link to Act II video

https://drive.google.com/file/d/1Kym8BETLiGmC5nCmqZ8i5Tl917gX9ep_/view?usp=sharing

CONSTELLATIONS

Original stage play by

Nick Payne

Act II VR play
adapted by
Ana Falcon

Tallinn, Estonia
March 1, 2022

//INTERACTIVITY: This is an in-rails play, in which the viewer may look in 360°.

1. EXT./INT. DREAMY BALLROOM - DUSK 1.

VIEWER POV: The camera with an eyeline of 1.60 m from the ground.

We follow Roland into a sunny dance classroom. He throws hastily his jacket and approaches the already busy dancefloor.

It is springtime. A waltz is played on a speaker, . Five couples dance around the floor, with varying levels of skill. Their outfits are sunny, pressed, ready for a night out in town.

<The mood is cheerful, with the occassional laugh as someone gets stepped on>

An INSTRUCTOR goes by each couple making small corrections to their posture. The Instructor greets Roland with a nod, Roland approaches as the instructor waltzes away with the man of the couple she was helping. Roland approaches the now available partner, who is distracted fixing her shoelace. It's Marianne. Roland grins on surprise. He gently stands next to her.

ROLAND
Hello, Marianne.

Marianne springs up.

MARIANNE
Roland. Wow, hi - Hello. How are you?

ROLAND
Yeah, I'm fine, thanks.

Roland offers Marianne his hand. They start waltzing, Marianne surprised at Roland’s technique.

MARIANNE
Oh good. Good, that’s really good.

ROLAND
How about y’self?

Marianne looks away, blushing.

MARIANNE
I bought some of your honey.

Roland turns Marianne around.

ROLAND
Oh really.

MARIANNE
From the Budgens in Crouch End.

ROLAND
Yeah, right. They’re really great.

MARIANNE
I said to the girl on the till, I said I used to know the man who made this honey.

ROLAND
What did she say?

Marianne gives a thumbs up, Roland laughs.

ROLAND (CONT'D)
I read one of your papers.

MARIANNE
You didn’t?

ROLAND
I did. I downloaded it.

MARIANNE
Which one did you read?

ROLAND
Something to do with the XMM Cluster Theory?

<The music stops, everybody claps>

Marianne and Roland join the queue at the water cooler.

MARIANNE
That's really amazing, Roland.

ROLAND
What did you think of the honey?

MARIANNE
Delicious. It was completely delicious. Are you, are you here for the ballroom class?

ROLAND
Yeah, no, yeah, I am, yeah.

MARIANNE
Really.

ROLAND
Heather's getting married in a couple of months, so.

MARIANNE
The PE teacher?

ROLAND
What's that?

MARIANNE
He was a, he was a PE teacher, wasn't he?

ROLAND
Right, no, I see. They called it a day. New bloke's a something-or-other for the Office for National Statistics.

MARIANNE
Wow.

ROLAND
I've been ordered to sort out my two left feet or else. How about you?

Marianne's turn. She pours some water.

MARIANNE
Similar, really. Wedding.

Roland's turn at the tap.

ROLAND
Your own or

Marianne finishes her cup of water.

MARIANNE
No, mine, yep.

Roland raises his paper cup.

ROLAND
Congratulations.

MARIANNE
Yep.

The couple walks back to their spot as music starts again. Roland stretches his hand to

Marianne, before looking around. He lowers his voice, half-flirting, half joking.

ROLAND
Is your. Fiancé, is he-

Marianne shakes her head while smiling reassuringly.

<The image starts faltering, the sound of a broken signal of an old TV is heard>

MARIANNE
Held up. He's. Been held up.

<We hear static, then nothing>

The signal goes out.

CUT TO BLACK.

FADE IN:

2. EXT. TERRACE BALLROOM - DAY 2.

VIEWER POV: The camera with an eyeline of 1.60 m from the ground.

We follow Roland into a terrace where a dance class is taking place. He zips up his hoodie, it is spring but not yet warm, a blue evening of sorts.

<A waltz is played on a speaker, but is barely audible>

Five couples dance around the floor, with varying levels of skill hidden by their sweats. It is a quiet class, because everyone is cold and just wants to get it done.

An INSTRUCTOR goes by each couple making small corrections to their posture. The Instructor greets Roland with a sigh, Roland approaches as the instructor waltzes awaywith the man of the couple she was helping.

Roland approaches the now available partner, who is distracted fixing her shoelace. It's Marianne. He sighs upon the surprise. He approaches her reluctantly.

ROLAND
Hello, Marianne. It's Roland.

Marianne greets him with a smirk and extends her hand politely.

MARIANNE
Roland.

Roland grabs her hand and starts guiding her.

ROLAND
How are you? Hope I didn't scare you?

MARIANNE
No. A bit. Maybe. I mean, a bit.

ROLAND
Sorry.

<The music stops, everybody claps half-heartedly>

Marianne and Roland join the queue at the coffee station.

MARIANNE
Are you, are you here for the ballroom class?

ROLAND
Yeah, no, yeah, I am, yeah.

MARIANNE
Ballroom, really?

Marianne gets a cup and starts drinking while Roland gets his own.

ROLAND
Heather's getting married.

MARIANNE
Heather?

ROLAND
My sister.

MARIANNE
Heather, of course.

ROLAND
I've been ordered to sort out my two left feet or else.

Marianne takes a long sip. Roland does the same.

MARIANNE
Did you, did you know that I was going to be here?

ROLAND
What? Did I -

MARIANNE
Know that I was going to be here?

ROLAND
No. No, of course not.

<The music resumes>

Marianne avoids looking at Roland's eyes.

MARIANNE
I'm learning ballroom because I'm getting married, Roland.

Roland stops dancing at once.

ROLAND
No, sure.

MARIANNE
In September.

ROLAND
Congratulations.

Roland begins dancing again.

MARIANNE
Thank you. What about you, are you-

ROLAND
I was, but, for the moment, no.

MARIANNE
Married?

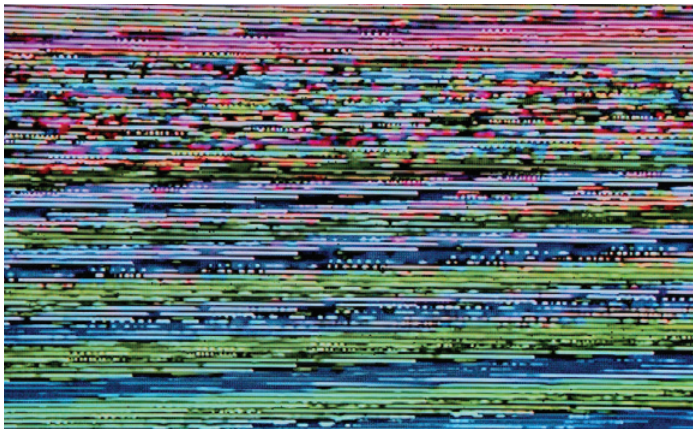
ROLAND
Seeing someone. I was seeing someone. But we broke up. So.

