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Realistic Engagement in Fictional Worlds:

What Virtual Reality Videogames Can Teach Immersive Theatre

Abstract: Immersive theatre relies on a dramaturgy based on the integration of the audience within its spatial frame of reference. By focusing on multisensoriality and the dissolution of the limits between the audience and the fictional representation, this form of theatre transforms its spectators into active participants. Inspired by this framework, we take as an object of interest the expansion of the use of virtual reality in theatre and in the performing arts. Because, if virtual reality seems to be an interesting avenue for immersive theatre, the medium has long been misunderstood as an illusion machine rather than as a legitimate tool to propose alternative fictional engagement. The risk of this mischaracterisation is hence that the medium returns to cinematic and passive experiences despite its interactive potential. We therefore propose that virtual reality videogames are the best way to grasp how fictional worlds can be apprehended in an embodied manner, whilst allowing their audience to participate in the development of its displays and events. We hence consider a new avenue for virtual reality theatre, that of focusing on three distinct aspects in order to provide its audience with dramaturgies adapted to the immersive theatre framework: natural embodiment, realistic engagement and playful fictional engagement.

Key words: virtual reality, videogames, theatre, scenography, performing arts, immersion, fiction.

Résumé : Le théâtre immersif repose sur une dramaturgie fondée sur l'intégration du public au sein de son cadre de référence spatial. En mettant l'accent sur la multisensorialité et la dissolution des frontières entre le public et la représentation fictionnelle, cette forme de théâtre transforme ses spectateurs en participants actifs. Inspirés par ce cadre théorique, nous nous intéressons ici à l'expansion de l'utilisation de la réalité virtuelle au théâtre et dans les arts du spectacle. En effet, si la réalité virtuelle semble constituer une voie intéressante pour le théâtre immersif, ce média a longtemps été mal compris, considéré comme une simple machine à illusions plutôt que comme un outil légitime permettant de proposer un engagement fictionnel alternatif. Le risque lié à cette perception erronée est ainsi que ce média revienne à des expériences cinématographiques et passives, malgré son potentiel

interactif. Nous proposons donc de considérer les jeux vidéo en réalité virtuelle comme le meilleur moyen de comprendre comment les mondes fictionnels peuvent être appréhendés de manière incarnée, tout en permettant à leur public de participer au déroulement de leurs représentations et de leurs événements. Nous considérons ainsi une nouvelle voie pour le théâtre en réalité virtuelle, consistant à se concentrer sur trois aspects distincts afin d'offrir à son public des dramaturgies adaptées au cadre du théâtre immersif : l'incarnation naturelle, l'engagement réaliste et l'engagement fictionnel ludique.

Mots clefs : réalité virtuelle, jeux vidéo, théâtre, scénographie, arts du spectacle, immersion, fiction.

1. Introduction

Whilst looking for an activity for the weekend, you have no doubt already come across a fair number of events that use the catchword ‘immersion’. Whether you want to go to the museum, explore an historical site, or attend a concert, this concept seems to be everywhere. The appeal is hardly surprising: who would not be drawn to the promise of being immersed in a world from head to toe and to discover new spaces that delight the senses and spark the imagination? The concept of immersion has thus been implemented in a lot of practices, whether to attract a new kind of audience, or to change fundamentally how an art form is perceived. Naturally, theatre and the performing arts have not been left out. Indeed, the pursuit of immersion in theatre reflects a desire to involve audiences more profoundly in the theatrical representation itself. More precisely, immersive theatre aims to break with the Italian-style theatrical tradition and to dissolve the two-dimensional or tableau-like scenes typical of more traditional and didactic forms of dramaturgy. It is therefore by incorporating the three-dimensional value of the surrounding space at its core, that immersive theatre integrates the spectator as a fundamental part of the dramaturgy itself. This change of perspective, to abandon the spectator’s limited role regarding the performance of actors on scene seems to be a deeper change related to the definition of scenography itself.

According to Freydefont “[t]he purpose of scenography is to create the place necessary and conducive to the performance of an action, the means to this end is the structuring of space and time¹”. A theatrical work can hence only exist if a structured space exists in a time and place specific to the dramaturgical unfolding of the performance. Scenography is therefore an art of space occupation: without the presence of actors and their performance, it ceases to exist to remain a real space devoid of fictional interest. In the case of immersive theatre, this art of space of occupation is transformed: rather than focusing on semiography, immersive theatre’s scenographies try to advocate for multisensoriality². Hence, by dissolving the traditional dissociation between the spectator and the representation, immersive scenographies advocate for a sensorial and embodied approaches to their work rather than focusing entirely on the communication of meaning to audiences.

¹ Marcel Freydefont, *Petit Traité de Scénographie: Représentation de Lieu, Lieu de Représentation*, ed. Maison de la culture de Loire-Atlantique (Maison de la culture de Loire-Atlantique : Joca seria, 2007) [my translation].

² Marcel Freydefont, ‘Les Contours d’un Théâtre Immersif (1990-2010)’, *Agôn. Revue Des Arts de La Scène* 3 (2010).

Yet, what is immersion and what does it have to do with theatre? Immersion is an experience of ‘self-displacement’, giving the impression of being in a specific time and place other than the physical reality. This phenomenon often occurs when one is deeply absorbed in an experience, whether it involves technology or an intense mental activity³. One can talk about immersion in theatre when the location is modified in order to provide a different experience than in traditional settings, when the scenography has been rethought, and when technology is integrated into the performance⁴. Catherine Bouko⁵, distinguishes four levels of immersion in immersive theatre. The first level corresponds to physical immersion: this means that the audience is physically integrated to the scene, which breaks the traditional barrier between the scene and the public characteristic of Italian dramaturgy. By breaking with the frontality of the representation, spectators become participants in the work, which in turn leads to “a real blurring of the boundaries between the stage and the auditorium⁶”. The second level concerns the sensorial and dramaturgical immersion, where the scenography immerses the audience by combining visual and sound effects, with a narrative structure and a dramaturgy that places them at the centre of the action. Finally, the third level corresponds to an entire immersive effect where one’s perception of spatio-temporal limits is blurred by the theatrical device.

