ANALYZING THE EFFECTS OF FILM TECHNIQUES ON STORYTELLING IN CINEMATIC VIRTUAL REALITY

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To my beloved family, friends, and my advisor who supported me during this challenging time

ABSTRACT

This thesis focuses on analyzing the usage of traditional film techniques and their effects on storytelling in cinematic virtual reality (CVR) or 360° films. Since virtual reality is an emerging technology, creating content for it is still an ongoing process and an open-ended discussion. Throughout this work, existing cinematic virtual reality contents are viewed and analyzed to seek answers for the following questions: “How does CVR function differently from traditional cinema?”, “What is the essence of CVR?” and “Can we define the rules of production of a successful CVR film?”. The chosen CVR films are analyzed by the following five main criteria to answer these questions: the first-person view vs. ghost view, still viewing or moving viewing position, the existence of a guiding content, space and time transitions, and vertical-horizontal movements. At the end of the study, a guideline is presented for virtual reality filmmakers and researchers about creating CVR content that would achieve a standardized storytelling approach.

ÖZET

Bu çalışmanın odak noktası filmlerde kullanılan geleneksel anlatı tekniklerinin sinematik sanal gerçekliğe ya da 360° filmlere uygulanabilirliğini var olan örnekler üzerinden analiz ederek güçlü ve eksik yönlerini ortaya çıkarmaktır. Çalışma boyunca takip eden üç (3) soruya cevp aranmıştır: “Sinematik sanal gerçekliğin klasik sinemadan farkı nedir?”, “Sinematik sanal gereçekliğin özü nedir?” ve “Başarılı bir sinematik sanal gerçeklik filminin üretim süreçlerinde kullanılmak üzere bir kılavuz hazırlanabilir mi?”. Örnek içerikler incelenirken sırasıyla beş (5) temel kriter göz önünde bulundurulmuştur: birincil karakter bakış açısı ya da hayalet bakış açısı, sabit izleme ya da hareketli izleme konumu, izleyiciyi yönlendirme, zaman ve mekan geçişi ve yatay-dikey doğrultuda hareket etme. Bulgular sonucunda, bu alanda çalışan film yapımcılarına ve/veya araştırmacılara ideal bir anlatı diline sahip bir sinematik sanal gerçeklik filmine ulaşabilmeleri için yönergeler sunulmaktadır.

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LIST OF ABBREVIATIONS

CVR – Cinematic Virtual Reality
HMD – Head-Mounted Display
IMR - Institutional Mode of Representation
MR – Mixed Reality
POV – Point of View
VR – Virtual Reality

CHAPTER 1

INTRODUCTION

1.1 Research Justification

Virtual reality (VR) is one of the most demanded technologies in the last couple of years, and its popularity continues to grow. The technology itself has a vast potential for applicability in various fields such as education, psychotherapy, health, and entertainment. Since social media corporation Facebook acquired the VR system Oculus Rift in 2014, the interest in this technology has dramatically increased (Bucher, 2017, p. 1). As mentioned above, there are many tasks where VR has been used and has impacted, such as developing virtual environments for disabled people or using it for therapy purposes for people with a mental disorder. Moreover, some applications are developed within VR environments to assist students in their education. Most of these implementations aim to solve particular problems or bring new approaches by focusing on a specific, narrow issue.

In addition to these, gaming is the field of entertainment with arguably the most advanced VR examples, and the technology used in this field evolves every day. Unlike traditional video games, VR games allow users to behave more freely, and they enhance the gaming experience letting them interact with the game in a more sophisticated way. Even though video games have been inspired by film grammar to tell more enhanced stories, games and particularly VR games are not proper genres to apply traditional film techniques because of the advanced level of interaction. Considering classical cinema, films are not interactive entities; instead, they present a one-way relationship with their audience. Traditional films are finished products that are passively watched by the audience. Rather than being a negative aspect, this is one of the strengths of the traditional film. Because the aim of a traditional film is to tell a story to its audience in an elaborate way and passivity is the major factor to be considered from the very beginning. It can even be said that the perfection of film techniques is based on this passive relationship.

Consequently, a new type of VR has been established recently and was named cinematic virtual reality (CVR) or 360° films. The 360° films allow viewers (VR headset users) to have a 360° panoramic view, but the interaction options are limited with this opportunity– except for some experimental VR works. There is no exact knowledge about the first CVR film, but the first examples appeared around 2015, such as BBC's *Calais Migrants* film (BBC, 2015).

Therewithal, in this period, filmmakers' interests in VR and also in 360° films increased, and many different works were produced. For instance, Steven Spielberg mentioned how VR could change the film industry; he thinks that VR can be dangerous for filmmaking as it allows the viewer a lot of latitudes (Child, 2016). As a result of all these developments, some of the prestigious film festivals set up a new category for VR films, which is very important to introduce the pioneering works and gather people's attention. Venice Film Festival, the first film festival in history (Venezia, History of Venice Film Festival, 2020), set a particular category for VR films in 2017 (Venezia, Bienalle Cinema, 2020). Following this, the other festivals also started to screen VR films such as Cannes, Sundance, and Tribeca.