Marianne steps on Roland's foot, who lets out a yelp.

<The yelp starts repeating as the signal breaks again>

MARIANNE
I'm sorry.

ROLAND
No, please. Don't be.



<Roland's last words' echo through the static>

CUT TO:

3. INT. THEATER BALLROOM - DAY 3.

VIEWER POV: The camera with an eyeline of 1.60 m from the ground.

We follow Roland into a theater ballroom where a dance class is taking place. He removes his hoodie as it is sweltering under the theater lights.

<A waltz blares from the sound system>

Five couples dance around the floor, with varying levels of skill. Everyone is wearing a uniform of sorts: black leggins, white t-shirt. An INSTRUCTOR goes by each couple making small corrections to their posture with a cane.

Marianne sees Roland, and immediately approaches him as he ties a loose shoelace.

MARIANNE
Hello, Roland.

ROLAND
Marianne. Wow, shit. How's it, how's it going?

Roland starts dancing with Marianne.

MARIANNE
Well. I'm really well. Thanks.

Roland turns Marianne around, and is surprised at her skill.

ROLAND
Great. That's really great.

MARIANNE
Yourself?

ROLAND
Yeah, no, I mean, good, yeah.

MARIANNE
I bought some of your honey.

ROLAND
Oh really.

MARIANNE
From the Budgens in Crouch End.

ROLAND
Yeah, right. They're really great.

MARIANNE
I said to the girl on the till, I said I used to know the man who made this honey.

ROLAND
What did she say?

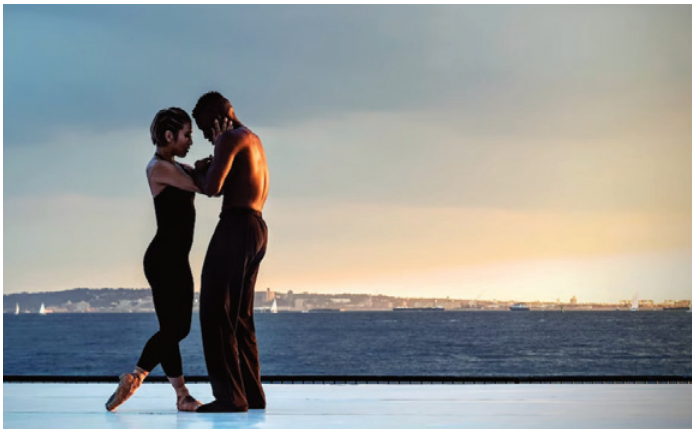
MARIANNE
She just stared at me. How is everything? Business-wise?

ROLAND
Good, yeah. 'Bout to start doing pollen.

<The music stops>

The couple joins the queue next to the water bottles.

MARIANNE
Pollen?



ROLAND
Yeah, you have to - Y'scrape it off the legs of the bees and then you ground it down. Really good for you apparently.

Marianne gets a bottle and drinks.

MARIANNE
Scraping the legs of bees, or pollen?

ROLAND
Had a, had an offer from Tesco of all people.

Marianne offers her bottle to Roland, who takes and sips.

MARIANNE
For the pollen?

ROLAND
No, just for the honey.

MARIANNE
How much for?

ROLAND
Fair whack.

<The music starts again>

The couple tries to keep talking over the music.

MARIANNE
What did you say?

ROLAND
Told 'em to go fuck 'emselves. I read one of your papers.

MARIANNE
You didn't?

ROLAND
I did. I downloaded it.

MARIANNE
Which one did you read?

ROLAND
Something about hot subdwarf stars?

MARIANNE
Were you really looking for midget porn on Google?

ROLAND
What's that?

MARIANNE
Subdwarf - It was a -

ROLAND
Right, no.

MARIANNE
That's really amazing, Roland. Thank you.

ROLAND
What did you think of the honey? From Budgens.

MARIANNE
Delicious. It was completely delicious.

ROLAND
It's heather.

MARIANNE
Yes.

ROLAND
We cart the bees up to the heather moors every August . One by one.

MARIANNE
One by one?

ROLAND
Hives, not bees.

This is a hard piece, and Marianne is running out of breath.

MARIANNE
Are you, are you here for the ballroom class?

ROLAND
Yeah, no, yeah, I am, yeah. I’m. I’m actually. Engaged.

MARIANNE
Oh wow. Roland So. Yeah.

MARIANNE (CONT'D)
Who’s the, who’s the lucky lady?

ROLAND
Alison. Alison O—

MARIANNE
I remember.

ROLAND
How about y’self, are you -

MARIANNE
Just trying to lose a bit of weight.

Marianne turns scarlet, who starts whispering in half a panic.

MARIANNE (CONT'D)
Too many late-night digestive binges. I blame the subdwarfs. The stars - The, the paper you read -

Roland is not listening to her, too busy changing the subject.

ROLAND
Heather's getting married in a couple of months, so.

Marianne stops blubbering.

MARIANNE
The PE teacher?

ROLAND
What's that?

MARIANNE
He was a, he was a PE teacher, wasn't he?

ROLAND
Right, no. They called it a day. New bloke's a something-or-other for the DVLA.

MARIANNE
Wow.

ROLAND
I've been ordered to sort out my two left feet or else. How about you?

MARIANNE
Similar, really. Wedding.

ROLAND
Your own or-

MARIANNE
No, God, can you imagine. I'm being a very diligent bridesmaid. We're having some kind of mass Viennese waltz. I'm not sure I fully understand it as yet.

The instructor approaches them. Fixes their posture: closer, closer, and closer they get.

<A waltz starts playing>

ROLAND
So is this your first? Lesson.

MARIANNE
No, second. You?

ROLAND
First, yeah.

MARIANNE
Well done on the comfortable trouser front. I came straight from work last week. Crotch was like a fucking furnace by the time I got home.

The closeness turns into an embrace. The image starts flickering, dimmer, and dimmer.

Beat.

ROLAND
Mary, I'm sorry.

CUT TO

4. INT. DREAMY BALLROOM - DAY 4.

The image comes into focus. The actions happens with some jumpcuts.

<The class ends with a round of applause>

Roland and Marianne head to pick up their coats. They are the last ones.