A most interesting way of apprehending immersive theatre is to use virtual reality (VR) as both a medium and a way of fulfilling this promise of enveloping theatrical environments. By VR, we mean a technology that enables the creation of a computer-generated multimedia environment characterised by high levels of interaction and immersion. VR provides a real-time experience that directly engages the user’s body by enveloping them perceptually (to varying degrees depending on the device), allowing them to act and interact in a virtual environment (VE). While sensorily immersing users, the VE expands this feeling of absorption by responding to their actions/inputs in real time. The VR medium therefore responds to a technological aim to draw users into a new world that completely envelops

³ Sarvesh Agrawal et al., ‘Defining Immersion: Literature Review and Implications for Research on Audiovisual Experiences’, *Journal of the Audio Engineering Society* 68, no. 6 (2020): 404–17.

⁴ Marie Ballarini and Charles-Alexandre Delestage, ‘Analyse de l’Impact des Technologies de Réalité Virtuelle et Augmentée dans le Spectacle Vivant’ (report, PSL Université Paris Dauphine; Université Bordeaux Montaigne, 2024).

⁵ Catherine Bouko, ‘Vers Une Définition Du Théâtre Immersif’, *Figures de l’Art. Revue d’études Esthétiques* 26 (January 2014): 39.

⁶ *Ibid*: 41 [my translation].

them, and which drives them towards immediacy⁷. This is because the VR medium has arisen with the aspiration of an increased perhaps supreme realism. In fact, the formulation ‘virtual reality’ itself “is often taken to mean that the medium reaches or aspires to reaching a level of depictive sophistication where what is depicted might be treated as if it were real⁸”. By ‘realism’ we do not mean the ontological nor the metaphysical claim that the virtual object X one is interacting with, is a real X. The following analysis remains deliberately agnostic with respect to these ontological questions. We shall rather claim that VR’s intended realism aims at providing the experience that the object X, or the experience X, looks or feels like a real X.

As we already know, immersive theatre aims at integrating more thoroughly the spectator’s body into the representation, in order to defy the limited relationship between the audience and the representation. At first glance, VR seems to be a relevant candidate to explore the tenets of this new relationship and even complete Catherine Bouko’s third level of theatrical immersion. Yet, if not used correctly, the very principle of immersive theatre could be erased behind the technology. This means that, if VR is only seen as the end of the representation, it’s very realistic potential could come to be hindered, or worse, suppressed. This paper argues that the use of VR in immersive theatre is a promising way of confronting audiences with fictional contexts while engaging their bodies in ways incomparable with other forms of immersive media. Indeed, the cultural expansion of the VR medium these last few years surely has further challenged the rise of immersive theatre, by providing a new way of subverting theatrical conventions. Yet while this new medium has gained popularity and has been extensively used these past few years, it seems that the use and comprehension of VR itself has been quite restricted. Indeed, many have hypothesised that the use of VR in theatre enters in conflict with the very narrative purpose of dramaturgy⁹, or even that immersion taken to its paroxysm could lead to a loss of meaning for the audience¹⁰. Undoubtedly, this seeming limitation has to do with the most prominent application of VR: videogames. While the VR medium is not restricted to this artistic application¹¹ it seems that the technology itself invites its users to ‘play’ with its displays due to its immersive and

⁷ Marcello Vitali-Rosati, *S’orienter dans le virtuel*, Cultures numériques (Hermann, 2012).

⁸ Grant Tavinor, *The Aesthetics of Virtual Reality*, Routledge Research in Aesthetics (Routledge, 2022).

⁹ Milena Mogica-Bossard, ‘Le théâtre «immersif»: l’expérience du spectateur est-elle une forme d’expérimentation?’, Billet, *Représenter/Expérimenter*, 9 June 2014.

¹⁰ Liviu Dospinescu, ‘Effet de Présence et Non-Représentation Dans Le Théâtre Contemporain’, *Tangence*, no. 88 (2008): 45–61.

¹¹ This paper takes for granted the idea that videogames are art, though this view is not consensual. See e.g. Grant Tavinor, *The Art of Videogames*, New Directions in Aesthetics 10 (Wiley-Blackwell, 2009).

interactive nature. By absorbing its users at the epicentre of its representation, VR could only be understood as a medium primarily associated with entertainment and play, rather than as a vehicle for the critical, and aesthetic functions traditionally attributed to theatre. In order to avoid being compared to videogames, VR's use in the performing arts has thus been confined to cinematic and highly immersive ways of watching performances, rather than integrating more thoroughly the audience into its representations. The result is this: VR is only used as an illusion machine, capable of replacing the view of the physical world by a realistic simulation, but rarely as a way of making audiences participate in large fields of embodied experiences.

This narrow conception seems insufficient for understanding the full potential of VR. Indeed, we believe that not only is VR an appropriate medium for immersive theatre, but also that denying its ludic character goes against its characteristic features. Using VR in a theatrical context comes at a cost, not because it is not suited for other contexts than videogames, but on the contrary because one needs to acknowledge its specific way of encountering the real and the fictional to make use of its realistic potential. This paper thus argues that understanding and using VR in dramaturgy needs to pass by an analysis of its most expansive use: videogames. How can players' relationships with VR videogames inform us about the medium's potential, and the connection between fictional involvement with a representation and the physical engagement inherent in its use? How can an examination of VR's potential in videogames inform its possible application to immersive theatre?