Additionally, movie studios started to support VR filmmaking, too, as they saw the potential of the medium. In his book, John Bucher presents several interviews that he made with the people from the field of VR, and one of them is with Ted Schilowitz, who works as a futurist in the *20th Century Fox* and directly reports to the senior leadership. In this interview, Schilowitz talks positively about the future of VR storytelling, and this shows that one of the biggest Hollywood studios cares about this technology (Bucher, 2017).

Besides all these, CVR still has not reached its potential, and VR researchers have not broadly conducted research on this area. The existing studies on CVR or 360° films investigate different parts of the phenomena. For example, Mateer claims that filmmakers should focus on *transportation theory* – a theory prioritizing internalizing the story and merging with the story itself and claming that the user may not differentiate things from the real world even though the events in the story are not real (as Mateer cited (Green, Brock, & Kaufmann, 2004)) in order to enhance the presence in VR (Mateer, 2017). While Moddy tries to give a full perspective about 360° films by discussing several criteria (Moody, 2017), Dooley analyzes a 360° VR film regarding the notion of *proximity* and demonstrates how planning about *proximity* can be beneficial for VR artists (Dooley, 2020). On the other hand, Bucher aims to present a deeper analysis of the storytelling in VR by making interviews with the pioneers from the field and giving examples (Bucher, 2017), and Tricart also explains VR filmmaking by focusing on the filming process in her book, which is entitled *Virtual Reality Filmmaking* (Tricart, 2017).

Additional to these, some academic studies focus on cinematic virtual reality from different perspectives. For instance, Gödde et.al. discuss the narration in cinematic virtual reality in different aspects such as guiding the audience, framing, editing, and so on (Gödde, Gabler, Siegmund, & Braun, 2018). In another work, diegetic and non-diegetic sounds are the main topics for this study on cinematic virtual reality (Rothe, Hußmann, & Allary, 2017).

Besides, there are two academic theses submitted within two years period seeking an answer for cinematic virtual reality storytelling and audience expectations (Jesus Costa, 2018) and the possibility of creating a cinematic language of CVR (Zhang, 2020).

As a result, most of the published research approaches to the issue from one narrow perspective although there are some works like Zhang and Gödde et. al. that focus on the narrativity in cinematic virtual reality. However, there are still ambiguities about the narrativity studies of the cinematic virtual reality and the topic itself is open to be handled through different approaches. Therefore, I can state that the narrativity of the cinematic virtual reality and its relation between the traditional cinema and its audiences is still a valid question and needs to be investigated and I aim to present a different approach considering all these researches.

1.2 The Aim of the Study

Most of the existing media have a specific way of telling stories. For instance, an author uses words to tell a story and create a world. By reading the book, readers can imagine and understand the intentions of the author and comprehend the developed world. The filmmaker, however, uses moving images to tell a story to the audience. Novels exist for centuries, and cinema has a history of more than a century; therefore, these are relatively mature fields compared to VR. According to Moody, the cinema reached its standardized narrative structure in 25 years (Moody, 2017, p. 48). Film grammar was developed over the years in a very sophisticated way, and today there are well-known conventions of how to tell a story in a film. It can be claimed that cinema uses one of the most complex techniques and technologies compared to the novel, theater, and other arts.

As VR is a relatively new field of study, the research on the conventions of this field is still an ongoing process, and most of the questions about the essence of the medium are still unanswered. Out of the existing VR examples, CVR is the closest format to the cinema in terms of the similarities of produced artworks and the relationship between them and the audience. Traditional cinema presents a horizontal rectangular frame, and the audience has a passive role, unlike VR where there is not a specific rectangular frame and the audience is active. In cinema people watch finished products designed in advance by directors; therefore, they do not control the content. On the other hand, VR offers an environment with a 360° panoramic view and allows one of the most advanced interactive options that has ever occurred. Audiences or viewers are not as passive as they are while viewing a traditional film. They can actively be

involved with the artworks produced with VR technology; thus, this brings new situations and problems to the relationship of the audience and the medium. In contrast to the cinema, VR applications have limited control over the viewer, resulting in a loss of attention, which can cause several problems such as the inability to follow the storyline. This led researchers to seek new VR experiences that can still be a VR experience but in a more limited way so that the term cinematic virtual reality was born.

CVR is different from most VR practices since it does not offer a broad interaction as VR usually does. It only provides an all-around view but with less or even no interaction. Also, it differs from traditional cinema since it allows the viewer to change his/her viewing perspective in the scene. Therefore, the viewer is active but in a limited way: Not as active as a VR user and not as passive as a traditional cinema viewer. This leads us to propose that cinematic virtual reality is a new phenomenon. Although it is different from traditional cinema, it has several similarities, such as not offering free will, as most VR applications do. CVR contents are films that have all-around panoramic views. Although CVR has obvious similarities with traditional cinema, the essence of the CVR has not been figured out yet. The researchers still investigate the features of CVR and its effect on the viewer. It is still not clear if it has the potential to become a new medium by itself. In other words, the relationship between the content and the audience is still a question to answer.