MARIANNE
Well done on the comfortable trouser front. I came straight from work last week. Crotch was like a fucking inferno by the time I got home.

Beat.

MARIANNE (CONT'D)
Roland, I'm sorry.

<Static starts to be heard>

Roland smiles at her, kisses her hand.

The image blurs.

ROLAND
What for?

CUT TO:

5. INT. TERRACE BALLROOM - DAY 5.

The image comes into focus again. The couple sits in a couple of nearby chairs as the class continues. Marianne massages Rolands hurt foot.

MARIANNE
Well done on the comfortable trouser front. I came straight from work last week. Crotch was like a fucking sauna by the time I got home.

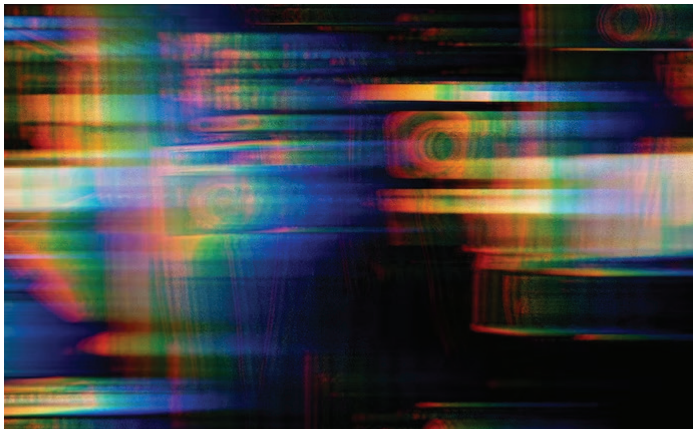
Beat.

MARIANNE (CONT'D)
I have to say it because if I don't I'll feel like a fraud.

ROLAND
Mary-

<The image flickers and the voice of Marianne sounds more and more distorted. Robotic>

MARIANNE
Let's go for a drink. I don't know what I'm doing here anyway. One drink.
(MORE)



MARIANNE (CONT'D)
And if you never want to see me again you never have to see me again.

CUT TO:

6. INT. THEATER BALLROOM - DAY 6.

The couple are still embracing as they waltz.

ROLAND
Mary-

MARIANNE
Why don't we go for a drink? I don't know what I'm doing here anyway. One drink. And if you never want to see me again you never have to see me again.

CUT TO:

7. INT. TERRACE BALLROOM - DAY 7.

Roland attempts to stand up.

ROLAND
Mary-

Mary touches him and he stops.

MARIANNE
One drink. And if you never want to see me again you never have to see me again.

CUT TO

8. INT. DREAMY BALLROOM - DAY 8.

VIEWER POV: The camera with an eyeline of 1.60 m from the ground. We are inches away from the couple.

LEFT: We see Roland, hesitant.

RIGHT: We see Marianne, looking determined.

They are so close but still apart.

ROLAND
Mary-

<Marianne's voice is echoey, dream-like>

MARIANNE
And if you never want to see me again you never have to see me again.

CUT TO BLACK

END OF ACT II

4. *Magical Girl Factory* VR play

Link to 360° Video for Scene 3

https://rebrand.ly/MagicalGirlFactoryIntro2022

Link to Videos for Scene 6

https://drive.google.com/drive/folders/1ZVKDgMwedWq74nv8JgIyWCNXbMR4HzKP?usp=sharing

Magical Girl Factory

Theme

The industrialization of influencers (also known as Internet celebrities).

Storyline

The transformation of industry is observed across four rooms, which details how it changed from being based on product manufacturing by people, to the same workers becoming the product.

Synopsis

Split across four rooms, preferably in a former factory, the performance takes the viewer through four rooms which describes the fall of the raw materials industry, how TikTok has become a prevalent idea and product promotion tool, the rise of influencers, and the human factor that supports this new era of industry.

Treatment

Before entering, the audience is given some rules: The doors for each section will open after ten minutes, they can put on the headsets and headphones by themselves, as the video will play automatically, they are encouraged to move around in the last room but must exit once the door opens.

Room 1 - Reception

In groups of 5, the audience walks into a reception room in which they put on a headset. The headset plays out an immersive video of a former factory as a narrator describes the role factories played in the growth of a city.

Room 2 - Gallery

The group moves on into a gallery full of images of influencer posts, in 5 mobile phones they watch a playlist of "influencers" selling different ideas or products. The influencers use the following filters:

-SheHulk

-Red Dress

-Robot Beach Walk

-Gender Swap Filter

-Glow Makeup Filter

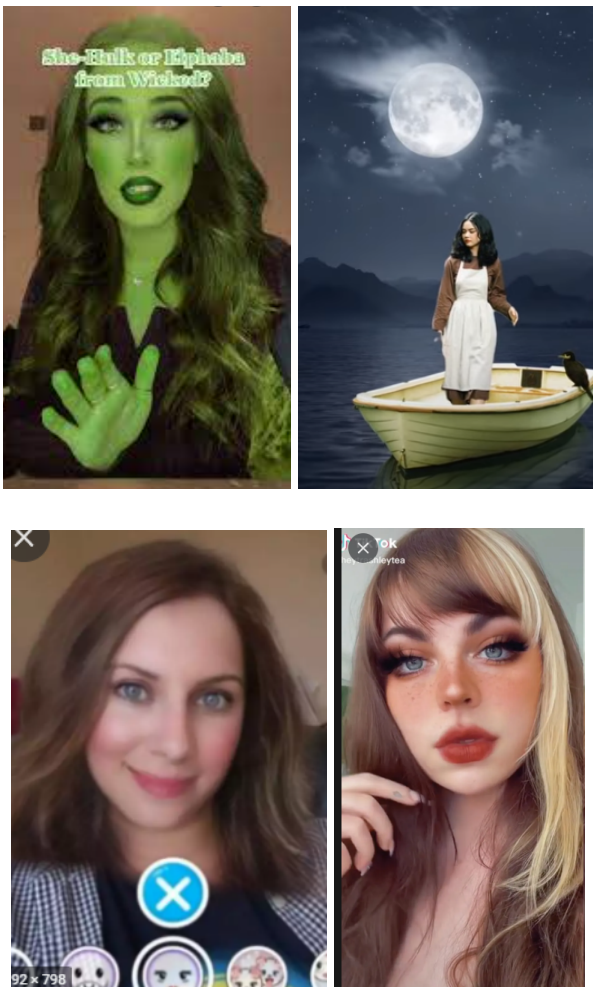


Figure 5. Augmented reality filters for the performance (from left to right): She-Hulk, Boat Filter, Gender Swap, Glow Makeup.

