Spectator and Immersive Device Sensoriality Tested by Digital Tools

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ABSTRACT

It is obvious that spectator activity has increasingly changed since the end of the 20th century. The spectator is led to interact *in* and *with* the stage work, to go out into the public space, to use his or her smartphone, or to wear a VR headset. The spectator is invited to take hold of tools that allow for experimentation, participation, and collaboration. The focus of this study is the use of immersive devices and the place of the spectator in these creations. I will look at the sensory perception of the spectator, especially the sight, and analyze how the position of the spectator changes in relation to the traditional performance with the frontality of the stage and the audience. Several examples will be given such as the works of SIGNA, Crew, Or NOrmes, rgb project.

1. INTRODUCTION

Today, immersive theatrical creations, whether life-sized or based on digital media, are of increasing importance in the programming of theatres and festivals.

Their formats vary according to geographical areas and range from artistic experimentation (Punchdrunk's *Sleep no more*, 2003) to more traditional aesthetics (Third Rail Project's *Then she fell*, 2012). Nowadays, several artists solicit immersion through a technological device. Among a very diversified range of theatrical creations, the following ones are worth mentioning: Crew, INVIVO, Rimini Protokoll, BeAnother Lab, as well as emerging artists such as Or NOrmes, rgb project.

This growing interest is due to the development of theatrical aesthetics that borrow specificities from other artistic fields such as cinema, video games, and art in the public space, but also to the dazzling technological progress and its market, offering highly technological tools at accessible prices[1].

We can see that the raised spreading of technological interfaces demonstrates that human beings have never been so sensitive to the speed of different transformations linked to progress[2]. With the miniaturization of technology, interfaces are now becoming invisible and do not even change the appearance of the object they are part of. The interface is an undisputable guarantor of technological progress but also an important element that shapes our human condition in the digital era. Louise Poissant points out that we have become a society of *interfaces*[3].

In the theatrical context, digital technologies determine several components of the live performance, starting with the stage design and ending with the actor who could disappear from the stage and be replaced by a projected image. The figure of the spectator is shaped in a considerable

[1] Poissant, L., « Interfaces et sensorialité », in Louise Poissant (dir.), *Esthétique des arts médiatiques. Interfaces et sensorialité* Sainte-Foy, Presses de l'Université du Québec, 2003.

[2] Idem

[3] Idem

way. A digital device influences and repositions not only their placement in the physical space of a performance but also their sensory perception and ultimately the spectator's reception. Over the course of this article, I wish to focus on the topic of visual immersive devices that immerse the viewer into a fictional world in an individual or collective way. My analysis will focus on the spectator and their reception as well as the development of approaches adapted to an immersive experience, soliciting the sensory sphere of the audience, specifically the sense of sight. Several questions arise in this context: what is the function assumed by the spectator in relation to the proposed devices, such as a head-mounted display (HMD), for example? What is his or her reception of the performance: a sensory or playful challenge, an intellectual effort? How does the aesthetic change when a spectator is immersed in a virtual world? I propose to reflect on the figure of the immersed spectator, the so-called *immersant*[4], who is invited into an immersive performance taking place in a physical space designated as theatrical.

2. THE DIGITAL DEVICE AND THE THEATRE SPECTATOR

It is evident that the spectator's role has enormously changed since the end of the 20th century[5]. The contemporary spectator can leave his or her theatre seat and wander through the space created by the artists, as the Austrian-Danish group SIGNA offers. In their site-specific performances, the audience becomes part of a life-size story that can last for hours or even days. *Söhne & Söhne* (2015), for instance, is performed on a six-hour-timeframe, within the building of a former public trade school for craftsmen in Hamburg[6]. Ten spaces are set there, representing the family business *Söhne & Söhne*. The spectators become new employees. They are given a number and a name in the hall: "10 son", for example. The corridors are walked through by trained employees in suits (artists) who monitor and develop the newcomers first day of work. The newcomers have tasks to perform in different departments such as the leisure center with party hats, where they learn that leisure can also be work. Here, the spectator immediately becomes an actor and even a co-author of the performance and performs several functions: "watching, observing, improvising, adventuring, collaborating" but also acting[7].