This paper proceeds as follows: in section 2, we provide a small analysis on how fiction and reality are articulated in immersive theatre and further argue that it is through an indeterminacy between fictional and physical space that any immersive performance can emerge. We further contrast this framework with three examples of VR used in theatre and the performing arts and conclude that their development comes to negate the very theoretical structure of immersive theatre. In section 3, we propose an alternative way of apprehending the relationship between audience and the medium by proposing VR videogames as a solutional framework. We argue that VR videogames provide concrete tools to their users to realistically apprehend the fictional elements of the game. In section 4, we return to our primary issue and defend the idea that dramatists should encourage the use of VR videogames' codes to their works. We hence consider a new avenue for VR theatre, that of focusing on three distinct aspects in order to provide its audience with dramaturgies adapted

to the immersive theatre framework: natural embodiment, realistic engagement and playful fictional engagement.

2. Immersive theatre and the limited uses of the VR medium

2.1. Fiction and reality in immersive theatre

A fiction is a representation (i.e. something that represents states of affairs) which portray worlds which do not claim to exist within the ordinary order of reality. While every representation is not fictional, a fiction always stems from an author's intention to elicit imaginative attitudes on the receiver's behalf¹². In a nutshell, imagination is a psychological ability to represent content without being committed to their presence to the sense, nor to their actuality. In the case of fiction for instance, one imagines the fictional content in order to take the perspective of characters, or to represent non-actual worlds. Theatre plays traditionally involve fictions and reveal fictional worlds to their audience. Yet, unlike literature or cinema, a theatrical experience involves a connection between fiction and reality that is particularly salient compared to other forms of fictional engagement. When reading a novel for instance, the reader must imagine the actions performed by the main character in their mind because the very actions are not literally represented on paper. On the contrary, during a theatre experience, imagination is otherwise linked to the physical actions of the actor on scene. While the actor's performance still relies on a theatrical text, the enactment of the fiction is done through actual and veridical actions, aimed at bringing about the fiction in physical world settings. Thanks to the actor's mediation, spectators can engage imaginatively towards their performance rather than to the theatrical text itself. The fiction is hence embodied immediately in front of the spectator's eyes. Even in traditional theatre, we can observe a very strong link between the audience's engagement with the fiction and imagination, and the physical reality in which this engagement occurs. For instance, when watching Shakespeare's *Hamlet*, the spectator simultaneously sees Laertes' poisoned sword kill the fictional character of Hamlet and pass through the actor's flank as part of the staged illusion.

Immersive theatre thus makes perdure this double stance spectators bring about, but this strong link between fiction and reality becomes even more prominent as spectators move

¹² See e.g., Gregory Currie, *The Nature of Fiction* (Cambridge University Press, 1990); Peter Lamarque and Stein Haugom Olsen, *Truth, Fiction, and Literature: A Philosophical Perspective* (Clarendon Press, 1996); David Davies, *Aesthetics and Literature*, Continuum Aesthetics (Continuum, 2007).

from passive reception to active participation. Since immersive theatre is a theatre of space, its aim is to dissolve the distinction, characteristic of traditional theatre, between the pragmatic location of the performance and the fictional space¹³. This strong alignment between fictional worlds and real settings is what gives rise to the immersive theatre, where new spaces are created and invested. If in traditional theatre, the audience could discern the real from the fictional easily, the use of increasingly hybrid spaces, characterised by the viewer's immersion in the system, tends to blur the boundary between fiction and reality. The audience then engages in oscillating movements, sometimes viewing the performance as real, sometimes as fictional, which, according to Freydefont, gives rise to utopias. On this behalf, a utopia refers to the creation of a place that lies beyond what we know, a constructed environment that temporarily reconfigures perception, allowing spectators to inhabit alternative modes of experience within the real world. By creating utopian spaces, immersive theatre does not so much seek to make the performance seem real, but rather to make it all the more unstable. Through the reconfiguration of theatrical space and the incorporation of the audience into the performance as both spectators and actors, immersive theatre destabilises conventional sensory perception and reorients the dramaturgy around the spectator, who becomes its central point of reference.

Is VR able to transcribe this indeterminacy? Indeed, when using a VR headset, users are able to experience the fiction from within, as if they were there, and the interplay between reality and fiction is even more enhanced. Many dramatists have therefore sought to use VR as a means of providing an alternative form of mediation for immersive theatre.

2.2. VR theatre and the problem of the body

What interest is there for dramatists to integrate VR in their productions? As we have understood, the aim of immersive theatre is to engage spectators in new dimensions of reality, in utopias directed towards the goal of blurring the distinction between fictional and real worlds. VR seems indeed to fulfil this requirement: by immersing users in virtual worlds through the multisensory integration of their bodies, it can certainly provide a new way of apprehending fictional spaces and performances. In the following, we shall give three examples of performances of theatre plays which used VR as the means to the apprehension

¹³ Freydefont, 'Les Contours d'un Théâtre Immersif (1990-2010)': 3.

of their work: first VR as an alternative perceptual mode of apprehension of the work, second, as a way of putting the spectator in the main character's shoes, and finally, as a way of giving them limited power to change the work's display.

In 2023, the choreographer Vincent Dupont and the digital artist Charles Ayats collaborated in order to create the work *No Reality Now*, a choreographed performative piece that seeks to explore the boundary between reality and virtuality¹⁴. While three dancers are performing live on stage, the stage design arrangement invites the audience to choose between two ways of watching: they can either observe the real dancers on stage or watch a virtual counterpart of their performance through a VR headset. A completely different scene unfolds inside the headset. Designed in advance, it recreates the choreography as a 3D animation set in a surreal and frightening environment, giving the live performance a whole new dimension. In this case, the VR medium is used as an alternative mode of perception: it changes *how* spectators perceive the choreography, not *what* the performance fundamentally is. Whilst keeping the audience separated from the events unfolding before their eyes, this VR performance remains attached to traditional and non-immersive theatrical events, yet the use of VR gives the audience a form of agency: they get to choose how they attend the work.