Room 3

A performer shows the audience how they can set up their own home studio in less than 10 minutes, including how to mic themselves.

Room 4

The audience walks around a factory room with five performers recording the videos watched in the second room, it is important to note they do not look anything like in the videos. The door opens and the audience exits the experience.

Step Outline

1. EXT. RECEPTION - IRL

Before entering, the audience is given some rules by the FACILITATOR:
The audience exits left through a door that opens up to the:

2. INT. LOCKER ROOM - IRL

Room 1 - Locker room

In groups of 5, the audience walks into a reception room in which they put on a headset.

CONTINUES IN VR:

3. INT: OLD FACTORY - VR - CONTINUED

An immersive video of a former factory. A NARRATOR describes the role factories played in the growth of a city.

4. INT. REPURPOSED FACTORY FLOOR - DAY

The Narrator continues describing how abandoned factories are getting new lives.

CONTINUES IN IRL:

4. INT. LOCKER ROOM - IRL
The video ends and the audience exits to the:

5. INT. GALLERY - IRL

The group moves on into a gallery full of images of influencer posts. There is a table with 5 mobile phones with headphones.

CONTINUES ON MOBILE:

6. MONTAGE - MOBILE SCREEN

The mobiles iterate videos of “influencers” selling different ideas or products. The influencers use the following AR filters:

-SheHulk

-Titanic Boat

-Gender Swap Filter

-Glow Makeup Filter

The audience can swap between the videos, which last 1:30 minutes each

CONTINUES IN IRL:

7. INT. GALLERY - IRL
The video ends and the audience exits to the:

8. INT. OFFICE - IRL

A SECOND FACILITATOR shows the audience how they can set up their own home studio in less than 10 minutes, including how to mic themselves.

After the presentation the audience exits to:

9. INT. FACTORY FLOOR - IRL

The audience walks around a factory room with five performers recording the videos watched in the second room, it is important to note they do not look anything like in the videos.

After two minutes, the door opens and the audience exits the experience.

MAGICAL GIRL FACTORY

Written by

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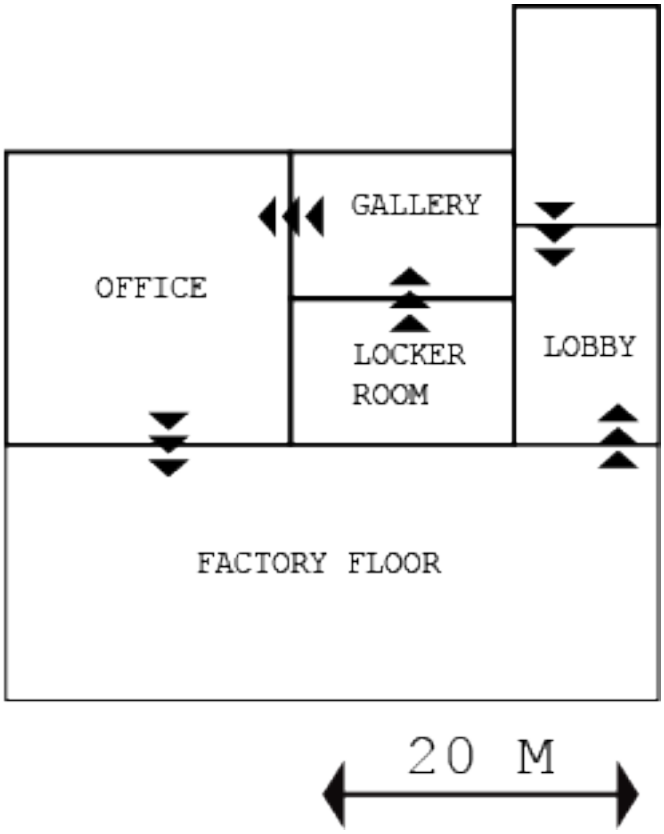
FLOORPLAN



1 EXT. LOBBY - IRL 1

The audience, in groups of five, enters the Lobby, located at the entrance of a former factory.

Enters FACILITATOR, wearing blue factory scrubs with their name embroidered on a tag. Her demeanor is a mixture of a flight attendant and an anthropomorphic android.

FACILITATOR
Welcome to the Magical Girl Factory! Before we enter the experience, I would like to give you some ground rules. This experience lasts around 40 minutes and is split across 4 rooms.
On each room you will see a timer to notify you went to enter the next space, which is marked by an arrow. The experience includes a section in which you can wear VR goggles and another one in which you can watch a video on a mobile phone.
The segments in those rooms will autoplay once you are comfortably seated with the devices.
Are you ready? Let's go.

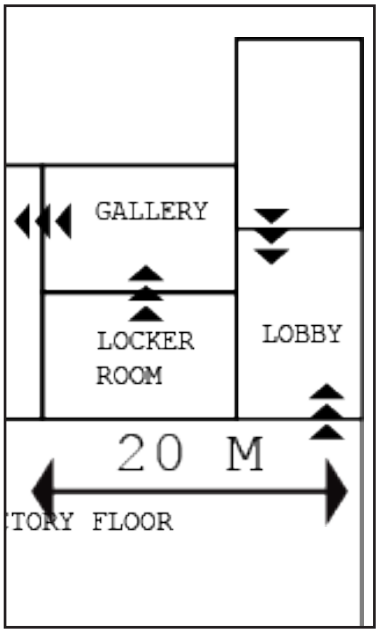
The audience exits left through a door that opens up to the:

2 INT. LOCKER ROOM - IRL 2

Room 1 - Reception

In groups of 5, the audience walks into an abandoned locker room.

There are rotating stools in the room, and each of them has a VR HEADSET placed on top.