The spectator is led to go into action *in* and *with* the stage work, to go out into the public space, to use his or her smartphone or to wear a video headset. Simon Hagemann points out that the history of theatre teaches us that the role of the spectator has been constantly renegotiated[8]. Therefore, in technology-based theatre, the definition of this role becomes a "major occupation" again[9]. It is not only a question of activating the body as it moves through space, but also of soliciting the entire multisensory sphere, which may be required to adapt to a virtual or augmented space. This type of creation interrogates the postures of the spectators, and thus, changes the narrative of more traditional ones. We

[4] The definition of *immersant* is given by Catherine Bouko, see Catherine Bouko, "Le théâtre immersif : une definition en trois piliers, Sociétés n° 134, 4, 2016, pp. 55-65; also Catherine Bouko, « Interactivity and immersion in a media-based performance », *Participations. Journal of Audience & Reception Studies*, vol. 11, no 1, May 2014, pp. 260-261.

[5] Dixon, S., (with contributions by Barry Smith), *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, The MIT Press, 2007.

[6] Ullmann, von K., «Die große Kunstbrust liebt auch Dich!», *nachtkritik*, in Web: https://www.nachtkritik.de/index.php?option=com_content&view=article&id=11727:soehne-soehne-die-neue-performance-installation-von-signa-am-hamburger-schauspielhaus-fuehrt-in-den-psychohorror-der-arbeitswelt&catid=38:die-nachtkritik-k&Itemid=40 (accessed 17 January 2023).

[7] Machon, J., "Watching, Attending, *Sense*-making: Spectatorship in Immersive Theatres", JCDE, DE GRUYTER, 4 (1), 2016, p. 39.

[8] Hagemann, S., « Entre *le regardant* et *le regardé*. Sur la reconfiguration du rôle du spectateur dans les créations à composante technologique », in Pluta, I. (dir.), Dacheux, M., Guay, H., Hagemann, S. et Pastor, E., (coll.), *Scènes numériques/Digital Stages. Anthologie critique d'écrits et d'entretiens d'artistes. Critical anthology of artists' statements and interviews*, Rennes, Presses universitaires de Rennes, 2022, pp. 355-363.

[9] Idem

can speak of the participant, the *interactor*[10], the player, the *experiencer*[11], the witness, the *spect-actor*[12], and the *immersant*, the latter becoming the theme of my study.

The work of Crew, for example, brings forward the company's approach to integrating scientific research developed in the Crew_Lab but also in other scientific laboratories (Fig.1.).

Fig. 1. *C.A.P.E.*, conception: Crew, 2010 - . Phot. Crew©

Eric Joris, its leader, wants to understand neurocognitive phenomena that result from the immersive experience offered to the audience. In the short forms called *C.A.P.E.*, which stands for Computer Automated Personal Environment, a technological device is easily placed in various locations. The spectator ventures out alone wearing a backpack with a device, a video headset, a tracker, and headphones[13]. He or she is guided by a member of the Crew to move around in a public space. The spectator has the choice of a destination of real cities - Brussels, Tohoku – or an imaginary destination which he or she can visit virtually. To illustrate, Julie-Michèle Morin recounts her experience of the performance:

"A man walks towards me, the only one who crosses the space-time in the same way as me. The sense of temporality is altered, as the minimal exchanges and contacts we will share seem to be in suspended time. We are in a crowd, but there is no guarantee that the

[10] In the theatre, the question of interactivity focuses mainly on the possibility of exchanges between the spectators and the work, as well as between the different spectators within the framework offered by the performance. The concept first spread to interactive installation, see more Hagemann, S., Pluta, I., *Quels rôles pour le spectateur à l'ère numérique ?*, Lausanne, PPUR, in print.

[11] The term was introduced by Robin Nelson and suggests a more immersive engagement of the audience. This term focuses on the audience's sensory experience, see Nelson Robin, "experiencer", in Bay-Cheng, S., Kattenbelt, Ch., Lavender, A., and Nelson, R., (eds.), *Mapping Intermediality in Performance*, Amsterdam, Amsterdam University Press., 2010, p. 45.

