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From Book to ARG: Relation Between Immersion and Interactivity

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Abstract

The relationship between the text and the reader has been greatly influenced by the emergence of new forms of narration .By adding interaction to a narrative ,these new forms create more opportunities for readers to control and shape the narration, resulting in a heightened level of immersion .Moreover ,this type of narration opens up new possibilities for developing narratives that can serve various purposes beyond entertainment .This study aims to compare interactive forms of narration, such as FMV) Full Motion Video ,(ARG) Alternate Reality Games ,(escape rooms, interactive books ,and plays ,while examining the relationship between immersion and interactivity in these formats .While the reader will be a crucial point of focus, we will employ a qualitative method alongside quantitative measures to illustrate how variations in interactivity within a narrative can alter the readers 'immersive experiences across different modes of interactive narration .

Keywords: Interactivity ,Immersion ,Narration ,FMV ,ARG ,Escape room ,Theater.

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1. Introduction

Genette defines narrative as "the representation of an event or a sequence of events" (1983:7), and Prince believes: "Narrative is the representation of at least two real or fictive events in a time sequence, neither of which presupposes or entails the other" (Herman,et al 2007:9). Narration is an excellent part of human life, as communication would be impossible without narration. Either we use narration to share our feelings and get involved in a discussion in a class or try to transfer our knowledge to our audience; we are involved with understanding. However, it is not the only purpose of narration in our life; sitting on a sofa watching a movie or running through a room to exit an escape room gives us the pleasure we seek. Humans are bound by time and place; having limited time on earth, we cannot experience different times and places. Narration helps us to surpass that boundary as well.

We are well acquainted with the traditional form of narration, which is mostly linear, but narration has long passed its traditional form and regenerated itself in many new ways and forms. When a reader reads a book, s/he only gets involved mentally in the narration, but in newer forms of narration, the addition of interaction creates new ways for the reader to get involved in the text mentally and physically. Now, instead of sitting passively on the sofa to watch a movie or read a book, the reader can control the narration through a touch on the Kindle, a TV control, or a gamepad. Even in more interactive situations, s/he can enter an escape room or get involved in an ARG. Interaction and immersion are two fundamental elements that have significantly altered the reader's experience in the realm of narrative storytelling. As the shape of narratives continues to evolve, these two concepts have become increasingly intertwined, challenging the traditional boundaries of reader engagement. All these new forms also created new opportunities in the development of industries. Examples vary from escape rooms designed to improve teamwork to serious games to cure or control diseases. Organizations such as *Tabletop Edu*, *Edutopia*, *Go to Events,* and *Lock Box Escape Room* are selling narrative-based games to educators and corporations, designed according to their needs, showing that through a well-designed narration, one can impact readers with the targeted purposes; these purposes can vary from teaching in a school to team-building exercises in a corporation. As a result, understanding how the involvement of the reader has changed in the face of

new narrative modes is a crucial point to study. Because better understanding of how interaction and immersion can alter the reader experience of a text will help different industries to create yet more effective methods of narration for their targeted purposes. This field still needs more attention from researchers, especially in our country, Iran, where some forms of narration are not yet known to the audience and industry, and this lack of knowledge is stealing many good opportunities from us. Finding answers to how the relationship between text and reader is affected by the increase or decrease of interactivition or immersion can help industries develop narration-based media to address their needs and challenges.

Studying interaction, immersion, and reader response in different forms of narrations to understand the relation between a text and a user is the main purpose of this study. To gain a deeper understanding of this dynamic relationship, we will examine examples of interactive narration in different modes, including text mode through a book entitled *Murdered*, picture mode through a movie entitled *Black Mirror: Bandersnatch*, video game mode through a full- motion video game entitled *Erica*, performance mode through a play named the *Night of January the 16th*, physical mode through an escape room named *Mysterious Murder,* and an alternate reality game called *Cursed Exhibition*. The reader is the focal point of this study, so to gain a better understanding of the relationship between text and reader, we have used the quantitative method in company with a qualitative method, collecting data from a population of 100 men and women aged between 18 and 25. We have tried to uncover the nuances of immersion and interaction, and their impact on the reader's response by comparing different modes of narration and recoding readers' responses to them.

2. Literature Review

The concept of interactivity and immersion in narrative experiences has been extensively explored in the academic literature. Some researchers examine the three-dimensional nature of immersion, encompassing sensory, challenge-based, and imaginative dimensions, and how these elements interact with interactivity to shape the overall user experience (Ermi & Mäyrä 2005:11). Some argued that interactivity should be conceptualized along a continuum, where the level of engagement and user activity varies depending on the specific features of the text or medium. (Retzinger

2009:10) and some have focused on the idea that interaction is a defining and distinguishing feature of the internet and digital media, which sets them apart from traditional media (Tse & Chan 2004:17).This groups mostly focouses on VR (Virtual Realty) and how interaction with virtual space will affect the immersive experience of an audience what separate us from this last group lay in the physical actual condition of our study, the reality in our study is not altered and the audience involve in narrative in their real, familiar environment and the immersion in the environment of narrative happens in reality not in virtual world (Makransky & Peterson 2021: 5). What is not discussed in these studies is, first, the relation between immersion and interaction in users' experience, and second, the role this relation plays in the newer modes of narrations, such as escape rooms and ARGs. This issue is addressed in our study. The perspective on interaction in these research efforts is mostly modern, viewing interactivity as a phenomenon related to the digital era, while interaction in narration can be achieved without entering a digital platform. Along with presenting examples of non-digital platforms that utilize interactive narration, we aim to introduce these lesser-known forms of narration to our society as well. This revision clarifies the structure and improves grammatical accuracy while maintaining the original meaning.

The relationship between interaction, immersion, and the user experience in emerging media formats such as escape rooms and augmented reality games has been a topic of growing interest in the academic literature. Researchers have explored how the unique features of these interactive environments can shape cognitive processes, emotional engagement, and learning outcomes (Johnson et al. 2022:165). The approach these studies took on escape rooms and ARGs is focusing on their usage in education and serious gaming, including those published in Iran such as "Escape education: A systematic review on escape rooms in education" by Alice Veldkamp et al. (2020) and "The great escape? The rise of the escape room in medical education" (2020) by Jonathan Guckian et al., and "Tourism Based Games: A Study of Challenges and Profits" by Farkhondeh Fazel Bakhsheshi and Ghazal Ghaziani (2019) place their emphasis on the results of using escape rooms, and none of them pay attention to how these escape rooms are working toward affecting the reader. What separates us from these researchers, is our effort to investigate the relationship between interactivity and immersion in our selected narrative forms; we will conduct

a comparative analysis, examining how interaction and immersion are manifested and balanced within each medium.