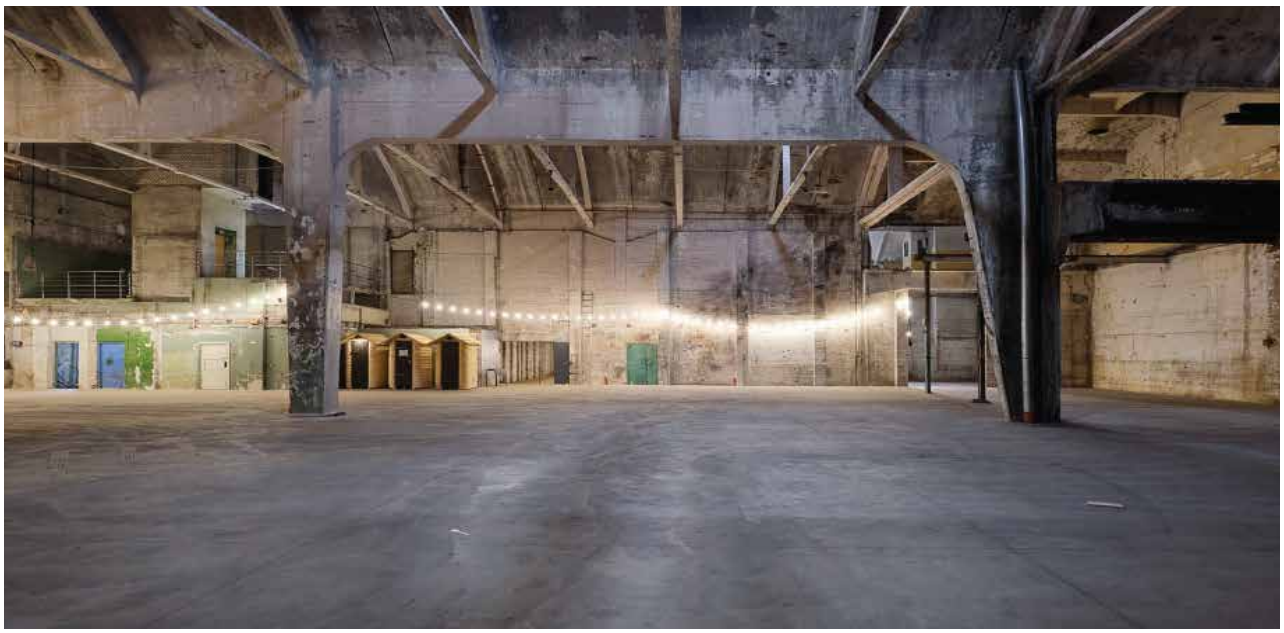
Each audience member puts their headset on.

CONTINUES IN VR:

3 INT. ABANDONED FACTORY FLOOR - DAY 3

The large factory is abandoned with sparse furniture around. There are sounds of a warehouse. Workers moving, whistles, sizzles, beeps. The lively soundscape contrasts with the liveless factory.

NARRATOR
(voice over)
I was born in Monterrey, a factory city, and I am one of the daughters of the factories. A *regia* on the four sides, daugther of the migrants who moved for Monterrey when *La Fundidora*, *La Vidriera* and *La Cerveceria* opened. Brands did not exist, only the names of the products. Production dominated your life. For a hundred years the whistle of the steel foundry, was the heartbeat of Monterrey. The whistle told the city when to wake up, when to have lunch, when to go home.
The factories brought the people and with the people came the colonies, the neigborhoods that were named after the factories: Glass Industries, one AND two, Brickmakers, Steel. Steel was so important.
With each generation, another colonia was built, another school with a factory name and its respective lot number opened.
(MORE)



NARRATOR (CONT'D)
My school was called Glass Industries, my generation was number three.
We didn't make it to the fourth. The foundry left and the transnationals arrived, the brands, the Made in Mexico. No more vacations in company cabins, subsidized pantries, going to swimming pools with logos at the entrance. People kept coming.
I was born too late for the glory days but still I was raised on the factory values of efficiency, delivery, loyalty. I was raised in the times of NAFTA, the *Merry Chrisis* and forced moves to find work. We eventually moved back to Monterrey when the telcos started coming. To be completely honest, I was not sad to see the old factories closed. I never wanted to work in a factory on the first place.

FADE TO:

4 INT. REPURPOSED FACTORY FLOOR - DAY 4

The factory floor is clean, the sound of the brewery can be heard although the space is empty. Although as sparse as the previous location, this factory is different as it still shows signs of life.

NARRATOR
(voice over)
Then came the renaissance. The Foundry is once again filled with life.
(MORE)

NARRATOR (CONT'D)
The old steel mill became a place full with museums, with wedding venues impossible to afford by the old workers.
The last time I went to *La Fundidora* was probably in 2019. Many like to go daily for a walk, to run, to watch movies, but for me that place is full of ghosts, of workers burned by the steel (they never told us how many there were, but as I remember there were six), of whistles that fell silent.
I blame my school trips for this, as we always visited factories to get a glimpse of what awaited us in the future. To this day certain smells: malt, chlorine, artificial pine, reminds me about factory work. Reminds me about a future that I lost.

CONTINUES IN IRL:

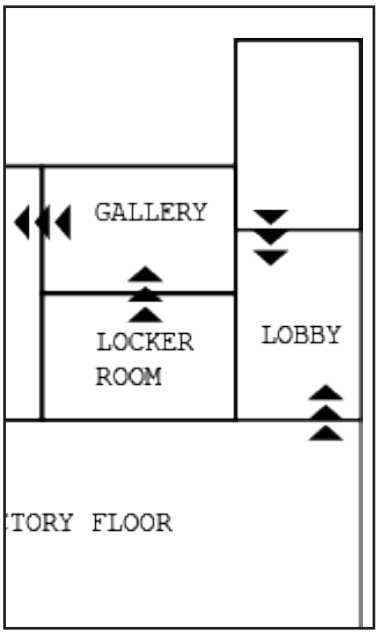
5 INT. LOCKER ROOM - IRL 5

The VR video ends and the audience exits to the:

6 INT. GALLERY - IRL 6

The group moves on into a gallery full of images of influencer posts. There is a table with 5 mobile phones with headphones.

CONTINUES ON MOBILE:



7 INT. GREEN SCREEN WITH BOAT FILTER - DAY 7

A LONE TIKTOKER stands in an animation of a boat filter over an instrumental version of “My Heart Will Go On”.

TITLE: “When you are the only holiday worker to come back to the sales floor after the holiday break.”

CONTINUES ON MOBILE:

8 INT.HALLWAY - DAY 8

An AMATEUR RAPPER raps inexpertly to the beat of “Can´t Touch This”

AMATEUR RAPPER
Once when I was younger, I had this friend. She was very pretty and her body was kind of hot, and she had an Instagram that was kind of blowing up.
I also had this brother, he was just 17. He was not so ugly, but not a popular teen. I knew he had a crush on this friend, so I asked her for a favor, to make his birthday extra special by going on a date together. She replied quickly: “If you pay me well, I’m totally in! Let’s do it on Wednesday or whenever it fits!”
I believed I was cool, I thought I was smart, but I was wrong. I really was.
I thought 100 euros was kind of a steep fee, but she had Instagram following, so I said, “Meh, this is how it is”
My brother’s birthday is here.
(MORE)

AMATEUR RAPPER (CONT'D)
I take him to the movies, and we "meet" my friend. I pretended to feel ill and left them there.
We went at six and hoped to see him back home at nine. He arrived until midnight with a big smile.
Years later, I found out, she punched his V-card that day. They did it in the backseat of her car at the shopping mall.
And this is how I hired an Instagram hooker for my teenage bro.
Break it down!