Therefore, this study aims to interrogate and understand the essence of CVR by analyzing the existing examples with the help of norms and conventions of the field of cinema, also known as film grammar. Some of the questions that the study seeks to answer are:

- *How differently does CVR function from traditional cinema?*
- *What is the essence of CVR?*
- *Can we define the rules of production of a successful CVR film?*

The study aims to answer the questions above and present a guideline for a successful CVR film, the one as successful as a sophisticated traditional film example.

1.3 Scope

There are many different fields where VR technology has been used. The most prominent one is gaming. There are applications and ongoing researches about VR gaming, and it has its own technical and content-related approaches that are out of the scope of this work. In

addition to this, artists can use VR in contemporary artworks by creating installations both with the physical environment and VR, which is called *mixed reality*. (Jaller & Serafin, 2020) This is also not part of this thesis. Besides this, any applications developed by VR such as journalism, psychotherapy, or educational experiences are also not in the scope of this study. There is no doubt that all these developments are essential for the field of VR; however, CVR is a very specific field of VR technology since a film is presented and viewed here, and its dynamics are radically different from the content of the other applications. Therefore, CVR, or in other words, 360° films, is the main focus of this work, and the interest in VR technology is only limited to the developments presented in the existing CVR films.

Although most of the produced CVR films are documentaries or films from the other non-fictional genres such as journalism, CVR films analyzed in this study are mainly fictional ones because the stories presented in these films are the most sophisticated ones, and these are the closest films to traditional cinema. Therefore, we can see that they are highly influenced by film production techniques such as time and space integrity or continuity in editing, which are not priority issues with CVR documentaries.

Fictional examples selected for analysis in this study have different genres or feature different contents. The aim of this study is to define the essence of CVR and how it works in terms of narrativity by considering the relationship between the audience and the filmmakers. Therefore, the following films are analyzed according to the proposed criteria, and the guideline is constituted as a result of these analyses:

- *Great Performers of L.A. Noir (episodes: The Bartender, Fiancé, Cheating Husband)*
- *Fresh Out*
- *Kinoscope*
- *An Obituary*
- *The Dinner Party*
- *The Caretaker*
- *Ashes to Ashes*
- *The Invisible Man*

The narrativity can be examined in different ways as it is constituted from many aspects such as the story act or storyline, the framing, editing, mise-en-scéne, and so on. The story act

is a topic by itself and will not be focused on in this study, however, techniques that contribute to the creation of storytelling in a film will be the main interest of this study. In other words, this works structurally investigates the techniques which effects storytelling rather than focusing on the plot of the artwork. In the previous section of this chapter I emphasised that CVR is a new field of study in academia and so I focus on the fundamentals of storytelling in a CVR film which are related to the basic film techniques such as camera position or editing. Therefore, different storytelling approaches according to the genres or styles of films are not investigated in this study. I believe that they would be a topic of interest after a consensus on the basic storytelling aspects of CVR films is reached.

1.4 Method

The analyzes that have been carried throughout this thesis are circled around the structural analysis of the selected CVR films. When a close investigation of the existing examples of CVR was conducted, several questions were asked about the functionality of the interaction in the films. Here the traditional film viewing experience was compared to the viewing experience of a CVR example. It was seen that the main difference is in the ability of the viewer of a CVR film to change his/her viewing position during the viewing process. It was also realized that mainly this ability creates the difference between CVR film examples. Considering all these, it was seen that the functionality of a CVR film could be investigated according to the five criteria listed below:

- A first-person view and/or a ghost view
- Still viewing position and/or moving viewing position
- Existence of a guiding content
- Space and time transition between scenes
- Vertical and horizontal movements of the viewer

In order to strengthen the analyses of the CVR films, I first briefly demonstrated the basic norms and conventions of traditional cinema. I preferred to talk about only the film techniques which are related to my study. Then I present a summary of the history of VR and show the place of CVR films in this still-developing medium. Also, the storytelling in VR is shown briefly. Finally, I describe the field of CVR with existing genres and main examples. All this background information was helpful during analyses of CVR films and during the process of defining a guideline for a successful CVR film.