Some researches such as "What do users care about? Research on user behavior of mobile interactive video advertising" (2022) Chao Gu et al. recorded the readers' reactions toward an interactive narrative mode as the focal point of the research; however, the focus of the study toward readers is limited to digital platforms and marketing purposes. In our study, we tried to draw a picture through the comparison between the media to address a broader audience.

Other studies, such as "From Immersion to Metagaming: Understanding Rewind Mechanics in Interactive Storytelling" (2019), Erica Kleinman et al. address the issue of how rewinding to make choices in a narrative can damage the immersive experience of a reader in interaction with a narration. This study focuses only on narrative games and will not explore other media; therefore, there remains a gap that the present study tries to fill. While all the sources mentioned above are helping us to answer our research questions, they are not completely applicable. Thus, the significance of our study lies – in our statistical society – which is local, and the result can be used in our industry. Moreover, we have covered more than one medium, and, in this process, we tried to introduce these relatively new narrative forms to be of benefit to experts.

3. Theoretical Framework

Interaction plays a crucial role in enhancing immersion within narrative experiences. In storytelling it allows users to engage more deeply with the narrative, creating an illusion to control and agency. Interaction refers to active participation and agency granted to the reader or user within the narrative experience. It allows the audience to shape the course of the story, make decisions, and directly influence the outcome. The relationship between text and the reader can be understood through the lens of theories mentioned by Wolfgang Iser, developed by Barths, and later transformed into a digital era by Marie Laure Ryan and Michel Joyce. In his book *Implied Reader*, Iser talks about the relationship between text and the reader:

The keyword here is interaction. Readers interact with a text in different ways. First, in the most traditional sense, they cognitively relate to the text by reading it.

Iser explains the relation between the reader and the text as follows: what has been said by the author and what has been left out define the relationship between the author and the reader (1974:15); in *Implied Reader*, he states, "With the literary text, we can only picture things which are not there; the written part of a text gives us the knowledge, but it is the unwritten part that allows us to picture things" (61). The horizon of expectation and background of the readers help them to decode the text, creating meaning, but in this process, the reader follows the writer passively. The writer guides the reader through the narrative without considering his/her desires. The same process involves an audience watching a movie or playing a linear video game. While the reader in all cases above is actively involved with the text (a movie, a videogame, or a book with linear narration), the control s/he has is minimal. The new generation of narrations adds interactivity at a higher level than the cognitive level to the text. They allow the readers to choose their path in a narration and control the outcome of the narrative, redefining the place of a reader and an author to the text.

Michel Joyce in *Other Mindedness: The Emergence of Network Culture (Studies In Literature And Science)* calls interactive narrative "constructive text, a scheme in which the body (or activity) of writing is considered not a subject territory but a scene of creation: a version of what [it is] becoming, a structure for what does not yet exist" (2001:11). Now the reader is not enslaved anymore, and s/he becomes a creator, leveling up to being a writer or at least having the illusion of being the writer of the text. S/he enjoys "a capability to act: to create, change, and recover particular encounters within the developing body of knowledge" (15). The role has been changed now; as mentioned earlier, interactivity and immersion are related together, so with a change in interaction, a change in immersion would occur.

According to the Cambridge Dictionary, immersion is the act of dipping something in a substance and completely covering it. When reading a text, the reader goes through the same process and mentally gets drawn into the narrative. Immersion is the subjective impression of being fully absorbed and engaged in the narrative world to the point of suspending disbelief and feeling a sense of presence within the story. J. B. Murray defines immersion as follows: "We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely

other reality, as different as water is from air that takes over all of our attention, our whole perceptual apparatus" (2017:98). Immersion is one of the main reasons we are drawn to narratives: to separate ourselves from our reality and gain pleasure or knowledge. The relationship between interaction and immersion is the primary concern of our study here. The relationship between interactivity and immersion is a complex and multifaceted one. Interactivity can enhance immersion by allowing the reader to participate directly in the narrative, fostering a deeper emotional connection and a stronger sense of agency. Conversely, excessive or disruptive interactivity can potentially hinder immersion, breaking the flow of the narrative and diminishing the reader's sense of immersion (Murray 2017:59). As narrative forms evolve, the balance between interactivity and immersion becomes increasingly crucial.

The media we have chosen for this study includes an interactive novel called *Murdered* from a series of books called *Choose Your Own Poison*; in interactive novels, the reader's choices and decisions directly shape the narrative, leading to multiple possible outcomes and storylines. This interaction can enhance the reader's sense of agency and investment in the narrative, but it can also disrupt the flow of the story, potentially putting an impac on the overall immersive experience. Next, we have chosen *Black Mirror: Bandersnatch*, an interactive movie; interactive movies, such as *Black Mirror: Bandersnatch*, blend traditional cinematic storytelling with interactive elements, allowing the viewer to make choices that influence the narrative progression. The interactivity in these experiences can heighten the viewer's sense of immersion by fostering a deeper emotional connection and a stronger sense of personal investment in the story. Then we move to *Erica*, an FMV, or Full-Motion Video, which combines live-action footage with interactive elements, creating an immersive experience that blurs the line between passive viewing and active participation. The interactivity in FMV experiences can enhance the sense of immersion by providing the viewer with a more tangible connection to the narrative world. An FMV is where the line between a video game and a movie dissolves. From the screen then, we went to the *Night of January 16*th, an interactive play; in an interactive play, we have less interaction in comparison with the media mentioned above, as interrupting a live performance and dealing with the live audience collectively is a challenging task, so the interaction is less because of the presence of the audience in an environment

related to the narration, and the immersion still increases. To explore the physical presence aspect of media, we selected an escape room called *Mysterious Murder*. Escape rooms offer a distinctive combination of interactivity and immersion, allowing participants to collaborate in solving puzzles and challenges within a meticulously designed narrative environment. The high level of interactivity in escape rooms can lead to a strong sense of immersion as players become fully engaged in the unfolding story and the physical space. An ARG called *Cursed Exhibition* is the last example we study in our research. Augmented reality games like *Cursed Exhibition* seamlessly integrate the digital and physical worlds, creating an immersive experience. The interactivity in these games can enhance the sense of immersion by blurring the boundaries between the narrative world and the player's reality.