[12] The term "spect-actor" was introduced by the Brazilian director Augusto Boal. This term refers to a member of the audience of the Theatre of the Oppressed, considered as the equal of the actors and not as a mere passive observer, see more Boal, A., *Théâtre de l'opprimé*, La Découverte, 2007; see also on ths subject Weissberg, J., -L., *Présences à distance : déplacement virtuel et réseaux numériques : pourquoi nous ne croyons plus la television*, Paris [et autres], L'Harmattan, 1999.

[13] *C.A.P.E Brussels* was created for the World Exhibition Bejing in 2010, presented in the Festival de la Batie in Geneva in 2013.

people who are bustling around us will actually witness the few seconds we will spend together."[14] This equipment was not yet accessible some twenty years ago. The miniaturization that makes them invisible has influenced artistic work, encouraging artists to experiment with new devices bringing them closer to other artistic disciplines that have rarely been explored until now, of which video games are an example[15]. The cost of purchasing such equipment has fallen considerably nowadays. Artists can buy them for their projects without having to search for important grants. Louise Poissant notes that since the 1960s, interfaces have been massively imposed in the technological industry due to their specificity allowing the exchange of information[16]. They open the way to two aesthetic modalities that are particularly in demand today: interactivity and immersion.

3. VIRTUAL IMMERSION IN A LIVE PERFORMANCE

The notion of "immersion" literally means the action of "plunging into a liquid or an environment"[17]. The *Dictionnaire des arts médiatiques* explains that immersion can be done through a complete immersive device or on the screen, which offers a more limited system[18]. The former includes headsets, suits, and sensory gloves with tactile and effort feedback, which "tend to cover the user's entire sensory field in a way that resembles the natural environment"[19]. It is possible to immerse oneself through a screen, but this setting has less impact on the sensory illusion because the user is in front of a computer. However, this can be complemented with stereoscopic glasses[20]. In both cases, the integration of interactive gloves is possible. They are equipped with position sensors, which can be seen in the environment on the screen. They "allow you to move or operate some of its elements"[21]. Immersion in the live performance context aims to cover all sensory receptors with stimulating devices and subject these receptors to electromechanical stimulation.

Modalities of immersion are different today and they are conjured up in life-size games, performances with a headset for individual spectators, or experiences that are meant to be collective. We speak of "immersive theatre". According to Josephine Machon's definition, this type of creation is "(syn)aesthetic" which means a fusion of perceptual experience and sensory approaches to theatre practice[22]. She states that the ideal condition for an immersive experience is when the creative work involves the spectator, namely by placing the spectator's "self" at the center through the senses, and by using the space as part of the creation[23]. An immersive theatre "redefines" the relationship between the artist and the spectator on

[14] Morin, J.- M., « Réalité virtuelle et alternée dans la pratique de CREW_ERIC JORIS : *mise en oscillation* du corps immergé », *Percées*, 2020, in Web: https://percees.uqam.ca/fr/article/realite-virtuelle-et-alternee-dans-la-pratique-de-creweric-joris-mise-en-oscillation-du (accessed 17 January 2023), my translation.
[15] Pluta, I., « Sur la collaboration d'un metteur en scène et d'un programmeur : des synergies aux hybridations des compétences professionnelles. Entretien avec Georges Gagneré et Cédric Plessiet », *Critiques. Regard sur la technologie dans le spectacle vivant*. Carnet en ligne de Theatre in Progress, in Web : <http://theatreinprogress.ch/?p=455&preview=true> mis en ligne le 20 septembre 2018 (accessed 18 January 2023).
[16] Poissant, L., « Interfaces et sensorialité », in Louise Poissant (dir.), *Esthétique des arts médiatiques. Interfaces et sensorialité*, *op., cit*.
[17] *Dictionnaire Le Robert* : https://dictionnaire.lerobert.com/definition/immersion (consulté le 21 septembre 2022).
[18] Poissant, L., (dir.), *Dictionnaire des arts médiatiques*, entrée : *immersion*, Sainte-Foy, Presses de l'Université du Québec, 1997, p. 283-284.
[19] Idem
[20] This explanation comes from the *Dictionnaire des arts médiatiques* published in 1997. Today, technological progress offers even more nuanced solutions and interfaces as the project *google glass* for augmented reality, at the moment intended for industry and professionals only and not for the general public as originally planned, see Futura sciences, in Web: https://www.futura-sciences.com/tech/definitions/technologie-google-glass-15803/ (accessed 9 June 2023).
[21] Idem
[22] Machon, J., *Immersive Theatres: Intimacy and Immediacy in Contemporary Performance*, New York, Palgrave Macmillan, 2013.
[23] Idem