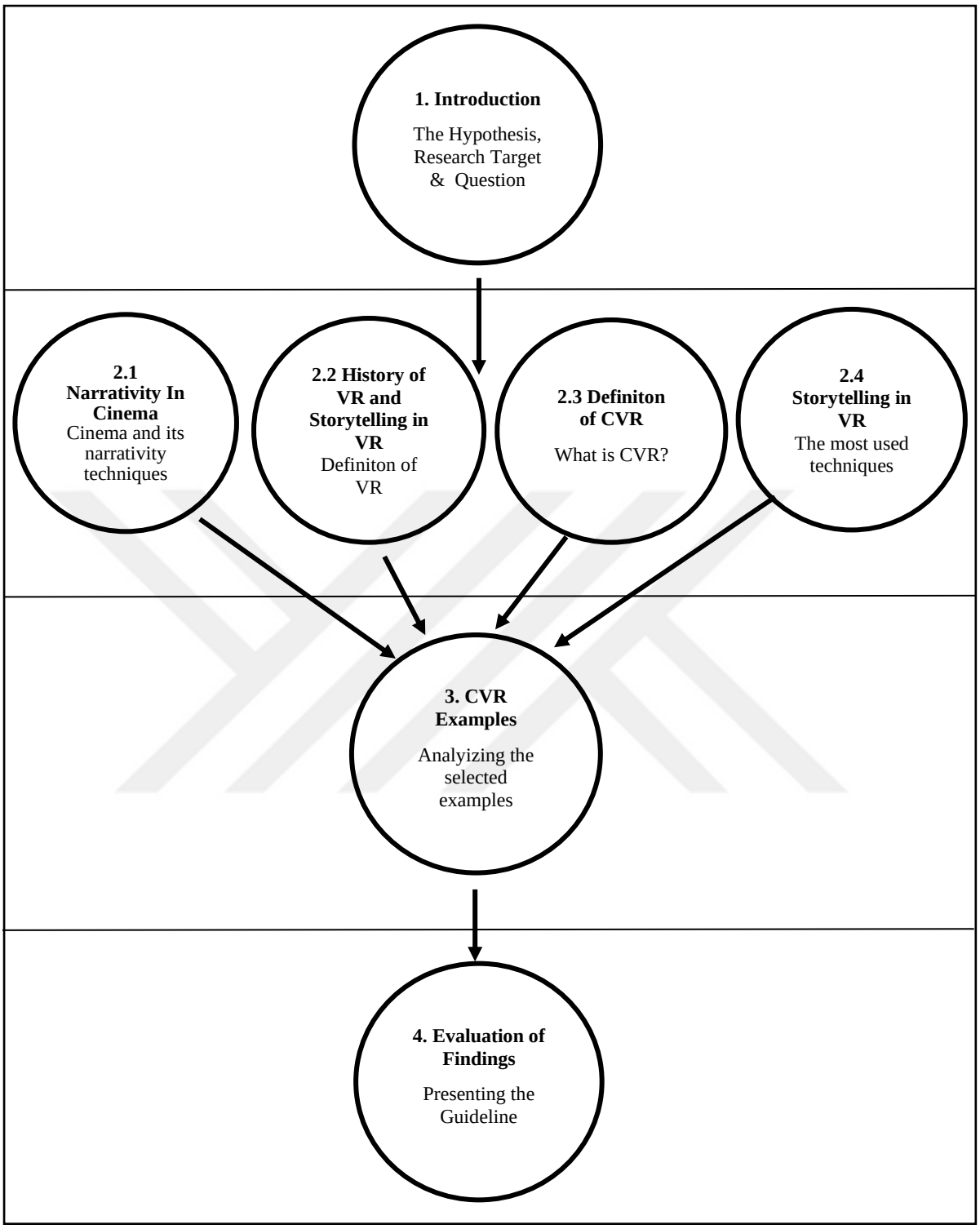


Figure 1.1: Diagram of the research method

1.5 The Originality of the Study and Contribution to the Field

The research on storytelling or narrativity in CVR is a relatively new and ongoing process. As mentioned before, there are some works that focus on narrativity in CVR by considering the techniques of the traditional cinema, such as the study of Dooley. She discusses the notion of *proximity* in CVR and relates it to the camera shot in traditional cinema, and she only analyses one movie called *Dinner Party* (Dooley, 2020). Next to this, Mateer analyses how directors can benefit from traditional film techniques while shooting 360° video (Mateer, 2017). These works generally discuss a specific part of the issue, however, in his practice-based Ph.D. thesis Yu tries to give a broader view on narrativity in CVR and presents a glossary for a future research (Zhang, 2020).

Although, Yu's aim and findings are close to my research topic there are still differences. He used a previsualization technique and shot a movie called *Calling* (Zhang, 2020), however, my method, is based on film analysis of the latest published CVR works (my film examples are different from the selected CVR films by Yu) and I make comparative analysis with the traditional cinema. Not only the method but also the results that I discuss in the evaluation part of this study (see Chapter 4) differ from his work in a significant way, therefore, my research still tries to bring a different perspective to the issue and can be considered for further researches.

According to the findings of the analysis, my study presents a unique guideline for VR filmmakers that can assist them in the production phase to build more successful CVR examples, which would make the field a more commercialized and, utility embraced one by the end-users. This strengthen its claim of being a new medium.

CHAPTER 2

LITERATURE REVIEW

To understand the need and aim of this work, the existing literature has been reviewed, and the work itself has been built on the results of this activity. Firstly, the definition of storytelling and its changes through the years in cinema will be demonstrated; then, the same procedure will be followed for Virtual Reality and its brief history. In addition to these, the difference between CVR or so-called 360° films and other VR contents will be discussed.