As the reader's experience is essential to understanding the relation between immersion and interactivity, we need to be quantitative along with the qualitative study. To investigate readers' response, we have chosen two standard questionnaires for measuring the level of interaction and immersion of a text: the "Immersive Tendencies Questionnaire (ITQ)" and the "Presence Questionnaire (PQ);" both were developed by Bob G. Witmer and Michael J. Singer in 1998, and the revised version was published in 2002.

As defined by Witmer and Singer, immersion refers to the subjective experience of being fully engaged and absorbed in a virtual environment to the point where the individual's perception of the physical world is diminished (2002:10). This notion of immersion is particularly relevant in the context of digital fiction and other interactive textual experiences, where the reader's sense of presence and involvement can significantly impact their understanding and enjoyment of the content. The authors' "Immersive Tendencies Questionnaire" measures an individual's propensity for experiencing immersion, taking into account factors such as focus, involvement, and perceptual inclusiveness. In contrast, the "Presence Questionnaire" developed by Witmer and Singer focuses on the user's sense of interaction and engagement with the virtual environment. This questionnaire assesses the degree to which the reader feels a sense of control, sensory, and realism within the text and their level of exploration and distraction. (Bell et al. 2018:5) While the original questionnaires were designed for use in virtual reality and gaming environments, their application has

been extended to the realm of digital fiction and other interactive textual experiences. By applying these measurement tools, researchers can gain valuable insights into how readers respond to and engage with different text types, ultimately informing the design and development of more immersive and interactive reading experiences.

4. Methodology

After Studying the theoretical framework on the relation between immersion and interactivity we decided to do a survey experiment to examine if our prediction model of the relation between interactivity and immersion in different mediums can be supported by the readers. ITQ and PQ two standard questionaires designed, tested and developed by Bob G. Witmer and Michael J. Singer in 1998 were chosen then we went throught the process of collecting data as follows.

At the beginning of the process, we gathered a group of 235 paricipants through two public announcements at Universities in Mashhad,Iran to participate in the experiment. They all took the CEFR online exam, and 163 were qualified by reaching level C2. Then, they answered the questions on the Immersive Tendency Questionnaire (the link to the questionnaire is available in work cited). We have chosen paricipants who could acquire an average of 3 or higher in the seven-scale answer charts and have chosen detective stories as their favorite genre.

2. Do you ever become so involved in a television program or book that people have problems getting your attention?

|_____|_____|_____|_____|_____|_____|_____|
NEVER OCCASIONALLY OFTEN

Figure 1: An exemplar item from the ITQ

This means these individuals tended to be more immersed in virtual psychological or physical environments. The result showed 124 subjects, including 65 men and 59 women. As gender equality was essential to us in this experiment, we considered removing 24 subjects so that, as our final society, we could have 50 men and 50 women. The removal process was based on the score the subjects obtained in ITQ.

All the participants were volunteers, and the process was explained to them in their native language, although the media and questionnaires were not in their native language. The reason we could not conduct the experience in their native language (Farsi) was the lack of interactive media in Farsi. We started the experiment in a less physical environment by giving the participant an interactive story in a written form to read. The text was chosen from the detective/crime genre because this genre is more appealing to our statistical society, so we will have better participation. The "Presence Questionnaire" consists of 32 questions, which will be answered on a scale from 1, the least amount, to 8, the highest amount of presence degree. Questions are designed to measure different factors that result in presence. Factors include control, sensory, distraction, and realism, each comprising subcategories.

The experiment started by asking the participants to read an interactive book called *Murdered* from a series of books called *Choose Your Own Poison*. In the process of reading, the reader faces decisions that will change the course of the narration. It narrates the story of a murder in Brazil. This book has three different storylines and fifty possible endings in 284 chapters. The story has no loophole, and each choice will result in an outcome. As reading the whole story and finding all of its outcomes would take plenty of time, each subject from our statistical society is given only one chance to interact with the story. As a result, the length of time each subject interacted with the text varied. The shortest interaction recorded at 1 hour resulted in the main character's death, and the most prolonged interaction recorded at 7 hours approximately. To be able to record the reading process, the book was purchased from Amazon on Kindle by Fazel Bakhsheshi and then shared with subjects through Amazon Household on the Amazon app on their cellphones as family members. Because of the limitation for the number of adults and kids whom you can add to your library, the process took a very long time, but the app recorded the time spent on reading. Readers could not cheat or return to their previous choices without the researchers' knowledge. Upon finishing the narration, subjects were asked to communicate with researchers so we could provide them with the "Presence Questionnaire."

On subsequent levels of the experiment, participants were instructed to complete the "Presence Questionnaire" after finishing the assigned task, which varied

at each level. Initially, they were asked to view *Black Mirror: Bandersnatch*, a 2018 interactive film available on Netflix. A brief tutorial tailored to the streaming device guides how viewers can make choices. When faced with a decision point, users have ten seconds to select an option; otherwise, a default choice is automatically made. The average viewing duration is approximately 90 minutes, although the fastest route concludes in about 40 minutes. The film contains 150 minutes of unique footage divided into 250 segments, resulting in over one trillion potential viewing paths. Netflix reported five "main" endings, with variants within each ending. It was downloaded and given to the subjects. Then, they were given an FMV named *Erika*, developed by Flavourworks and published by Sony Interactive Entertainment in 2019. This game is available on IOS, Windows, and PlayStation and is given to subjects according to their desired platform. On the next level, the subjects were asked to come to a theater hall to watch a play by Ayn Rand written in 1934 called *Night of January 16th*. This play has two different endings, and audiences are supposed to play the role of the jury of a murder case in a court. At the end of the trial, according to their verdict, the play ends. Each subject watched his/her chosen verdict of guilty or not guilty.

The experiment then continued with *Mysterious Murder*, an escape room designed and run by the Cano Group in Mashhad. It narrates the story of a plan for murder in London, and the players should stop the murderer. The subjects were divided into groups of five, randomly created 20 groups. To avoid the unpleasant feeling of losing, all groups were provided with guidance and enough time to finish the game. The experiment takes a week due to schedule issues. The last part of the experiment was an ARG, *Cursed Exhibition* by The Detective Society (incorporation in production of escape room/ARG experiences created in 2022). The subjects were investigating a murder at a museum. The game was purchased from Amazon by Fazel Bakhsheshi. It has six episodes, each presented in a package, and the average time to solve each episode is 90-120 minutes. Each package contains actual clues, including crime scene photos, maps, letters, identification cards, a ring, and... the game also uses WhatsApp as a means to create a communication line between the player as a detective and suspects. The given number is an actual UK number that you also can call.