The immersive play *Les Falaises de V.* released in 2018, marks a paradigm shift in the use of VR in theatre: rather than using it as an alternative way of experiencing the work, it is used as the very means to the end of the performance¹⁵. In this piece, the theatre director and filmmaker Laurent Bazin invites the audience to lay down in a camp bed in a white unadorned room and to put on a headset to experience the play. Set in a fictional dystopian world where the government agrees to pardon criminals in exchange for a part of their body, the player takes on the role of a prisoner. In this work, the audience is reduced to an instance of perception: they cannot interact with the play that unfold before their eyes, but they get to witness the theatre piece just as if they were there. According to some, the imposed subjective narrative can seem aggressive, as it leaves the viewer no room for manoeuvre, and can create a feeling of being trapped in a fictional world one has not chosen¹⁶. In such immersive play, the VR medium is not an optional interface but the condition of possibility for the theatrical event. Yet since the spectator is assigned a fixed role without any possibility for them to

¹⁴ See, <https://vincentdupont.org/portfolios/no-reality-now/>

¹⁵ See, <https://archives.gaite-lyrique.net/evenement/les-falaises-de-v>

¹⁶ Julie Valero, 'Intégrer les technologies immersives à la scène contemporaine : quelles voies dramaturgiques ?', *Recherches & Travaux*, no. 100 (October 2022): 100.

interfere with the events unfolding before their eyes, a paradox emerges: that of being immersed in a fiction that appears real, while remaining unable to act within it. In *Les Falaises de V.*, embodiment does not translate into agency, simply into paralysed spectatorship.

Finally, *Alix Wonderland* is an immersive reading experience, created by the Or Normes collective¹⁷. The fiction here is presented as a journey through the world of Lewis Carroll's novel *Alice in Wonderland*. The spectator, seated on a chair, finds themselves immersed in a world filled with words, which symbolise their journey through the story. Here, the spectator's movements within the room follow a predefined path; once again, they can only engage with the story by observing their surroundings through the VR headset. This time, the performance invites the audience to choose which path to take in order to visit either the Mad Hatter or the March Hare. This choice breaks with the passive reception of the immersive experience, giving the viewer a sense of participation, however slight. Nevertheless, while this seeming interactivity could reveal itself to be fruitful for the audience's engagement, individuals could report a lack of involvement within the narratives. Indeed, the spectator is not invited to inhabit the fictional world through continuous embodied action, but merely to select between predetermined narrative outcomes.

While the three examples do not represent the entire use of VR in immersive theatre, we believe that they can at least give us a small overview of the challenges that dramatists face when they want to incorporate VR into their creations. They show that, when using VR, artists seem to leave behind the interactive potential of the medium in order to sustain linear narratives. They only employ VR chiefly as a viewing device, thereby preserving the audience's traditional position as spectators rather than as participants. Ultimately, we would tend to classify these examples as cinematic experiences rather than as immersive theatre *per se*. Indeed, even if the audience is provided with alternative ways of apprehending fictional worlds, their embodied presence is marginalised, and their involvement in the performance is ultimately limited.

How can one use VR, not simply as an intermediary between the virtual and the physical, but as the very means to the end of a performance? How can one make the audience feel like they exist within the fictional world, without making them feel completely trapped in a

¹⁷ See, <https://collectifnormes.fr/spectaclescollectifnormes/l-i-l-i-alix-wonderlands/>

fictional role that they did not choose? And finally, how can dramatists strike the right balance between narrative and sensory immersion to provide a variety of experiences that do not appear passive? At first glance, there exists an artistic genre that overcomes all these limitations: VR videogames. Yet they are not theatrical experience. Perhaps, rather than sidestepping the interactive potential of VR, which is often associated with videogames, out of a fear that playfulness is incompatible with narratives, we should tip the balance the other way. What can virtual reality videogames teach us about VR's potential, and how can this potential be harnessed to create a new form of storytelling?

3. The user's body in VR videogames: realistic engagement in fictional worlds

How do VR gamers engage with the videogames' narratives and fictional worlds? Does an embodied form of fictional engagement exist, and if so, how might it inform our understanding of the potential of VR as a medium for theatre and the performing arts? In this section, we provide a brief overview of the embodied experience of VR videogames, and how players engage realistically with the narratives presented to them. As mentioned before, by realistic experience we refer to the experience that an X feels or looks like a real X. We shall define VR videogames along three intertwined phenomena: (i) virtual embodiment, (ii) realistic engagement, and (iii) fictional participation.

3.1. Virtual embodiment

Engagement with VR videogames begins with the player's embodiment in a virtual avatar, through which interaction with the virtual environment (VE) is mediated. An avatar is an interactive digital representation of a user and is either predefined by developers or customised by users¹⁸. VR involves a first-person point of view and hence implies the direct embodiment of the player in the virtual avatar. This means that the player occupies a direct and objective presence in the VE, and that the virtual body must be an invisible continuation of the physical body itself. In VR, it is the player who truly acts on the VE by mapping their

¹⁸ Yuxuan Qi et al., 'The Avatar-Prioritization Effect Among Online Gamers: A Perspective From Self-Avatar Identity Relevance', *Journal of Applied Research in Memory and Cognition* 13 (January 2023): 71–81.

bodily movements to those of their avatar. The visual substitution of one's biological body with the avatar's virtual body parts through the HMD is a paradigmatic example of how VR achieves prosthetic embodiment by approximating the structure of natural embodiment, while remaining fundamentally artificial. When we talk about natural embodiment, we mean that players will treat the virtual body in similar ways as they would do with their biological body.

In order for one to feel naturally embodied in an avatar, game designers rely on the transformation and extension of one's biological sense of embodiment (SoE). Konstantina Kiltene and her colleagues define this feeling as follows: "SoE toward a body B is the sense that emerges when B's properties are processed as if they were the properties of one's own biological body¹⁹". Hence, for one to be embodied in an avatar, one needs to process its virtual body parts just as if they were their own biological body parts. According to Kiltene et al., the properties of the biological body can be understood through three fundamental dimensions of biological embodiment: self-location, the sense of agency and the sense of body ownership.