In the following part, the techniques of the cinema used to tell a story will be the main topic since it is significant to know them in order to compare them with CVR techniques and evaluate the influence them in CVR. This is also intertwined with the last part about presenting the existing CVR works based on their storytelling choices. Consequently, the evaluation will be carried out in the following part due to the analyses of current works and the existing literature.

2.1 Narrativity in Traditional Cinema

Traditional cinema is shaped around humankind's life, which means one of its aims is to tell real life stories to people on a widescreen. Since the Lumiére brothers screened the first films in the history of cinema in 1895, the techniques of making films have been changed enormously. There have been many developments in terms of shooting a film and creating a film language (Bazin, 1967). Narrativity is one of the most important parts of a film process since it is related to the essence of this art form. Narrative structures also have been changing over the years.

One of the features of the classic narrative is that it presents a very typical event timeline structure known as a three-act structure. After a set-up, a confrontation happens, and finally, it is resolved. A typical classical story can be designed like that: An incident happens (set-up), then it triggers a series of events leading to the climax of the film (confrontation), but at the end of the film, the conflict is resolved (resolution). Annette Kuhn defined this as "..events in the story are organized around a basic structure of enigma and resolution" (Kuhn, 2007, p. 46). This is a very typical form of storytelling, and it is the closest one to the canonic story, which is a norm for our culture (Bordwell, 1986, p. 18). Next to these features, narrative structures are shaped around some technical and stylistic set of codes that Noël Burch (1981) describes as the

Institutional Mode of Representation (IMR). These codes are mise-en-scéne, editing framing, sound, and lighting. These sets of codes contribute to defining narrative space and time (as cited in Kuhn, 2007).

Each of these codes affects narrative structures in a different way. For instance, continuity in editing helps the spectator to understand the story without any extra cognitive effort (Kuhn, 2007). Likewise, a close-up shot is a direct and mostly intimate representation of a character that directly impacts the story. As mentioned, these codes help filmmakers during the process of constructing a narrative space that is essential in creating the structure of the film. In his famous article, Stephen Heath deeply analyzes how narrative space is constructed in the movies by implementing a set of codes such as pleasing compositions in framing, 180° rule in shooting, use of point of view for identification, and seamless editing (Heath, 1976).

On the other hand, modern movies follow a different path to create a narrative structure. Kovács claims that modern cinema aims to reconstruct mental states and forms. Deleuze does not believe that modern cinema deconstructs or criticizes classical cinema, but he thinks that it has the best representation of the contemporary world (Kovács, 2007). Additionally, Kovács mentions that classical cinema uses traditional storytelling techniques that consist of a continuous time-frame and a delimited space segment, and that means that perception is followed by an action or an action by a reaction Deleuze calls this process *sensory-motor circuit* while modern cinema uses *pure optical and sound* and that means that events in modern cinema are not supposed to be seen immediately (Kovács, 2007, pp. 41-42).

The most common techniques of filmmaking are discussed below in order to understand film grammar and to see how it can be used during the analyses.

2.1.1 First-Person View & Ghost View

One of the fundamental features of traditional narrative cinema is the aim to present the story continuously, in other words, to have a seamless representation. The relationship between space and time is constructed according to this aim, and camera angles or types of shots are directly related to this. There are many ways to show the space to the audience, such as using a panoramic shot (pan shot), which allows presenting the space in an uninterrupted way with a broader view. However, directors usually prefer to use more than one shot within a scene in order to construct the narrative, and as a result of this approach, some basic film techniques have been established: shot/reverse-shot, 180° rule, 30° rule, over-the-shoulder shot, eye-line

match, and many others. With the help of these techniques, filmmakers first deconstruct the space in many different shots with different sizes and directions and then construct the same space again, but this time by following some established rules of the film grammar. This leads to a seamless, continuous structure where the aim is to hide the traits of techniques in order to help the audience concentrate on the content of the film. For instance, when there is a dialog scene in a film, directors often use the 180° rule, which allows them to present space from different perspectives but later to combine these multiple shots and present a scene that hides its aspects of being an artificial construct. This construct just claims that this is the "normal way" of viewing this scene. In this study, I focus on two ways in which filmmakers use to create narrative continuity in a film.

The first technique that filmmakers use is the objective point of view, also known as the *ghost view*, which is about shooting a scene from a neutral perspective, a perspective that does not belong to any of the characters. In other words, this is a neutral observer (Bowen, 2018, p. 292). The beginning scenes of the Hollywood film *Green Book* (2018) presents an excellent example of this technique. Here, the camera shows a singer inside a night club from a neutral perspective. Although the place is highly crowded, this perspective is a ghost view making us, the viewers, one of the members of the club but a neutral one: One who has a perfect view in the scene, a view better than anyone there (see Figure 2.1):

a.  b. 

c. 