Moreover, it uses email as another communication line between the player

as a detective and the Police Department; email is used as a line for transferring audio of suspects being questioned in the police station or the audio recorded when police raid the target house. Websites related to the clues in the game make it look almost like a real case. As solving the case is rather a complex task for those who are not familiar with the gaming process, players played the game in groups of 5, again chosen randomly, and each group was assigned a guide who was familiar with the game and had already solved it, so if the players got stuck in a level, the help they needed was provided to them. To make the experience more authentic, players were asked to come to an office decorated like a detective's office. In the end, 600 questionnaires were collected, and the results were analyzed and presented in the discussion section of this study. One of the main obstacles we faced in conducting this research was finding suitable participants for our statistical society. This was because the text we had in our hands was not in our native language. Our research was conducted focusing only on the text in the detective/mystery genre, while it can be conducted in other genres as well. At last, we limited ourselves to six media in our study while there are other media that we did not cover in our study.

5. Discussion

As Witmer and Singer believe, immersion is defined as a state in which users are involved, absorbed, and engaged (2002:25). In McMahan's words, "immersion means the user is caught up in the world of the game's story." She added, "[immersion] results from the user's mental absorption in the world." McMahan and Thon both believed that "what is presented is more important than how it is presented [for a user to experience immersion]" (2013:12). Then narration and its shape are more important than music, colors, and the angle of a camera. Undoubtedly, the elements we mentioned are vital to the user's experience but not as crucial as the narration in studying the immersion. This idea can be exemplified by the experience of reading a book where the sensory input from the book is limited, but the narrative can immerse the reader entirely in itself. In the subject of interaction, Sanders and Cairns established that immersion comes from focusing the user's attention and thoughts on manipulating the narration (2010:17). When playing a video game, the user controls the game with a joystick; what adds to the depth of immersion does not come

from pressing a button but from the result of pressing that button, which changes the narration. Immersion was earlier defined as experiencing a plunge in the water; although physical, this example applies to the psychological state of mind. Back to the simple example of reading a book, a reader drawn into a narrative sometimes loses the sense of time and place to a degree that, if called even by name in his/her actual time, will not answer the caller. The same atmosphere is created when the players are involved in a role-playing game like Mafia; although the interaction is kept to a minimum, the players lose control and take the situation seriously as their lives are on the line in the game.

What we are going to discuss is how interaction and immersion work together and what influenced they have on eachother. Jennet, in "Measuring and Defining the Experience of Immersion in Games," stated that "today's most successful interactive artists ultimately see interactivity as an evolutionary (rather than revolutionary) step for storytelling" (2022:8). Immersion is created from involvement, and involvement can be increased by interaction; if involvement increases, then the engagement increases, and as a result, the immersion will increase. The pleasure of immersion in interactives stems from our ability to take action and see the outcomes of our choices. Instead of being dominated by the text, the reader now has the power to create it and get in the same position as the author. This gives the reader a sense of power. Choice and control provided by interaction in narration can take different levels, from the simple choice of a path in an interactive book or movie to a more advanced level of interacting with the environment in an escape room or an ARG. This study first tried to study the different levels in comparison to each other theoretically and then made an attempt to acquire the same results by running an experiment.

The concept of presence accompanies interaction and immersion in experiencing a narrative, often used interchangeably with involvement. It is a crucial aspect of the relationship between interaction and immersion because it is the result that is ultimately hoped to achieve in experiencing narration. Presence refers to the user's sense of being in the narration and can be influenced by the way narration presents itself and the user's cognitive and emotional responses. This suggests that the three concepts are closely related, with presence being a subjective response to the immersive experience and engagement being a consequence of immersion and

presence.

In reading a book, immersion solely comes from the readers' minds being engaged in the narration, and by adding the interaction, we, according to Iser and Barth, create a false sense of power: "Whenever the flow is interrupted, and we are led off in an unexpected direction, the opportunity is given to us to bring into play our faculty for establishing connections for filling in the gaps left by the text itself" (Iser 2000:53). Filling these gaps then, according to Barth, gives the reader jouissance, which is the result of a writerly text. In *The Pleasure of the Text*, he explains that "writerly text is a perpetual present, upon which no consequent language (which would inevitably make it past) can be superimposed; the writerly text is ourselves writing" (1973:98). The power bestowed upon the reader by interaction in reading a book makes her/him involved in the text and increases the immersion. Our analysis of the selected narrative experiences reveals a nuanced and dynamic relationship between interaction and immersion. To compare the relation between interactivity and immersion in different medias we used Presence Questionaire by Bob G. Witmer and Michael J. Singer.