First, self-location defines a determinate volume within a spatial frame of reference where one feels to be located. It is the process by which perception places the perceiver in the perceived world by representing external objects as spatially located with respect to the subject. It is therefore highly determined by one's visuo-spatial perspective and the first-person perspective in which one's viewpoint departs in normal settings. Second, the sense of agency is the subjective feeling one gets when one feels like they have control over their body. This sense has been proposed to result from a comparison between the predicted sensory consequences of one's action (e.g., if I knock this glass over, it will fall) and the actual consequences of them (e.g., the glass falling). When the predicted consequences of the action and their actual consequences match, one feels oneself to be the agent of those actions (e.g., I made the glass fall). Finally, the sense of body ownership is a pre-reflexive sense where one's body (or particular parts) is experienced as one's own. It is not a conceptual judgement, but an immediate, embodied form of awareness, grounded in the integration of proprioceptive signals. Usually, one feels a sense of ownership towards one's body when the seen and felt movement of a limb correspond, or when the limb is anatomically plausible.

¹⁹ Konstantina Kiltene et al., 'The Sense of Embodiment in Virtual Reality', *Presence Teleoperators & Virtual Environments* 21 (2012): 375.

The SoE is thus the synthesis of these three senses and can be experienced on a scale from none to full degrees (which corresponds to the sense one gets towards one's biological body in normal settings). The process of natural embodiment proper to VR videogames therefore rests on the extension of this SoE towards the avatar. If one feels minimally self-located within the VE, feels minimally that the virtual body responds to their motor actions, and feels minimally that the virtual body is theirs, then one can feel a SoE towards a virtual avatar. Nonetheless, feeling a SoE towards a virtual body is contingent upon certain conditions. Indeed, in order to make players feel embodied in their avatar, VR videogames both rely on the medium's technological potential, and on visual representation. By combining immersive visual displays with low-latency motion tracking, VR enables the user's physical body to be visually substituted by a virtual avatar whose movements closely mirror those of the user. This real-time sensorimotor correspondence ensures that actions performed in the physical world are immediately reflected in the virtual body, allowing users to experience the VE as though they were perceiving and acting from within it. Nevertheless, this technological potential, inherent to any VR display is enhanced in VR videogames when the visual representation of the avatar is sufficient for players to truly feel embodied within them.

To make this explanation clearer, let us distinguish three types of avatarial representations, each of them enabling different extent and levels of embodiments to players. First, avatars can be represented as mere tools, which suggest the user's physical presence, without any anthropomorphic representation to manipulate them. Second, we can talk about 'partial avatars' when the VR videogame presents an avatar's body that is only partially represented. It can be hands alone, or dislocated body parts. This leads to an embodiment that is functional rather than mimetic, since body parts are used as instruments to interact with the VE. Finally, full-body avatars provide in a subjective view, a whole, continuous body (head excluded), articulated in a coherent manner and synchronised with the player's movements. This body is given as a total virtual body that aims at replacing one's biological body within the VE. Each of these virtual representations can provide players with alternative forms of embodiment. In turn, when the technological realism of the VR system and the avatarial representation jointly establish a perceived continuity between intention, action, and sensory feedback, the conditions necessary for embodiment are fulfilled. Of course, the quality and 'natural' feeling of embodiment players will experience is conditioned to the complexity and smooth

continuation of the avatar. A player will be more embodied in a full-body avatar than in tools, though a minimal SoE can be experienced in such case. What is most important to remember here is that by making use of the technological character of the VR medium, VR videogames allow their players to extend their SoE to avatars, which in turn enables them to properly interact and play with the videogame's display.

3.2. Realistic engagement

Once players feel naturally embodied in their avatar, it follows that their attitudes towards the virtual events and objects should be closer to the way they interact with the physical world. Indeed, once they obtain an objective presence in the VE, and can synchronise both their physical and virtual bodily movements, the virtual world can be navigated realistically. This close to real world apprehension of their surroundings is hence reflected in the fact that players can perceive virtual affordances.

The concept of 'affordance' has been proposed by James J. Gibson to translate for animals' capacity to guide their behaviours by actively perceiving what the environment can offer to them in terms of potentiality for action²⁰. Affordances are thus understood as the correspondence between a structure in one's environment and one's ability to act upon it. Indeed, to perceive an affordance is to be able to access exteroceptive information about the environment and proprioceptive information about one's own body²¹. From this perspective, if players experience their avatar as an extension of their own body, then the affordances offered by the VE are no longer interpreted as purely symbolic game mechanics, but as actionable possibilities for action and plausible interactions. The very specificity of VR videogames is that they allow for both exploratory and performative actions. VR gamers are able to perform exploratory actions because the videogame usually offers the possibility to perceive virtual objects and truly search for new information with the visual information available. If programmed efficiently, a VR videogame will allow players to experience the sensation of perceiving and searching for visual information, provided they perform the appropriate movements²². Second, VR videogames allow for performative actions, which means that

²⁰ James J. Gibson, *The Ecological Approach to Visual Perception* (Houghton Mifflin, 1979).

²¹ Edward Baggs et al., 'The Visual Information Available in Virtual Reality', *Ecological Psychology*, 36, no. 1 (2024): 33.

²² Baggs et al., 'The Visual Information Available in Virtual Reality'.

through their exploration of the VE, they can truly act in a meaningful way upon the virtual objects presented to them. Take for instance the VR videogame *Bonelab*²³ which relies entirely on its realistic physics and advanced interaction system. Every object can be picked up, every surface climbed, and every element of the environment used to test the game's mechanics. When interacting with objects, the system also includes a sensation of weight, programmed to reduce stereotypical and unnatural interaction. Players therefore truly perceive virtual affordances in this game, as they can interact with and explore almost all the components of the VE. But the system need not to be this advanced: provided players can perceive and interact with virtual objects in similar ways as in the physical world (e.g. crouching to pick up an object), they are said to perceive affordances.