Figure 2.1: Ghost view example. The singer at the night club shot with a neutral camera (*Green Book*, 2018)

Another scene of the movie starts with an establishing shot. This scene, which is a shot from the air, aims to show us the bridge, the river, and cars in a single frame and slowly move closer to the leading car. This is a typical objective ghost view because it refers to the point of view, a position of viewing which is impossible for a human being. People do not fly, but cameras can. As a result, the audience is presented with a perfect point of view, and they enjoy their superiority (see Figure 2.2).

a.  b. 

c. 

Figure 2.2: Ghost view from the air (*Green Book*, 2018)

The second technique is known as the *first-person view*, which means positioning the camera as if it is the eye of a character during the scene so that the audience can feel that they see the event from the character's eye, from the character's subjective perspective (Bowen, 2018, p. 293). This technique is used widely by directors since it is the best way to construct a story within a film, which triggers an identification between the audience and the main character. The examples presented here from the movie *Green Book* (2018) show how it works in a film. In the first shot, the camera shows one of the main characters, whose name is Tony Lip -portrayed by Viggo Mortensen- in a shoulder shot. Here the director aims to show the expression of the character while he is looking at something suspiciously off-screen (see Figure 2.3.a). In the next shot, this time we look from the perspective of the character (first-person view), and this shot comes as a solution to the mystery created in the first shot, a fulfillment of the curiosity of the audience created with the off-screen looking of the character in the first shot.

Now we look from the character's perspective and see what he sees, and we also start to identify with him (see Figure 2.3.b).

a.  b. 

Figure 2.3: First-Person View example: (a)Tony looks off-screen (b) we see what Tony sees (*Green Book*, 2018)

In another scene of the film, Tony and the other main character, Dr. Shirley -portrayed by Mahershala Ali- are in a car, traveling and chatting. In the first shot, Tony is talking with Dr. Shirley while he is driving, and then he looks down at something off-screen (see Figure 2.4.a), then we see a sandwich on the right front seat of the car from Tony's perspective (first-person view) (see Figure 2.4.b), then we are back to Tony who looks at Dr. Shirley from the rear-view mirror as if he tries to see what the doctor is doing at the moment (see Figure 2.4.c), and then he looks down at the sandwich again and picks it up (first-person view) (see Figure 2.4.d). This is a perfect example of how a director uses the first-person view technique to make a connection between the audience and the characters in a film.

a.  b. 

c.  d. 

Figure 2.4: First-Person View example: (a) Tony is looking down off-screen (b) We see a sandwich prepared by his wife for Dr. Shirley (c) Tony looks at the rear-view mirror (d) Tony takes the sandwich next to him (*Green Book*, 2018)

Due to the first-person view, the audience often identifies with the character within the space of the scene. The audience can show empathy towards the character and can imagine what is in his/her mind because the director intends to demonstrate the events from the eye of the character. Additionally, there are some exceptional examples from the history of cinema. For example, in the American thriller *Dark Passage* (1947), the audience sees the first couple of minutes of the film only from the perspective of the character (only first-person view) (see Figure 2.5).

a.  b. 

c.  d. 

e.  f. 

g. 

Figure 2.5: First-Person View example from *Dark Passage*. (a) the main character holds on to wood, (b) pushes the wooden door, (c) wave to the upcoming car, (d) looks at the driver, (e) looks at his foot, (f) looks at the road, (g) looks at the driver again. (*Dark Passage*, 1947)

This is a classic film from 1947, and it is an exceptional example of a hyperrealist film; there are no similar films from the same period meaning that the technique was not as effective as it was expected. Besides some exceptional examples, there are no films only shot with the first-person view. There is always a combination between the first-person view and the ghost view.

Next to this, there are some examples that use the POV technique with a unique approach, such as *Birdman or (The Unexpected Virtue of Ignorance)* (2014) and *1917* (2019). These two films are shot with only one camera shot. They use a camera that shifts between the first-person view and the ghost view. None of the shots in these films are from the perspective of a character, but they are as if there is an extra character experiencing the story shoulder to shoulder with the main characters of the story. Since we don't see different camera angles, we start to be a close witness of the events, like ghost characters but from the first-person perspective.

In *1917* (2019), only in a few scenes (see Figure 2.6.b-c), we leave the eye-level perspective. Eye-level perspective leads us to feel during the film as if we are also one of the soldiers. Here, without having a first-person view, we start to feel that we are also characters in the film because of the long viewing experience from the eye-level perspective; Not the one whose body we see in the film, but the one who is a close witness of the events. (see Figure 2.6.a).

a. 

b. 

c. 

Figure 2.6: Different POV techniques from *1917*. (a) a scene from the characters' eyes, (b) following one of the main characters from the back, (c) following the same character from the ahead (*1917*, 2019)

These are some basic examples of how filmmakers use different camera angles in films to tell stories so that they make a connection between the audience and the film. Indeed, many other techniques have been used by filmmakers; however, these two are the most common ones, and they are related to the first criteria that are chosen for this study: *the first-person view and/or a ghost view* in CVR films. These two techniques will be considered in the following parts of this study, where CVR examples are analyzed.