several levels: conceptual, spatial, and physical[24]. The modalities and degrees of immersion can be different. On the one hand, visual immersion, which is the theme of this analysis, is managed with multiple screens, a HDM headset, and glasses. On the other hand, sonic immersion, which will not be analyzed in this article, favors auditory headsets summoning stereo or binaural listening with or without vision[25]. In the immersive installation *L.I.L.I Alix Wonderlands* by the French company Or NOrmes, a free adaptation of the novel *Alice in Wonderland* is offered, the viewer is invited into an immersive environment for an individual experience. The artists state: "As you become 'Alix' you fall into your unconscious. Welcomed by two strange characters from the near future, take a seat at the madman's tea table. Manipulate the words before they manipulate you in an immersive quest for meaning"[26]. The spectator sits in an armchair and wears a virtual reality headset that allows him or her to see Alix's world in 360° and to hear the sound. The artists introduce the sensation of touch, as at one point we feel a cat's hairy tail touching our hand, which causes (apart from a pleasant softness) our surprise and sensory disorientation. Alix is part of the cycle of immersive readings named by the group Or NOrmes *L.I.L.I.*, standing for Installations of Immersive Readings, also including works such as *Lecture pour une ombre* (*Reading for a Shadow*) and *La Maladie de la Mort* (*The Illness of Death*), among others.

Catherine Bouko distinguishes two types of immersion in theatre: sensory and dramaturgical, for which physical immersion is a prerequisite[27]. According to her, the spectator's body must "occupy a central position" which will already give the participant the impression of being "at the heart of an environment"[28].

It should be mentioned that the action of looking in immersive theatre is not only a passive action of perceiving and memorizing at least part of the performance. Alison Oddey and Christine White note that it is a question of "being on the alert and keeping in view"[29]. The participant is integrated into the performance that is taking place, is the immersed interactor, and makes decisions[30]. The spectator-participant is not only supposed to ask themself the question "what is the universe I am seeing about?" but also "what does that feel like to me?" both inside and outside the universe of performance[31].

4. SPECTATORIAL PERCEPTION AND IMMERSION: THE SIGHT

Stéphane Vial mentions that the "digital beings" (*êtres numériques*), as he calls the objects and technological devices, force us to forge new perceptions because we lack experience in perceiving them[32]. So-called immersive performances also make this kind of demand on the spectators who are confronted with different receptive situations than in the traditional theatre. Sight is solicited in the visualization glasses and HMD headset devices by situating our vision in a simulated world of virtual reality. These devices offer a visual and sometimes auditory immersion of which we, the audience, become part.

Mel Slater defines the characteristics of the immersive device:

[24] Machon, J., "Watching, Attending, *Sense*-making: Spectatorship in Immersive Theatres", *op., cit.*, p. 36.
[25]See more on the Headphone Theatre: Klich, R., "Amplifying Sensory Spaces : The In- and Out- Puts of Headphone Theatre", *Contemporary Theatre Review*, no 27:3, 2017, 367-378.
[26] Compagnie Or NOrmes's website : https://collectifornormes.fr/spectaclescollectifornormes/l-i-l-i-alix-wonderlands/ (accessed 18 January 2023).
[27] Bouko, C., "Le théâtre immersif : une définition en trois piliers", *op., cit.*
[28] Idem
[29] Oddey, A. and White, Ch., *Modes of Spectating*, Bristol and Chicago, Intellect Ltd, 2009, p. 40.
[30] Machon, J., « Watching, Attending, *Sense*-making: Spectatorship in Immersive Theatres", *op., cit.*, p. 39.
[31] Ibidem, p. 40.
[32] Vial, S., *L'être et l'écran. Comment le numérique change la perception*, PUF, 2013, p. 97-98.