Amateur rapper breaks into dance.

CONTINUES ON MOBILE:

9 INT. SUNNY LIVINGROOM - DAY 9

KLARA, a young content creator, waves to the camera

KLARA
Hi! I'm Klara and I'm a full-time content creator. Here are five tips to start your own podcast.

CONTINUES ON MOBILE:

10 INT. SUNNY LIVINGROOM - MOMENTS LATER 10

Klara shows a small ringlight.

KLARA
(voice over)
Get a ringlight.
(MORE)

KLARA (CONT'D)
Having a ringlight can help you to make better videos. You can start with a small one and then move to a bigger one if needed.

5 Klara puts up a bigger ringlight. 5

KLARA (CONT'D)
(voice over)
Clean up your phone. Clean your phone lens, so your image appears as sharp as possible.

Klara opens a closes an airpods case.

Klara assembles a Zoom microphone, trying out different heads.

KLARA (CONT'D)
(voice over)
Invest in a microphone. You can get started using your airpods, but be in the lookout for professional microphones so your sound is crystal clear.

Klara stands in the living room. The lights go out. She walks to the window.

KLARA (CONT'D)
(voice over)
Be flexible. No lights, no problem. You can use natural light. In the same manner, adapt to the conditions as your learn to make better podcasts.

Klara stands in front of the living room

KLARA (CONT'D)
(voice over)
And finally, distribute everywhere. Don’t rely in a single app. You can publish your new podcast in Spotify, Apple, and YouTube using services like Anchor. Follow me for more.

CONTINUES ON MOBILE:

11 INT. OFFICE - DAY 11

DICK, a middle-aged manager with a cup of coffee, approaches JANE who is typing in a laptop.

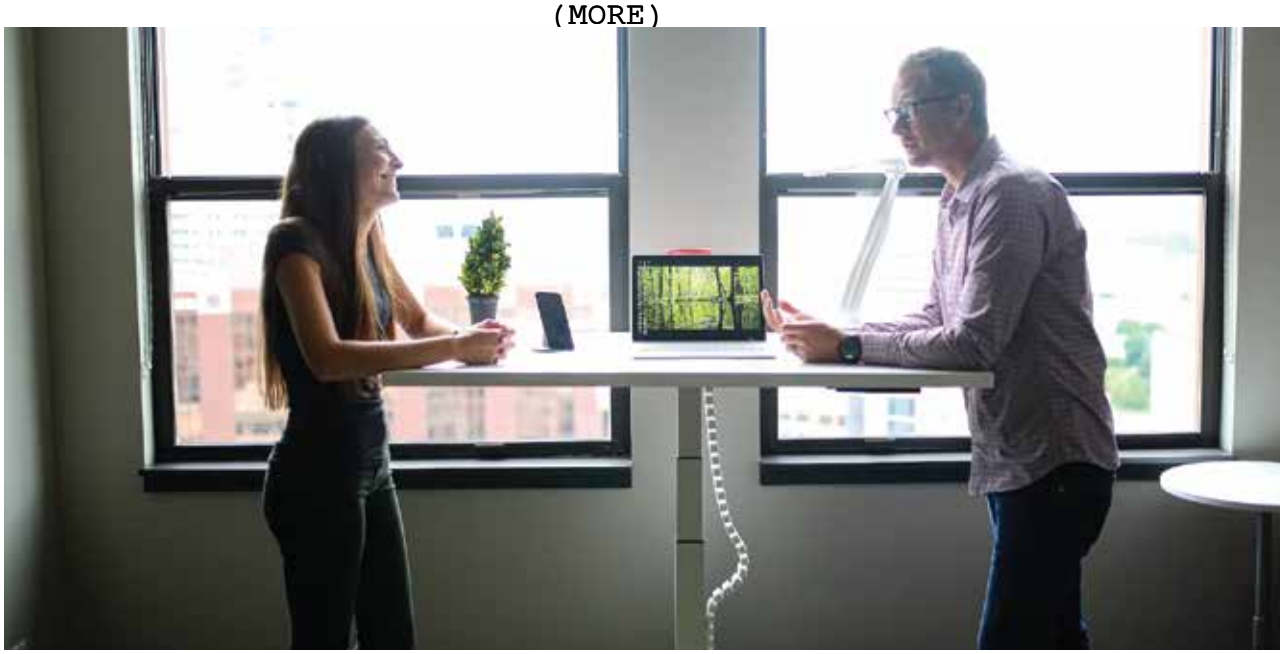
DICK
Hey Jane, have you heard of ChatGPT?

JANE
No, what is it?

DICK
It's a language model developed by OpenAI. It's pretty advanced and can understand and respond to natural language.

JANE
Wow, that's interesting. How long has AI been around?

DICK
The field of Artificial Intelligence has been around for a few decades now, but it really started to take off in the 1950s with the Dartmouth Conference.
(MORE)



DICK (CONT'D)
But it wasn't until recent years that AI has progressed to the point where we have models like ChatGPT.

JANE
I see. And what is ChatGPT used for?

DICK
It can be used for a variety of tasks, such as language translation, text summarization, and even writing creative content. It's used in a lot of chatbot applications, and also in some virtual assistants.

JANE
That's really impressive. Thanks for telling me about it, Dick.

DICK
No problem, happy to share my knowledge. After all, this dialogue was written using artificial intelligence.

CONTINUES ON MOBILE:

12 INT. LIVING ROOM - DAY 12

TIKTOKER drinks coffee nodding and smiling.

TITLE: “Getting my dream job as developer in FAMGA”

CONTINUES ON MOBILE:

13 INT. LIVING ROOM - DAY 13

Tiktoker lying facedown on floor.

TITLE: “Quits after burning out within a year”

CONTINUES ON
MOBILE:

14 INT. OFFICE - DAY 14

FEMALE ASSISTANT looks at her reflection on the mirror, with a coffee on her hand.

TITLE: “Feeling motivated, going to back to the office after two years of remote work.”

15 INT. OFFICE - MOMENTS LATER 15

The Female Assistant crosses the background wearing a hoodie and glasses but still holding the cup.

TITLE: “Searches for remote jobs during lunch.”

CONTINUES ON
MOBILE:

16 INT. LIVING ROOM - DAY 16

A MILLENNIAL TIKTOKER wearing a hoodie talks to the camera.