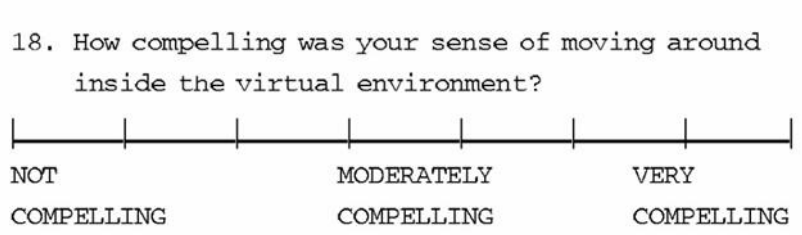


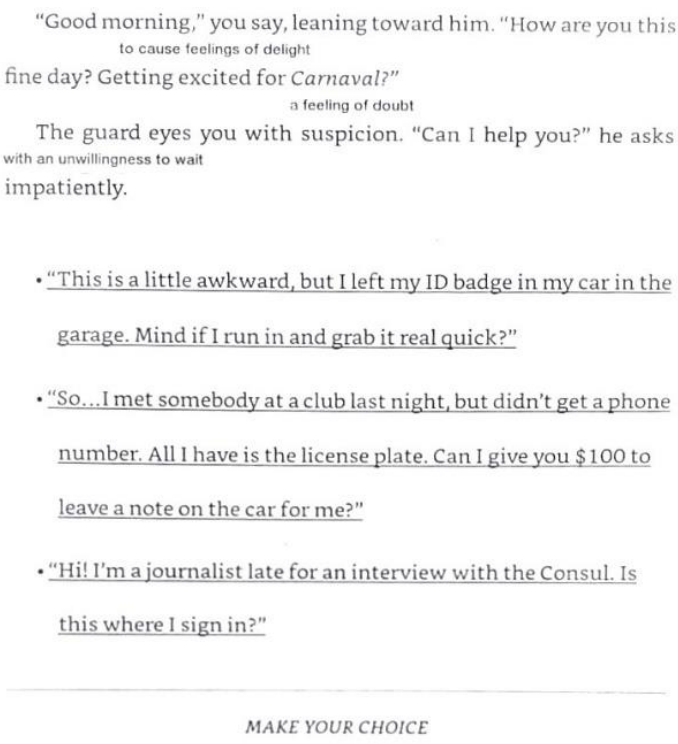
Figure 2 An exemplar item from the PQ

In this questionnaire control factors, sensory factors, distraction factors and realism factors are measured. We asked our subjects to answer the questionnaire after finishing going through each narrative in each media and the results are translated into percentage numbers and a chart for better understanding is provided in the conclusion section of this article. It is important to clarify that in analysing the results, the guide provided by the original authors of the questionnaire was used. In the original questionaires each of these factors are thoroughly discussed and explained. The link is available for further studying in the work cited section of the article.

Table 1 Factors to Contribute to the sense of presence (Witmer and Singer 1998:7)

Control Factors	Sensory Factors	Distraction Factors	Realism Factors
Degree of control	Sensory modality	Isolation	Scene realism
Immediacy of control	Environmental richness	Selective attention	Information consistent with objective world
Anticipation of events	Multimodal presentation	Interface awareness	Meaningfulness of experience
Mode of control	Consistency of multimodal information		Separation anxiety/ disorientation
Physical environment modifiability	Degree of movement perception Active search		

In our first case study, *Murdered* in the beginning, the interaction increased the satisfaction and immersion, and in extended interviews conducted with subjects after finishing the novel those subjects who finished the novel in a shorter period because of their choices reported a more immersed environment. However, they also mentioned dissatisfaction because they failed to continue the novel; they were excited about their choices and willing to discuss them. However, those who stayed longer in the narration toward the end reported less immersion as the emotional relation with narration thickens. They experienced a more profound sense of presence in the narration; interruptions to make choices annoy them, and our quantitative results support their opinion. Here more control factors in the narration gave more satisfaction and resulted in more presence in the narrative and more immersive environment. But as the time spent on the narration increases, selective attention decreases, and interface awareness and separation anxiety increase. Obviously, due to the limitation of the interactive novel as a platform, some subcategories of the factors in the questionnaire could not be measured; for example, in control factors, the subcategory of physical environmental modifiability, which is connected to questions 3 and 14, the result for all participants was one because of the absence of physical interaction with the narration's environment.


"Good morning," you say, leaning toward him. "How are you this
to cause feelings of delight
fine day? Getting excited for *Carnaval?*"
a feeling of doubt
The guard eyes you with suspicion. "Can I help you?" he asks
with an unwillingness to wait
impatiently.

- "This is a little awkward, but I left my ID badge in my car in the garage. Mind if I run in and grab it real quick?"
- "So...I met somebody at a club last night, but didn't get a phone number. All I have is the license plate. Can I give you $100 to leave a note on the car for me?"
- "Hi! I'm a journalist late for an interview with the Consul. Is this where I sign in?"

MAKE YOUR CHOICE

Figure 3 A page showing the process of choice making in Murdered (Schannep 2013:177)

On the second level, studying an interactive movie, the platform's limitation in the sensory factor category decreased as the other sences beside vision are involved in the experience of the medium while the subjects still face limitations on the control factor. The results show a consistent presence for all subjects and a 13.42 percent increase compared to the level one results. Time spent on the movie does not affect the level of presence. In extended interviews with participants, they reported easier control and more satisfaction, although some declared that they wanted more control over the story and that more choices would interest them more. Ultimately, subjects were asked which experience was preferable, and 82 percent chose the interactive movie over interactive book.

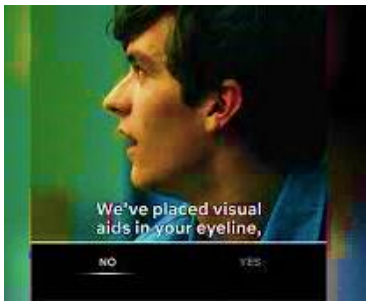
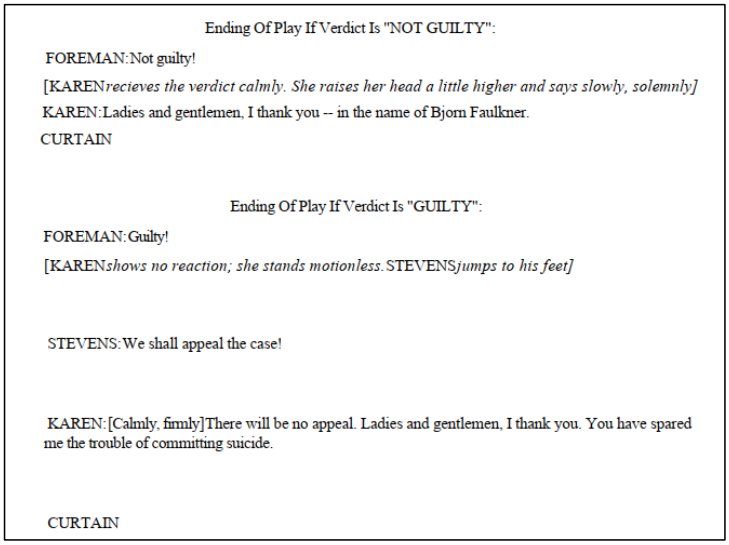


Figure 4 A picture showing the process of choice making in Black Mirror: Bandersnatch (Slade 2018: 00:30:15)

On the third level, studying an FMV, the platform's limitation in the sensory factor category decreases again. In the control factor category, limitation decreased as well, because now the subjects in addition to making choices to control the narration can perform simple movements that have meaningful results on the screen; however, the subjects faced limitations on physical environmental modifiability. The results show a consistent presence for all the subjects and a 29.54 percent increase compared to the level two results. Time spent on the FMV does not affect the level of presence. Extended interviews with participants showed a degree of excitement that was not present at the previous level, although it can also be related to the novelty of an FMV for them. When they were asked about interaction, subjects declared the amount of interaction was significantly higher in comparison to level one and level two as well as the ability to do more than only choices, performing some meaningful action on the screen that, although it will not change the course of the story, made them feel closer to the narration's environment. In the end, subjects were asked which experience they were more likely to try again, and 98 percent chose FMV, while 2 percent chose interactive novels.