"Yet it is a medium that has the potential to go far beyond anything that has been experienced before in terms of transcending the bounds of physical reality, through transforming your sense of place and through non-invasive alterations of the sense of our own body."[33]

Spectatorial perception can be stimulated in two general ways: the spectators either melts into the fictional universe of the performance, or they keep their awareness of participating in a fiction. The latter case places them in the perceptual "in-between", adherence and denial, between the fictional story and the vigil of the physical environment in which their body is located[34]. In relation to the sensory state of the spectator in front of a visual immersive device, Louise Poissant states that it bespeaks surprising situations. She evokes:

"We discover unexpected endings, zones of sensitivity that are still untested. The technologies that threatened to make us bedridden, connected but inert, as Virilio feared, seem on the contrary to rehabilitate forgotten forms of sensitivity or to make unexpected dispositions and synesthesias."[35]

Sometimes the viewers are disoriented. They may feel fascinated by the worlds in which they participate, or they may feel uneasy and even anxious about the uncomfortable universe they are looking at[36]. We find this uncertainty in the immersive performance *EUX* (2008) by Crew. It proposes technological prostheses with which the spectators become the protagonists of the performance. Here they are patients suffering from agnosia, in particular an inability to identify or recognise people or objects. They wear a headset, headphones, a piece of equipment that shields their eyes with fabric. The positions of their bodies are manipulated by an artistic assistant. Eric Joris offers the spectators a chance to meet their own double, which "symbolizes the blurring of the distinction between reality and fantasy"[37]. It is a disturbing experience because the audience splits its body "in a mirror image that seems more real than itself"[38].

It should be taken into account that technological interfaces used by artists have this particularity that they often draw the spectators' attention to their technical functioning. The latter requires the viewers to see in certain ways and even imposes certain body postures to achieve the creator's intended goal. Nevertheless, if the device runs correctly, the participants forget the technological application of the work[39].

5. IMMERSIVE SPECTATOR

In the context of immersive performance, Catherine Bouko speaks of the spectator in terms of the "immersant", i.e. the one who "participates in an immersive experience" and is immersed in virtual reality[40]. By way of illustration, the project *Brainwaves* (2021), by the young Swiss group rgb project, offers an immersive performance for 9 spectators wearing HMD headsets, sitting in a circle for thirty minutes. Throughout the performance, the

[33] Slater, M., « Place Illusion and Plausibility Can Lead to Realistic Behaviour in Immersive Virtual Environments », *Philosophical Transactions of The Royal Society Biological Sciences*, 364(1535), December 2009, pp. 3549-57, in Web: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781884/ (accessed 24 January 2023).

[34] Bouko, C., « Le théâtre immersif est-il interactif ? L'engagement du spectateur entre immersion et interactivité », *Tangence*, no 108, p. 267, in Web : https://www.erudit.org/fr/revues/tce/2015-n108-tce02513/1036453ar.pdf (accessed 06 January 2023).

[35] Poissant, L., « Interfaces et sensorialité », in Louise Poissant (dir.), *Esthétique des arts médiatiques. Interfaces et sensorialité*, *op., cit.*, p. 3, my translation.

[36] The work of British Punchdrunk, for example, proposes an aesthetic in which the viewer is confronted with actions or situations that he or she is not used to experiencing. The artists aim to provoke feelings of dread and unease in the viewer: he or she may be placed in a dark space where he or she must tread with caution.

[37] In Web : https://crew.brussels/en/productions/eux (accessed 18 January 2023).

[38] Idem

[39] Poissant, L., « Interfaces et sensorialité », in Louise Poissant (dir.), *Esthétique des arts médiatiques. Interfaces et sensorialité*, *op., cit.*, p. 8.

[40] Bouko, C., Le théâtre immersif est-il interactif ? L'engagement du spectateur entre immersion et interactivité, *op., cit.*

story of Ivy is told. She suffers from locked-in syndrome due to an accident (Ivy is paraplegic). She cannot move, walk, or even move her hand (Fig. 2).