Once players are embodied in an avatar, and can interact with the videogame's affordances, a subjective sense of presence (SoP) can rise, allowing users to consider the VE as a plausible and actionable space. Feeling a SoP deeply contributes to what we call the 'realistic engagement' of players as it encourages them to treat the VE and its fictional events with a heightened degree of seriousness and attentional investment. Hence, the notion of presence has been widely accepted as a key concept to interaction with VR and has been used extensively to refer to the user's subjective feeling of 'being there' inside a VE even though they are located elsewhere. On this perspective, it is the perceptual and cognitive illusion of spatial and experiential relocation: the virtual world is not just seen as something on screen but is experienced as an environment the user inhabits and interacts with directly²⁴. The concept of presence can be given two separate but coexisting definitions. On a psychological point of view, the SoP occurs specifically when an embodied subject has the primitive awareness that an object is located where their body parts are (in their peripersonal space), grounded in the brain's anticipation of readiness to react. An object is thus felt as present when one has a perceptual experience of the object which is experienced as available for the subject to act upon (e.g., to grasp, reach or avoid), and when one self-identifies with the perceiving body²⁵. On a technological point of view, the SoP is mostly determined by the insertion of a subject in a given system. Presence therefore depends on the player's attentional

²³ *Bonelab*, Stress Level Zero (2022).

²⁴ Mel Slater, 'Place Illusion and Plausibility Can Lead to Realistic Behaviour in Immersive Virtual Environments', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 364 (December 2009): 3549–57.

²⁵ Jérôme Dokic, 'Reality I: Presence and Virtuality', in *Cognitive Feelings*, (Oxford University Press Oxford, 2025).

capacities to shift from the physical environment to the VE and would correspond to the perceptual illusion of non-mediation occurring when the technological medium disappears from conscious awareness²⁶.

3.3. Apprehending fiction

VR as a medium allows users to experience their virtual surroundings in ways that are comparable to the physical world: their embodiment in an avatar relies on processes similar to those of their biological body, and they can, in turn, perform both virtual and physical actions that lead them to experience the space as present and plausible. While the sensorimotor engagement and the psychological attitudes players hold towards the medium can be considered realistic, videogames themselves present fictional worlds to the players. Yet is it possible to act realistically within a fictional world? We believe that here lies the greatest strength of VR videogames: they both rely on the physical performance of players, and on their imagination to properly engage with the fictional narratives.

VR thus blurs the distinction between fictional and real engagement in ways unmatched by other media. Players approach the VE as a space for realistic action and exploration²⁷, while simultaneously maintaining awareness that its events are fictional and imaginatively constructed. Take for instance a player of the VR videogame *Half Life: Alyx*²⁸. When playing this game, it is only fictional that the player is a rebel waging war against a force of alien invaders. In a situation where the player is faced with two opponents armed with guns charging at them, they are required to imagine that there are two aliens determined to kill them: their opponents are fictional. Yet, their immediate reaction of reaching out to grab a fictional gun is not pretended. The player really reached their arm, both in the physical and in the virtual world. The way they interacted with the interface was not imagined. What was imagined and fictional was that, by triggering the gun, they killed their enemies. They really performed those movements: the fictionality only rests on the consequence of those movements in the VE.

²⁶ Bob G. Witmer and Michael J. Singer, 'Measuring Presence in Virtual Environments: A Presence Questionnaire', *Presence: Teleoperators and Virtual Environments* 7, no. 3 (1998): 225–40.

²⁷ Whether players' sensorimotor and psychological engagement is genuinely realistic, rather than merely illusory from a metaphysical perspective, lies beyond the scope of this paper. It is sufficient to note that, phenomenologically, players experience themselves as genuinely perceiving and acting upon virtual objects and events.

²⁸ *Half-life: Alyx*, Valve Studio (2020).

Furthermore, one aspect we have left behind in this section is that not only do players engage with videogames as fictional worlds, but also as games. Videogames are games in the sense that they involve challenges and sets of rules that allow their users to achieve certain goals, which outcomes depend at least partly on their decisions and actions²⁹. Players' fictional engagement is thus organised under a system of rules that defines a victory or a defeat, a gain or a loss. The player therefore interprets the fictional world through a double perspective: they imaginatively treat the VE as a place inhabited by fictional entities while simultaneously recognising it as a structured system of gameplay. The aliens in *Half-life: Alyx* are both fictional creatures to confront imaginatively, and obstacles governed by mechanics: players must defeat them to continue their navigation in the fictional world and shall be rewarded for it. The advantage and potential of the VR medium thus enhances this double stance because the player's bodily activity serves simultaneously as an instrument of gameplay and as a vehicle for inhabiting the fiction. Videogames are hence rule-governed fictional practices; this means that the game is one of the constitutive conditions under which the fiction is experienced.