2.1.2 Camera Movements

The camera is one of the essential equipment of filmmaking and directly affects the movie in many ways. The way that the camera is used by the director or the cinematographer can have many meanings. Filmmakers move the camera while shooting in order to point out something important to the audience or increase the feeling of being inside the movie, known as the phenomenon of *being-there*. A dramatic example from the movie *Saving Private Ryan* (1998) shows how moving the camera while shooting affects the audience. In the opening scene of the film, soldiers attempt a military landing in Normandy, France, and the director Spielberg moves the camera between under and over the water to show how difficult it is to complete this dangerous task and one of the aims is to create sympathy for the soldiers (see Figure 2.7):

a  b. 

c.  d. 

Figure 2.7: Moving the camera vertically. (a-d) Moving the camera up and down. (*Saving Private Ryan*, 1998)

Obviously, some other techniques in this scene, such as sound effects, music, and special effects, support the creation of this feeling, but it should be said that the camera is in the main role. Here, it behaves as if it is a living organism responding to the situation, moving up and down, and having similar energy with the soldiers. This kind of camera is also known as an *anthropomorphic camera*.

Next to this, in the film *Silence of the Lambs* (1991), the camera moves 270° horizontally, turning around its own axis to show the audience how a character recognizes her environment (see Figure 2.8).

a.  b. 

c.  d. 

e.  f. 

g. 

Figure 2.8: Moving the camera horizontally. The character (Jodie Foster) looks around (*The Silence of the Lambs*, 1995)

Here again, we have a mixture of a first-person and a ghost view, but this time it is used in a different, unconventional way. First, we see our character agent Sterling (ghost view) (see Figure 2.8.a) – played by Jodie Foster – and then with a cut, we start to see from her perspective (first-person view), but this shot is a 270° panoramic shot meaning that she turned around her own axis and at the end of the shot she is face to face with one of the guards of the hospital (see Figure 2.8.b-g). With the help of this implementation, we strongly become identified with our main character, and camera movement has a leading role in this.

Moreover, another camera technique is used in movies, generally known as *shaky cam*, where the camera is on the shoulder of the cameraperson and moves fast, creating shaky images. The effect of this kind of technique is also unique for the audience. Most of the time, a shaky camera is seen as an anthropomorphic camera technique meaning that what we see is mainly what a character experiences; we see what he or she sees. There are also some other camera movement techniques, but the examples which are presented here are the basic ones and will contribute to the understanding of the other two criteria that will help us to analyze CVR films: s*pace and time transition between scenes* and *vertical and horizontal movements of the viewer*.

2.1.3 Editing

Editing is one of the four essential parts of the film grammar with sound, lighting, and mise-én-scene, and it directly affects the film narrative. Simply, editing means putting the shots in order to create scenes that show the events in a movie. During the shooting process, filmmakers take many shots for one scene and use only some of them to create an event, which means some are useful to construct the narrative, and some are not. Considering editing in cinema, there are many techniques that can be seen as norms and conventions of editing, such as shot/reverse-shot technique, 180° rule, 30° rule, jumping the action line, eye-line matching, etc. The following scene from the movie *Whiplash* (2014) is an example of the shot/reverse-shot technique where the 180° rule is used (see Figure 2.9):