Figure 4 Two pictures showing the process of choice making and movement in Erica (Attridge 2019: 01:12:15, 02:15:18)

On the fourth level, studying an interactive theater, the platform's limitation in the sensory factor category stayed the same compared to level three. In the control factor category, limitation increases compared to the two previous levels, but we have increased physical environmental modifiability. The results show a drop in presence for all subjects and a 7.23 and 10.65 percent decrease compared to the results from level two and three, but it also shows a 35.85 percent increase compared to level one. As the time spent in the theater is the same for everyone, it does not affect the level of presence. In extended interviews with participants, when they asked about interaction, they declared that the amount of interaction was significantly less compared to level two and level three, but they still enjoyed the control as they decided how the narration should end. When asked about their physical presence in the environment of the narration, 34 percent found it effective in their experience, and the rest did not believe in its effect. In the end, subjects were asked which experience is more likely to try again 96 percent chose FMV, while 4 percent chose interactive theater. Showing the physical presence solely cannot decrease the immersion if the authority to modify environment is kept to minimum.



Ending Of Play If Verdict Is "NOT GUILTY":

FOREMAN: Not guilty!

[KAREN *recieves the verdict calmly. She raises her head a little higher and says slowly, solemnly]*

KAREN: Ladies and gentlemen, I thank you -- in the name of Bjorn Faulkner.

CURTAIN

Ending Of Play If Verdict Is "GUILTY":

FOREMAN: Guilty!

[KAREN *shows no reaction; she stands motionless.* STEVENS *jumps to his feet]*

STEVENS: We shall appeal the case!

KAREN: [Calmly, firmly] There will be no appeal. Ladies and gentlemen, I thank you. You have spared me the trouble of committing suicide.

CURTAIN

Figure 5 A page of The Night of Jaunary the 16th showing the decision making process (Rand 2005: 111)

On the fifth level, studying an escape room, the platform's limitation in the

sensory factor category increases compared to all previous levels. In the control factor category, limitation decreases in comparison to all previous levels, and in terms of physical environmental modifiability, we have an increase. Moreover, the realism factor is due to the platform's capabilities that are available for measurement. The results show an increase in presence for all the subjects. In comparison to level one, 85.75 percent; level two, 27.98 percent; level three, 42.64 percent; and level four, 14.85 percent decrease. Although the time spent on the narration differed for each group, it did not affect the level of presence. In extended interviews with participants, when they asked about interaction, the subjects declared that the amount of interaction significantly improved compared to the previous levels. When asked about their physical presence in the environment of the narration, all the subjects found it effective in their experience, and some declared that the participation of others in narration with them made the experience more satisfying. In the end, the subjects were asked which experience they were more likely to try again; 69 percent chose an escape room, 28 percent chose FMV, and 3 percent chose an interactive movie. As the result shows when newer platforms are presented to the subjects, they lose their interest in older platforms with less interactivity.

Figure 6 Mysterious Murder Escape Room (Cano Group 2022)

On the sixth level, studying an ARG, the platform's limitation in the sensory factor category stays at maximum, similar to level five. In the control factor category, limitation stays on the same level as the fifth level, and in physical environmental modifiability, we have a decrease. Due to the platform's capabilities, the realism factor is still available for measurement. The results show a slight increase in presence for all subjects as follows: In comparison to level one, it was 89.15 percent; level two, 33.55 percent; level three, 47.14 percent; and level four, 17.25 percent decrease. Although the time spent on the narration differed for each group, it did not affect the level of presence. In extended interviews with the participants, they declared the amount of interaction was still high. When asked about their physical interaction with evidence and their communication with people outside of their group, they found their experience satisfying, and some subjects declared that at some moments in the narration, they believed that they were in search of an actual murderer. At the end, the subjects were asked which experience they were more likely to try again, 58 percent chose ARG, 28 percent chose escape room, 12 percent FMV, and 1 percent interactive movie.

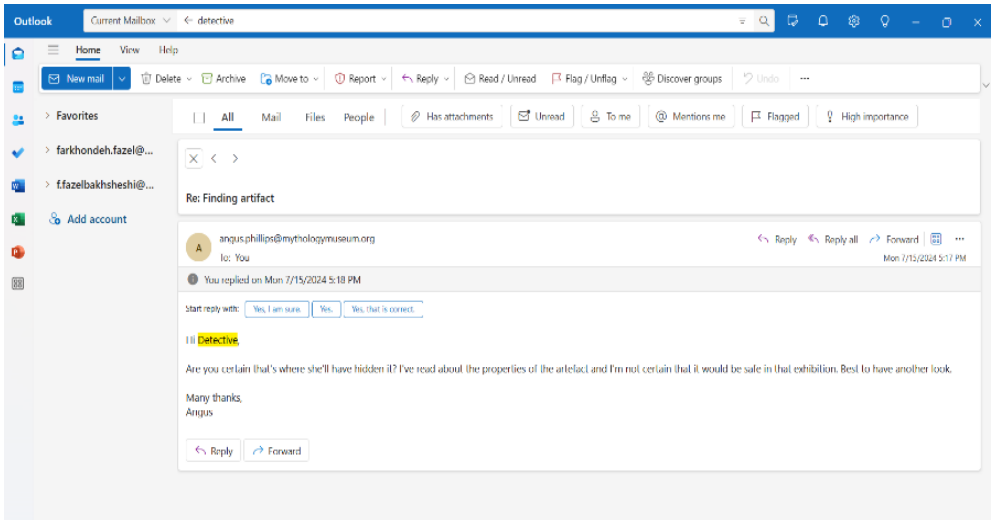


Figure 7 A picture of real time communication in the ARG, Cursed Exibition (Detective Society:2022)

6. Conclusion

To investigate the relationship between interaction and immersion in our selected

narrative forms, we conducted a comparative analysis, examining how interaction and immersion are manifested and balanced within each medium. The study began with a review of the academic literature on interaction, immersion, and their relationship in the context of various narrative experiences, including interactive novels, interactive movies, FMV, escape rooms, and augmented reality games. This review established a theoretical framework for understanding the key concepts and their interdependence. Next, we analyzed specific examples from each narrative form, carefully documenting the interactive elements, the level of immersion, and how these two factors interacted to shape the overall user experience. To supplement our qualitative analysis, we also drew on empirical studies investigating the impact of interactivity and immersion on factors.