MILLENNIAL TIKTOKER
Everybody likes technology, everybody! It looks cool and it's good for the economy, buuut. There is always a but.
(MORE)

MILLENNIAL TIKTOKER (CONT'D)
Estonia is the most digitilized country in the planet and there are still buts here. Yes, we can go to the forest in Christmas, choose a tree so fresh there are still squirrels living in there, cut said tree and pay for the cut tree using our phones.

Amazing! Buuut, we don't have Amazon. Hope you like Jysk, because Amazon charges extra for sending shit and nobody has money for that.

CONTINUES ON MOBILE:

17 INT. ANIMATED VERSAILLES - DAY 17

The face of man appears over the shape of a woman running

Running down the stairs rushing

TITLE: “HOW BEING AN AMAZON WORKER FEELS LIKE”

CONTINUES ON MOBILE:

18 INT. LIVING ROOM - DAY 18

A woman talks straight to the camera.

WOMAN
Okay, I could look like a She-Hulk or a Witch with this filter.

19 INT. LIVING ROOM - SECONDS LATER 19

The same woman appears with a filter that colors her hair and skin green.

WOMAN
(In a raspy voice)
Huh, I look like my mom.

CONTINUES ON
MOBILE:

20 INT. CLOTHING STORE - DAY 20

In a tiny clothing store, set in a corner, a SALESGIRL opens up a box. Her tone is nervous, too servicial, almost desperate to please

SALESGIRL
Hi Sheri! Hi Ava! No I didn't close the live on purpose.
You know how this technology is.
No, you haven´t missed much.

She opens the package

SALESGIRL (CONT'D)
Just about to open the package.
As you know, HUMANA GIRL is about sharing the findings. Sharing is caring! Sharing is caring!
Be nice, and I will model the pieces, so you see what you get.
Ok, grab a seat, grab some tea, let's begin.
So some housekeeping first. We start the bid with one euro, with steps of fifty cents.
Just smash a comment with your bid, I will name you, then you're in.
(MORE)

SALESGIRL (CONT'D)
You can transfer on my bio link with your address, very very important.

She opens the package, is full of old clothes, still in hangers. All from the thriftshop.

SALESGIRL (CONT'D)
We have this dress, very basic.
Okay, I see you Nora. 1. For Nora.
Ok, Gwen. Two euros. Ok Gwen, do I hear two fifty?
Three, from Nora. Thanks girl!
Ok, three, anyone else?
Three, two,one. Nora it's yours.

Salesgirl takes a sweater out of the box.

SALESGIRL (CONT'D)
Ok, now for this sweater. Still tags on it girlies. No, doesn't have stains Liz. Okay one for Liz. Brand? HM, I would say this year. Basic line.
Okey. 1 for Liz. Two, three. Sold for 1 for Liz. That was a steal.

The Salesgirl gets out some leggings, she stretches them.

SALES GIRL
Ok, got some leggings. Velvet. Very soft. You can wear with boots, with skirts. Oh, yes! 1 for Allison. Ok Nora is moving with 2. Allison puts 2.50. Liz is going for 3. Ok. Allison again 3.50. Three-fifty one, two, three. Sold for 3.50.

Sales girl reaches the bottom of the bag. Some purses comes out.

SALESGIRL
Jill! Didn´t see you there! Yes! I have sent your package. You know how it is during the holidays. Is it freezing again? Is the sound cutting off?

CONTINUES ON MOBILE:

21 INT. LIVING ROOM - DAY 21

In a extreme close up, a TIKTOKER using a MINI MICROPHONE talks straight to the camera.

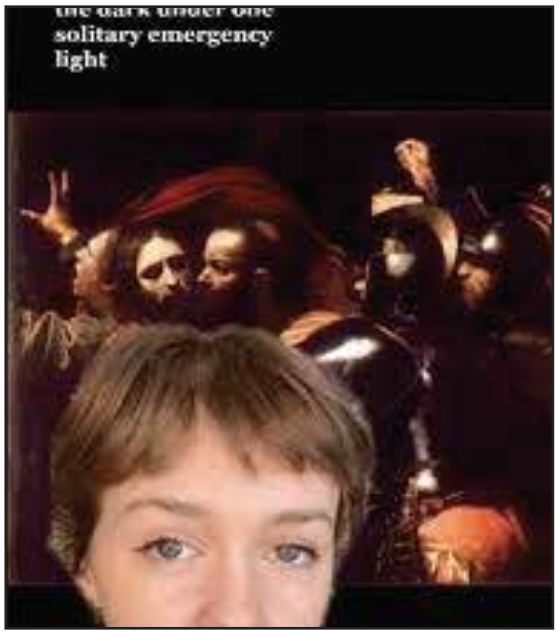
TIKTOKER
Stitch this with a historical fact so outrageous you cannot believe it happened. I will go first.

CUT TO:

22 INT. GREEN SCREEN - DAY 22

Over a projection of 20th Century factories, an ACADEMIC TIKTOKER gives a lecture.

ACADEMIC TIKTOKER
Up until the 1700s, most of the manufacturing was made at home. With the industrial revolution, machine-made products outpriced home goods. Factory workers usually lived close to their workplaces, until public transportation was created. This raised the number of people living in cities, who left the countryside looking for employment.



The images transition into videos of union fights in the early 1900s and the Triangle Factory fire.

ACADEMIC TIKTOKER (CONT'D)
Back then, it was common to work 12 hours per day, six days a week. Women and children's labour was common due to low incomes. Children worked in manufacturing, clothing, and even mining. The invention of automation and child protection laws ended this practice. The conditions of adult workers also improved thanks to the emergence of unions, safe workplace policies and legal regulations.

So everything is good? No.

The images transition into pictures of fast fashion factories.

ACADEMIC TIKTOKER (CONT'D)
Shein, a fashion company from China, plans to invest $15 million to improve working conditions at factories in its supply chain. But why?
Employees at one of their factories were working up to 13.5 hours per day, with only two to three days off per month. At another factory, staff was found working 12.5 hours days without a schedule of days off. So not much of a history but more of a current story.