4. Shaping narrative through spatialisation and embodied spectatorship

4.1. Scenography and videogames

Is the comparison between videogames and theatre truly a pertinent one? At first sight, we could respond in the affirmative: both practices organise actions within a delimited space and invite participants to engage with fictional events. Indeed, we defined scenography as an unstable and constantly evolving space, where specific actions can take place in a time separated from habitual reality. Scenography thus ascertains a tension between material and imaginary space; this means that this space will become fictional through the performance of its actors. As we already argued, in theatre, this negotiation between the real and the fictional is particularly salient: the stage never ceases to be a real place, and the actor never ceases to be a real body. It is the spectator's role to coordinate these dimensions and to willingly forget the real for the purpose of fictional engagement. At first glance, traditional videogames seem

²⁹ Bernard Suits, 'What Is a Game?', *Philosophy of Science* 34, no. 2 (1967): 148–56.

to undermine this tension, as they directly present the fictional space to the player. The screen hides all the material processes that make the fiction possible, and consequently, the player encounters the represented space as the fictional world rather than as a real physical space transformed into fiction. When a player encounters a fictional character on screen, they simply perceive that character as part of the fictional world. Unlike the theatrical actor, the videogame character is not simultaneously apprehended as a real embodied performer and as a fictional role. The player's attention is directed toward the represented fiction, not toward the coexistence of reality and fiction that characterises theatrical performance. According to Thomas Morisset, the absence of the double awareness between reality and fiction in videogames makes its comparison with theatre impossible³⁰. On this behalf, videogames do not involve scenographies but only constructed fictional environments. However, our aim was not the strictly compare the two, but to introduce a particular medium which could make all the difference: VR.

VR headsets and motion tracking devices make the player's body the primary means through which the virtual and fictional world exists as an environment. The fact that players can become embodied in their avatars through the expansion of their biological SoE and feel a strong SoP towards the VE proves that their experience is not only mediated by their imagination. Players experience the fictional world through similar sensorimotor structures as they would do in the physical space, which fundamentally blurs the distinction between the material and fictional space. By investigating the technological potential of the VR medium, we can argue that it can in fact reproduce some of scenography's defining ontological structures. While traditional scenography and VR's intrinsic mechanisms differ, their relation to fiction cannot be understood independently of material presence. This dual perspective is not reflected in the fictional environment or the external characters, but rather in the user's individual perception of their own body. VR's scenography is therefore characterised by a deeply embodied oscillation between the real and the fictional. The instability of the scenic space stems from the dual stance we described earlier: that of moving one's real, physical body whilst interacting with a fictional environment. Certainly, it is the VR medium that brings this comparison between videogames and scenography together, yet this comparative approach is not solely motivated by a desire to highlight the similarities between the two artistic practices: our aim is to demonstrate that VR dramaturgy has much to learn from VR

³⁰ Thomas Morisset, 'Enjeu des rencontres entre scénographie et jeux vidéo', *Registres: Revue d'études théâtrales*, no. 24 (2024): 51.

videogames. Indeed, our analysis of VR videogames has enabled us to understand the key elements required to effectively immerse a viewer in a fictional narrative within an immersive environment.

Consequently, the VR medium should not be considered as exhausted by fictional engagement; it is mediated by practical framework that determines how participants ought to act within it. If, in videogames, the framework is the game, in theatre, it should be the performance. Just as players understand virtual objects in relation to the possibilities for action afforded by the videogame's rules, participants in VR theatre should interpret the VE in relation to the conventions of performance. VR theatre spectators must respond to the virtual affordances as participants in a theatrical event. Their bodily actions and movements should be governed by the conventions of immersive theatre. This means that they should be able to follow an actor or character and accept or refuse an invitation; but these actions should not be rewarded as they would be in videogames; rather, they should make sense in the context of the performance. What should not change compared to VR videogames is that the apprehension of the fiction or of the performance cues is accessed through a dual engagement, both towards the reality of the body, and the fictionality of the events depicted.

The VR medium thus needs to be understood as providing activation spaces, where immersivity “involves forms of performativity, situated narration and contextualised interaction³¹”. This was probably the most lacking feature in the VR theatre plays we examined earlier: rather than taking VR as a medium that enables theatrical performance to be experienced through the virtual, they only took the virtual as the very end of their representation. In lieu of exploiting VR's potential to foster embodied and interactive forms of fictional engagement, these productions used the medium primarily as a vehicle for spectatorship, limiting audiences to a largely passive mode of experience. As a result, we believe that creating such works ultimately undermines the very purpose of immersive theatre, that of creating utopian spaces which incorporates the audience into the performance as ‘spect-actors’. Yet we have seen that by temporarily reconfiguring users' perception and giving them the ability to inhabit alternative modes of reality that VR can give rise to utopias that is, unstable spaces, oscillating between fiction and reality. Thus, recognising VR's

³¹ Jean-Francois Trubert et al., ‘Scènes et expérience immersive : vers une dramaturgie visuelle et sonore de l'émergence’, paper presented at Journées d'informatique théâtrale, (2024): 1.

potential entails acknowledging its capacity to foster forms of engagement that go beyond merely offering alternative modes of perception.

4.2. Criteria for embodied spectatorship

Aside from considering that VR theatre should get inspired by VR videogames by their relationship to the medium and the type of practice they allow, we believe that there are other elements requiring VR dramatists' attention. Considering our analysis of players' experience of VR videogames, we here argue that three major components of VR videogames should be transcribed to VR theatre in order to provide sufficient grounds for an optimised experience: natural embodiment, realistic engagement and playful fictional involvement.

The most obvious component, at the basis of all the other processes remains natural embodiment. That is, a VR theatre spectator must be able to feel minimally embodied within the VE, otherwise any further aesthetic involvement shall be undermined. We have seen this in the examples we gave earlier: if spectators do not feel embodied in the virtual space, they will have trouble identifying emotionally to the events unfolding before their eyes. In order to achieve this form of embodiment, the environment must allow its users to move at least minimally, to experience both the changes of perspectives allowed by the VR headset, and the sensory feedback of the VE. Once a spectator feels a sense of agency, a sense of body ownership and feels located within the virtual space, imaginative engagement towards the performance or events shall be emotionally stabilised. If no SoE is felt, at least minimally, the spectator could detach themselves from the fiction, and experience only the technology and the limitations it sustains. Senses of alienation or estrangement could be felt, consequently ruining the very purpose of the performance itself. A prominent way to prevent this from happening is to provide spectators with body representations. Providing a spatial reference that responds to the actions of participants helps to anchor them more deeply within the fiction. Without a physical representation, viewers may feel absent or even completely disembodied³². Whilst the aim of immersive theatre is to create a spatial relationship with the stage and to give the play a participatory and sensory dimension, a disembodied individual is a disconnected spectator. As we have argued earlier, even the most minimal avatarial

³² Sita Popat, 'Missing in Action: Embodied Experience and Virtual Reality', *Theatre Journal* 68, no. 3 (2016): 357–78.

representation can allow users to feel a SoE towards it. Again, the choice of avatar should ultimately be determined by the dramatist, who may opt to provide the spectator with mere tools, a partial avatar, or a full-body avatar according to what best serves the dramaturgical coherence of the performance.