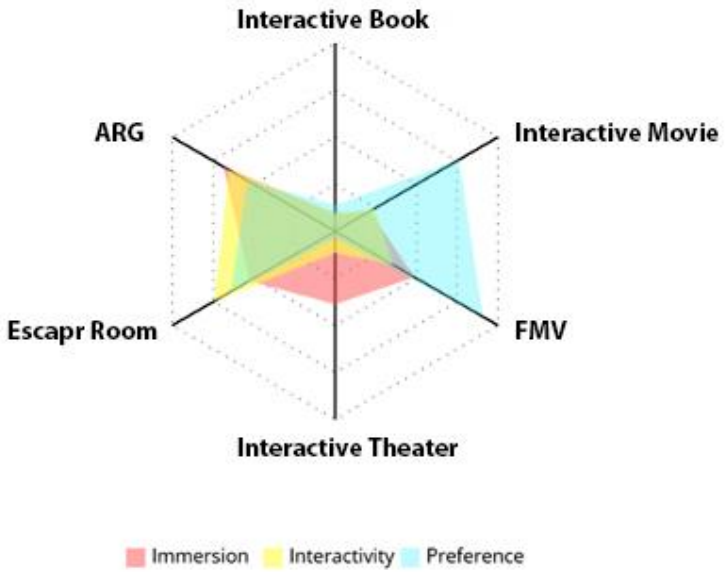


Figure 8 A chart showing the relation between interactivity and immersion and subjects preference

In conclusion, our study of these diverse narrative experiences highlights the complex and interdependent relationship between interaction and immersion. While excessive interaction can potentially disrupt the flow of a narrative and undermine the reader's sense of immersion in less physical platforms, when carefully designed and integrated, interaction can enhance the emotional connection, agency, and overall

immersive experience of the audience. Our limitation in this study was the number of subjects and their age distribution. We also could not measure the biological reactions of our subjects, such as their heart rate, blood pressure, eye movement, and so on; clearly having access to that kind of information would make the resulsts more reliable. Our study only dealt with the detective genre, and gaining results in different genres were not possible due to the limitation of our sources. Still, there are other genres and other media that researchers can study to shed more light on the relation between interaction, immersion, and reader response. What we wanted to achieve was to be able to present less-known modes of narration to our society, directing the attention of the industry and academia to fields that are less explored and are full of new opportunities.

This paper is a part of the doctoral thesis named *From Book to Escape Room: A Study of Immersion and Interactivity in Interactive Narrations* in *Department of Foreign Languages and Linguistics, Faculty of Literature and Humanities, Shiraz University, International Divison.*

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References

Abbott, Porter (2021). *The Cambridge Introduction to Narrative (Cambridge*

Introductions to Literature) (2008–04-21). Cambridge, Cambridge University Press.

Bell, Alice et al. (2018). "Immersion in Digital Fiction: A Cognitive, Empirical Approach."

International Journal of Literary Linguistics, Accessed 31 May 2024. DOI:10.15462/ijll.v7i1.https://www.researchgate.net/publication/322807921.

Barthes, R., Miller, R. and Howard, R. (1973) *The Pleasure of the Text*. Accessd June 2020. http://emberilmu.files.wordpress.com/2011/08/roland-barthes-the-pleasure-of-the-text.pdf.

Detective Society*, Cursed Exhibition,* ARG, Detective Society, 2022.

Douglas, Jane Yellowlees (2001). *The End of Books--or Books Without End?: Reading Interactive Narratives*. Ann Arbor, Michigan, University of Michigan Press.

Dede, C. (2009, January 1). "Immersive Interfaces for Engagement and Learning." *American Association for the Advancement of Science*, 323: 5910, pp. 66-69. https://doi.org/10.1126/science.1167311

Erica, FMV, PS4 ed., 2019. Flavourworks.

Ermi, Laura & Mäyrä, Frans (2005.) "Fundamental Components of the Gameplay Experience: Analysing Immersion". Worlds in Play: Int. Perspectives on Digital Games Research Conf. Accessed 20 May 2024. https://dl.digra.org/index.php/dl/article/view/119

F. F. Bakhsheshi and G. Ghaziani, (2019). "Tourism Based Games: A Study of Challenges and Profits," *2019 International Serious Games Symposium (ISGS)*, Tehran, Iran, pp. 30-37, doi: 10.1109/ISGS49501.2019.9047024.

Genette, Gerard, et al. (1983). *Narrative Discourse: An Essay in Method*. Ithaca, New York, Cornell University Press.

Gu, Chao, et al.(2022). "What Do Users Care About? Research on User Behavior of Mobile Interactive Video Advertising." *Heliyon*8:10, p. e10910. https://doi.org/10.1016/j.heliyon.2022.e10910.

Guckian, Jonathan, et al. (June 2022). "The Great Escape? The Rise of the Escape

Room in Medical Education." *Future Healthcare Journal*, 7: 2, pp. 112–115, https://doi.org/10.7861/fhj.2020-0032. Accessed 7 Aug. 2020.

Herman, David, et al. (2007). *Routledge Encyclopedia of Narrative Theory*. 1st ed., Oxfordshire, England, Routledge.

Iser, Wolfgang (1973). *The Act of Reading: A Theory of Aesthetic Response*. London and Henley: The Johns Hopkins University Press, Kindle.

-------- (1974). *The Implied Reader. Patterns of Communication in Prose Fiction from Bunyan to Beckett*.

Baltimore and London: The Johns Hopkins University Press, Kindle.

--------. (2000). "Do I Write for an Audience?" *PMLA*, 115: 3, pp. 310-341. Kindle.

Jennett, Charlene, et al.(2008). "Measuring and Defining the Experience of Immersion in Games." *International Journal of Human-Computer Studies*, 66: 9, pp. 641–61. *Crossref*, doi:10.1016/j.ijhcs.2008.04.004.