CONTINUES IN IRL:

23 INT. GALLERY - IRL 23

The video ends and the audience exits to the:

24 INT. OFFICE - IRL 24

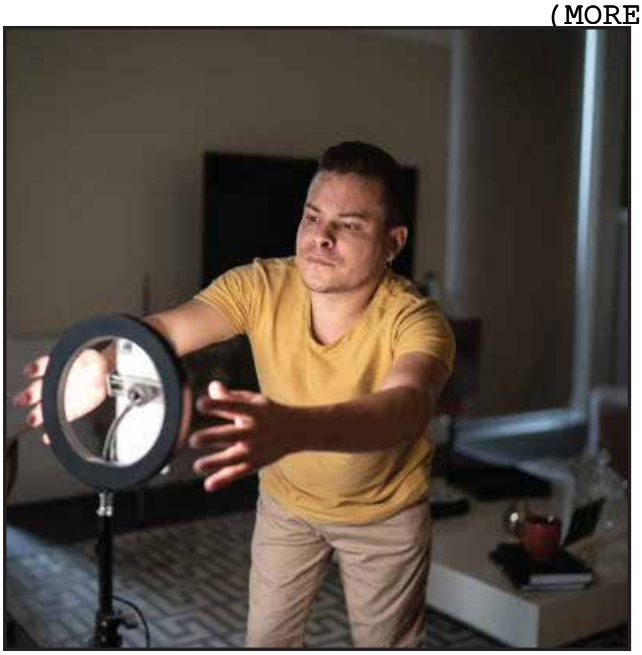
A SECOND FACILITATOR enters. She has the same demeanor as the first facilitator: robotic and overtly pleasant.

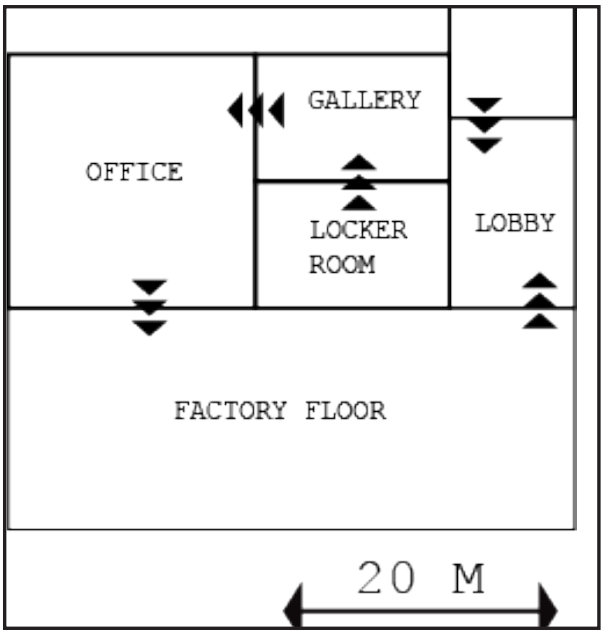
The Second Facilitator opens up a box and gets out a ringlight, which is not assembled, a microphone and a mobile phone.

SECOND FACILITATOR
Hi! Welcome to your training to join the team of Magical Factory Girl. We are the first influencer factory on this side of the world and we have great expectations on what you will be able to accomplish. Many have started their shopping channels with us, we have fitness trainers working as well, although we do not have the capacity to host cooking shows due to land regulations.

The Second Facilitator pulls the pole of the ring light to its full height.

SECOND FACILITATOR (CONT'D)
As you can see, we operate with the traditional equipment. Each of you will have your own light and mobile device. The ring light consists on a light and a pole. The pole has three adjustments and the legs are foldable. Please make sure to secure each adjustment as you adjust the height.
(MORE)





SECOND FACILITATOR (CONT'D)
Thank you for attending our free training. To finish our day, you will be able to see our happy factory members at work. Feel free to grab a contract at the end.

After the presentation the audience exits the room.

CONTINUES IN IRL:

25 INT. FACTORY FLOOR - IRL 25

The audience walks around a factory room with five PERFORMERS repeating the the dialogues of the videos watched in the second room.

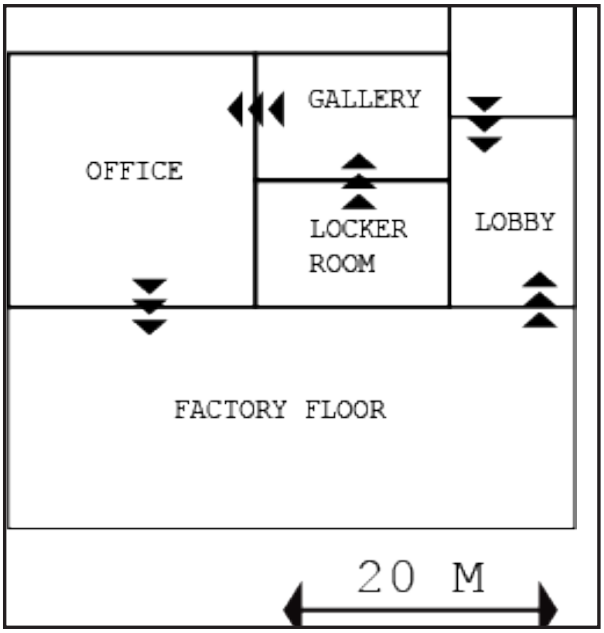
It is important to note that none of the performers look like the people they appeared on the videos.

It's a cacophony of sounds that repeat lines of the mobile videos watched before. The workers run around switching clothes to dress up and act each of the videos watched.

KLARA
You can get started using your airpods, but be in the lookout for professional microphones so your sound is crystal clear.

WOMAN
Okay, I could look like a She-Hulk or a Witch with this filter.

REAL ACADEMIC TIKTOKER
Back then, it was common to work 12 hours per day, six days a week.
(MORE)



REAL ACADEMIC TIKTOKER (CONT'D)
Women and children's labour was common due to low incomes.

DICK
The field of Artificial Intelligence has been around for a few decades now, but it really started to take off in the 1950s with the Dartmouth Conference.

MILLENNIAL TIKTOKER
Everybody likes technology, everybody! It looks cool and it's good for the economy, buuut.

SALESGIRL
Ok, got some leggings. Velvet. Very soft. You can wear with boots, with skirts. Oh, yes! 1 for Allison.

After a couple of minutes, the door opens and the audience exits the experience.

THE END

SECOND FACILITATOR (CONT'D)
The light has to be screwed in, but make sure to keep the electrical cable out of the way. The light can be used in normal white, which has three tones of white, and RGB.

The Second Facilitator turns on the ring light and adjusts the camera and sets up a mic.

SECOND FACILITATOR (CONT'D)
This ring light has a mobile attachment to put your phone. Please remember to put it on the right orientation so you can connect it to the electricity during lunch. The microphone is connected on the bottom, we do offer a wireless microphone at an additional cost per hour. Once you are set up, you can secure the phone on top, and then pick up the best light setting before logging in.

The Second Facilitator looks hesitantly at the audience, and pushes it back to a lower height. Less confident than before the Second Facilitator has to squat to be able to use the camera.

SECOND FACILITATOR (CONT'D)
I recommend using this height so you can be a bit more comfortable. Standing while streaming for six to eight hours can be so exhausting. We offer our streamers the choice to rent a chair by the hour.

The Second Facilitator jumps back to their feet.