Furthermore, in order to enhance the SoP of spectators, the audience must be allowed a degree of perceptive and proactive freedom within the fiction. The extent to which viewers can interact with the narrative remains an aesthetic choice up to the creator. The crucial consideration is to ensure one feels truly immersed in the fiction rather than merely watching a movie. To maximise the medium's immersive potential, replacing one's first-person perspective alone is not enough. The player must also feel that they are part of a controllable world, even if it rests on an illusion. Factors influencing the formation of a SoP include the degrees to which the audience can influence the events of the performance based on the virtual affordance it offers, how the environment engages multiple sensory channels in a rich and coherent manner, and how the VR device sufficiently isolates the player from their immediate physical environment, so that their attention is focused more intently on the virtual world³³.

One final aspect we believe VR theatre should borrow from VR videogames is their playful approach to the fiction. Our point here is not to argue that VR theatre should emulate gaming, but rather that it should embrace *playing*. While games are typically organised around rules and states of success or failure, play is not necessarily directed towards an external outcome. It is an exploratory mode of engagement in which the value of the experience lies primarily in the activity itself rather than in reaching a predefined goal. By encouraging VR theatre to focus on play, the resulting dramaturgy could invite the audience to play with the fictional world: to explore its spaces, manipulate its objects, experiment with its affordances, and discover its dramaturgy through embodied action. What matters is not whether the audience wins or loses, but whether they develop a meaningful sensorimotor and imaginative relationship with the fictional environment. Using a medium such as VR naturally implies that its users play with it in order to discover its potential for interactions and perceptions.

³³ Witmer and Singer, 'Measuring Presence in Virtual Environments'.

As seen in the introduction, some authors tend to antagonise narratives and play by arguing that while narratives unfold according to predetermined events, play consists of unpredictable actions generated by players. The more freedom the participants would have, the more difficult it would be to preserve a coherent storyline. Immersive theatre is precisely aimed at counterbalancing this distinction, but it remains that giving spectators agency often weakens narrative coherence. Yet the whole point of the VR medium, we have understood, is to provide users with both a highly sensory experience, and an apprehension of fiction through realistic interactions. One could not distinguish between narratives and play regarding this medium, precisely because for every VR fiction to be imaginatively practiced, there is a need for sensorimotor engagement. Contra the claim that narrative and ‘playing’ are incompatible, we believe that granting participants agency does not preclude immersive theatre from carefully structuring their interactions. Audiences are never thrown into sandpits, leaving them unrestricted: they are always guided through carefully designed dramaturgical frameworks. The same applies to VR theatre, if not more. The participatory nature of the performance, or the interactions that the VR medium allows are always authorised beforehand. The degrees of liberty we mentioned earlier need not to be infinite, what matters is that the spectators feel like they could participate to the fictional events. Hence, the narratives can perfectly involve playfulness and participation while still remaining the organising principle of the performance. VR theatre thus needs to be playful, while remaining carefully choreographed within a dramaturgical framework, so that audience freedom coexists with authorial control and narrative organisation.

5. Conclusion

Immersive theatre is a theatre of space, and by dissolving the distinction between the pragmatic location of the performance and the fictional space, it immerses the audience in a place where fiction and reality are blurred. The aim of this paper was to understand the use and expansion of VR in theatre, and to explore how its potential can be better harnessed. Rather than treating VR as a simple picturing medium, we proposed to understand it as a medium capable of triggering a dual engagement with both the reality of the spectator’s body and the fictionality of the events experienced. By understanding how VR gamers apprehend fictional worlds through this balance, we argued that the VR medium allows for the creation

of alternative scenographies, reflecting the primary aim of immersive theatre to create utopias. We further argued that VR theatrical fictions should be organised around three major principles: natural embodiment, realistic engagement and playful fictional engagement. Together, these principles provide dramatists with a foundation for approaching VR not simply as a technological medium, but as a space for developing new forms of theatrical expression. They offer both a starting point for creative experimentation and a framework for considering how audiences can be meaningfully engaged in, and experience, fictional narratives within VR.

In this paper, we deliberately chose to focus both on the medium's potential and the users'/spectators' individual point of view. It follows that questions regarding the concrete application of VR in theatre should be asked. For instance, future research could focus on the practical reception of such works. Does VR only represent a novelty factor for entertainment purposes, or does it have the potential to explore the spectator's empathy with more demanding narratives? Furthermore, if one decides to harvest the empathy potential of the medium, what effects can it have on the audience's aesthetic experience, or even on their comprehension of the work since they are directly confronted with the fiction. Could we hold that this direct confrontation prevents any critical assessment of the work? If this is the case, it raises the question of adapting existing theatre plays for VR and whether this is feasible.

Furthermore, this paper does not address the question of the performers themselves. Future research should be interested in the place the performer holds in such context. Naturally if one enters a virtual space, it entails that a first digital creation has occurred beforehand. On this behalf, how can a performer retain any sense of control over how their performance is perceived, given that it is inevitably mediated by an initial digital interpretation? The sense of immediacy in a VR performance is therefore felt more keenly by the audience members who will be immersed within the performance rather than by the performers themselves. While this paper was specifically directed towards a comparative analysis with VR videogames, the question ultimately extends beyond this framework and calls for a more comprehensive interdisciplinary investigation.

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