Johnson, C. I., Bailey, S. K. T., Schroeder, B. L., & Marraffino, M. D. (2022). "Procedural learning in virtual reality: The role of immersion, interactivity, and spatial ability". In C. I. Johnson, S. K. T. Bailey, B. L. Schroeder, & M. D. Marraffino, *Technology Mind and Behavior*, 3:4, American Psychological Association. https://doi.org/10.1037/tmb0000087

Joyce, M. (2001). *Othermindedness: The Emergence of Network Culture*. Ann Arbor, Michigan, University of Michigan Press.

Makransky, Guido, and Gustav B. Petersen. "The Cognitive Affective Model of Immersive Learning (CAMIL): A Theoretical Research-Based Model of Learning in Immersive Virtual Reality." Educational Psychology Review, vol. 33, no. 3, 6 Jan. 2021, pp. 937–958, https://doi.org/10.1007/s10648-020-09586-2.

Kleinman, Erica, et al.(Nov. 2019). "From immersion to metagaming: Understanding rewind mechanics in interactive storytelling." *Entertainment Computing*, 33, p. 100322. https://doi.org/10.1016/j.entcom.2019.100322.

McMahan, Alison. (October 8, 2013)."Immersion, Engagement, and Presence: A

Method for Analyzing 3-D Video." Taylor & Francis, , www.taylorfrancis.com/chapters/edit/10.4324/9780203700457-10/immersion-engagement-presence-method-analyzing-3-video-games-alison-mcmahan.

Meadows, Mark Stephen (2002). *Pause & Effect: The Art of Interactive Narrative*. Indianapolis, New Riders Pub.

Murray, Janet (2017). *Hamlet on the Holodeck, Updated Edition: The Future of Narrative in Cyberspace (The MIT Press)*. Updated ed., Cambridge, Massachusetts, The MIT Press.

Mysterious Murder, Escape Room, Cano Group, 2021.

Rand, Ayn (2005). *Three Plays: Night of January 16; Ideal ; Think Twice*. Kolkata, West Bengal, Signet.

Ravy, Tawnya (2019). *Words, Worlds and Narratives: Transmedia and Immersion*. Oxfordshire, Inter-Disciplinary Press.

Retzinger, K. (2009). "Confounding definitions: using a continuum to understand interactivity" (p. 245). SIGDOC '09: Proceedings of the 27th ACM international conference on Design of communication, https://doi.org/10.1145/1621995.1622044

Reichenbach, Diana. (2017) *Losing Time and Space: Experiencing Immersion*. *SpringerLink*, link.springer.com/chapter/10.1007/978-3-319-44418-5_39?error=cookies_not_supported&code=26c3d734-a729-475f-b5a0-d9e2365d4347.

Rooney, Brendan, et al. (2012) "The Apparent Reality of Movies and Emotional Arousal: A Study Using Physiological and Self-Report Measures." *Poetics*, vol. 40, no. 5, pp. 405–22. *Crossref*, doi:10.1016/j.poetic.2012.07.004.

Rose, Frank. (2012) *The Art of Immersion: How the Digital Generation Is Remaking Hollywood, Madison Avenue, and the Way We Tell Stories*. Reprint, Mew York, W. W. Norton & Company.

Rosenblatt, Louise. M. (2021) *Literature as Exploration*. Fifth Ed. New York, The Modern Language Association of America.

Ryan, Marie-Laure. (2015) *Narrative as Virtual Reality 2: Revisiting Immersion and Interactivity in Literature and Electronic Media (Parallax: Re-Visions of Culture and Society (Paperback))*. Illustrated, Maryland, Johns Hopkins University Press.

---. (2003) *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media (Parallax: Re-Visions of Culture and Society)*. Maryland, Johns Hopkins University Press.

---. "Beyond Myth and Metaphor." *Game Studies*. Volume 1, Issue 1, pp 30-48, July 2001. http://gamestudies.org/0101/ryan. Accessed April 2017.

---. "From Narrative Games to Playable Stories: Toward a Poetics of Interactive Narrative." *Storyworlds: A Journal of Narrative Studies*. Vol.1, (2009): pp. 43-59. Jstore. https://www.jstor.org/stable/25663007. Accessed May 2017.

---. (2004) *Narrative Across Media: The Languages of Storytelling*. Nebraska, University of Nebraska Press. Kindle.

---. (1991) *Possible Worlds, Artificial Intelligence, and Narrative Theory*. Indiana, Indiana University Press. Kindle.

Timothy Sanders and Paul Cairns. 2010. "Time perception, immersion and music in videogames." *In Proceedings of the 24th BCS Interaction Specialist Group Conference (BCS '10). BCS Learning & Development Ltd., Swindon, GBR,* 160–167. Accessed 12 Feburary 2023. https://dl.acm.org/doi/10.5555/2146303.2146327.

Schannep, J. (2013) *Murdered: choose your own poison book*. Colorado, CreateSpace Independent Publishing Platform. Kindle.

Slade, David, director. *Black Mirror: Bandersnatch*. *Netflix*, Netflix/House of Tomorrow, December 28, 2018, https://www.netflix.com/nl-en/title/80988062. Accessed May 20, 2019.

Tse, A. C. B., & Chan, C. (2004). "The Relationship between Interactive Functions and Website Ranking." In A. C. B. Tse & C. Chan, Journal of Advertising Research (Vol. 44, Issue 4, p. 369). Advertising Research Foundation. https://doi.org/10.1017/s0021849904040395.

Veldkamp, Alice. "Escape Education: A Systematic Review on Escape Rooms in Education." *Educational Research Review*, vol. 31, 1 Nov. 2020, p. 100364, www.sciencedirect.com/science/article/pii/S1747938X20300531, https://doi.org/10.1016/j.edurev.2020.100364.

Visch, Valentijn T., et al. "The Emotional and Cognitive Effect of Immersion in Film Viewing." *Cognition & Emotion*, vol. 24, no. 8, 2010, pp. 1439–45. *Crossref*, doi:10.1080/02699930903498186.

Witmer, Bob G., and Michael J. Singer. "Measuring Presence in Virtual Environments: A Presence Questionnaire." *Presence: Teleoperators and Virtual Environments*, vol. 7, no. 3, 1998, pp. 225–40. *Crossref*, doi:10.1162/105474698565686.

Wolf, Mark, and Bernard Perron. (2013) *The Video Game Theory Reader*. 1st ed. Oxfordshire, Routledge.