Fig. 2. *Brainwaves*, directing: Christophe Burgess, 2021. Phot. rgb project©

However, the virtual body is offered to her by a medical company MOTUM. Ivy lives in a virtual space. The audience follows her through the headset, but the sound comes from the speakers and the voice of an actress moving in the real space, and who animates Ivy's avatar life[41]. The spectator is immobile but sees his or her own avatar in the virtual space. He or she also sees the movement of the silhouettes of other spectators. The immersive experience here is collective. Everything is linked on a technical level, but also on the sensory level of the audience and the performer. They are not isolated and with the means offered to them, they are invited to react and find their place within this fictional world. Being close to others means being next to another participant who is active through gesture, but also to an actress who approaching the audience through her avatar and through her physical body - they feel the closeness of her body - which provokes sensations that are rarely reached in a traditional performance. Gemma Arduini comments on the reception of *Brainwaves*:

"The sense of spectatorial collectivity brings credibility and materiality to the piece: we are not alone in seeing what our headset offers us; just as Ivy, at the end of the piece, is not alone in observing her alter ego."[42]

Visual, auditory, and other neurological senses are challenged as the participants deal with their body position, perhaps their photosensitivity, and dizziness. The sense of sight and hearing are dominant and directive and other senses and motor skills are subordinated to it. Patrice Pavis underlines that in a live performance: "the theatre audience space is a body"[43]. This means that the body of each spectator influences and is influenced by other spectators and by the actors on stage. This effect can be positive and pleasant or negative and

[41] The actress wears a virtual reality suit, a mobile phone that films her face and a backpack with batteries, my personal notes from rehearsals, unpublished.

[42] Arduini, G., « *Brainwaves*, un spectacle immersif entre deux mondes », *Critiques*, in print, my translation.

[43] Pavis, P., *L'analyse des spectacles*, Nathan Université, 1996.

uncomfortable. Pavis specifies: “These are not isolated moments, but a whole structure of meaning that is put in place and organizes the whole of the reception”[44].

As for immersion, it modifies the spectator’s perception. It radically changes the “perspective and relativizes the feeling of strangeness”[45]. Louise Poissant notes its important impact on the spectator’s *sensoriality*. According to her:

“This equipment regulates breathing, vision, weightlessness, the quantity of air in the tissues, the pressure in the lungs, the body temperature, etc. What we see also determines the gestures we adopt: approaching, retreating, accelerating, turning around, etc. In order to see, we depend on a device that increases our resources but at the same time makes us more vulnerable.”[46]

Our “being in the immersive world” acts on other participants in the experience and on the performers. The spectator is invited to take hold of experimentation, participation, and collaboration tools.

6. CONCLUSION

Clearly, artists are taking a stand in a postmodern context and its tendency towards the proliferation of signs and their constant circulation, influenced by the eruption of information[47]. They experiment with theatrical material under the impulse of the transformations brought about by digital media and with the use of various communicative practices. Moreover, technological innovations cannot be understood without a link to their social and political contexts. Simon Hagemann notes that “these inventions do not only create new social needs: they also constitute their results.”[48] The Internet gives artists the opportunity to lower production costs through sharing and open-source platforms, and there is always that democratic space where everyone can speak, where everybody can access.

Aesthetically speaking, the performance must constantly construct its own universe in which space, sound and duration also form a kind of contract for the spectator and which is “shared between the artist and the participant” according to the different modes of agency and participation[49]. Josephine Machon stresses the complicity of the audience of the performance aesthetic. Spectators are a living part of the hole structure of the performance[50].

This contract is different from that of a conventional theatre with the division of stage and audience, the frontal and immobile position of the audience, the applause at the end of the performance. The immersed spectator is confronted with considerable changes in his or her sensory perception. The entire body schema is mobilized here. Nevertheless, it can activate perceptive areas that are little used in everyday life or even allow the re-discovery of old and forgotten *sensorialities*.

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[44] Idem
[45] Poissant, L., « Interfaces et sensorialité », in Poissant, L. (dir.), *Esthétique des arts médiatiques. Interfaces et sensorialité*, *op., cit*., p. 6, my translation.
[46] Idem
[47] Hagemann, S., « Entre *le regardant* et *le regardé*. Sur la reconfiguration du rôle du spectateur dans les créations à composante technologique », *op., cit.*
[48] Idem
[49] Machon, J., « Watching, Attending, *Sense*-making: Spectatorship in Immersive Theatres”, *op., cit.*, p. 35.
[50] Idem