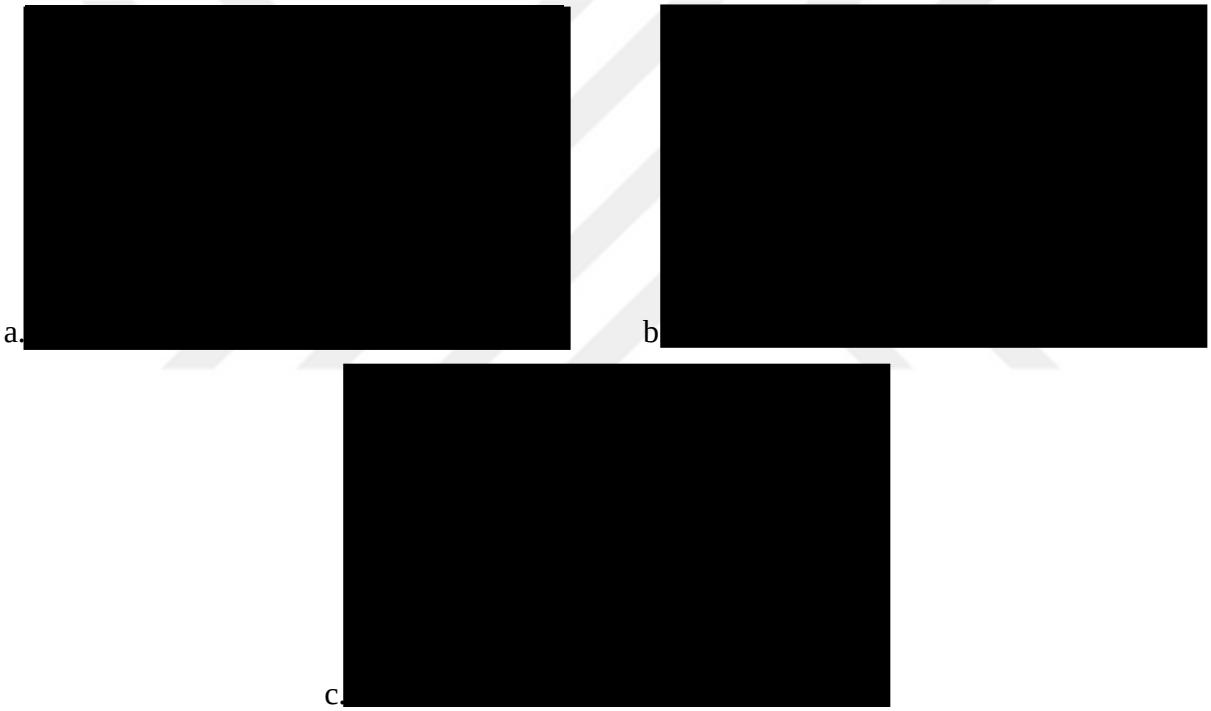


Figure 2.9: 180° rule: establishing shot (a), over the-shoulder shots 1-2 (b-c) (*Whiplash*, 2014)

Here we have a very fundamental method of editing a scene with two or more characters. The scene starts with an establishing shot where we see all the characters in an environment from only one side (see Figure 2.9.a). Then we move to a closer shot seeing only one of the characters and just part of the other character's back, and usually, the closer one is out of focus. This is a shot known as an over the shoulder shot (see Figure 2.9.b). And then we see the opposite camera angle (reverse shot) with a similar type of a shot (over the shoulder shot) again, only focusing on one of the characters (see Figure 2.9.c). What is interesting here is that if we consider a virtual action line created between the looks of these characters, then the 180° rule

suggests that you should have all the camera views positioned only on one side of this action line. This kind of implementation will be helpful for the audience to adapt to a scene that is three dimensional in reality and two dimensional on-screen.

Moreover, the movie *Whiplash* has some excellent scenes for eye-line matching techniques. In the first one, the character Andrew (Miles Teller) in the first shot of the scene raises his head slowly and looks right off-screen (see Figure 2.10.a), and we, by following the virtual eyeline of Andrew, unintentionally look at that right part of the frame. In the next shot, we see the other character, Fletcher's (J.K. Simmons) most important part of his face, which is his eyes, positioned just on the virtual eye-line of Andrew (see Figure 2.10.b). Similarly, in the third shot (see Figure 2.10.c), we see Andrew again, this time positioned on the virtual eye- line created by the looking in the previous shot, by the gazing eyes of Fletcher to the left of the frame

a.  b. 

c. 

Figure 2.10: Eye-line matching. Andrew looks off-screen (a), matching the eyes of Fletcher (b), and then we see him again (c) (*Whiplash*, 2014)

One more example from the same movie about the eye-line matching technique is useful to understand the purpose of this technique. In one of the late and most vibrant scenes of the film, the director shows us in successive close-up shots exchange of the looks between Andrew and Fletcher. We first see Andrew's face in an extreme close up looking right (see Figure 2.11.a) and then Fletcher's face in a very extreme close up looking left (see Figure 2.11.b). The eye-line match shows us that they are looking at each other. In the next shots, however, although

we see that the exchange of the looks continues (see Figure 2.11.c-e), we realize that the mood of the characters slowly changes as if one of the characters is sending a positive feeling to the other one and the other responds in the same way. This is a good example presenting how shot/reverse-shot technique combined with a successful eye-line matching technique can create a scene where not only gazes but also feelings can be transferred from one side to another and from one frame to another, and this makes viewers become more involved with the drama and forget about that the film is a technical construct.

a.  b. 

c.  d. 

e. 

Figure 2.11: Consecutive shots with eye-line matching technique (*Whiplash*, 2014)

Editing is a very complex yet useful film grammar technique, and very different kinds of examples can be presented in order to explain the aspects of it. However, the ones presented here are the basics and significant to understand and analyze CVR examples by two following criteria: the *presence of a guiding content* and *space and time transition between scenes*.

As mentioned above, when cinema created its own techniques of storytelling and language, other arts provided some guiding references. As a result, a new medium as VR is, and a special form of it as CVR can develop its narrativity by referencing the cinema as well, being influenced by its specific styles, which will be considered in the following part.

2.2 A brief history of Virtual Reality and Storytelling

Virtual reality is about creating a simulated environment. This environment can be similar to the real world or a completely different one. VR aims to provide to its audiences virtual experiences that are like real-world experiences; that is the general idea that caused the birth of this technology. Creating an alternative environment where people can experience things that they cannot experience in real life or enhance the experiences that the real world presents differently.

Even though many people believe that virtual reality is a new technology that has been around for the last few years, its history started around the 1950s and the 1960s. According to Bucher, the inventor Morton Heilig was the first person who used the term “virtual reality,” besides, he was also the inventor of Sensorama (see Figure 2.12), which is considered the first VR system in history (Bucher, 2017). In 1968, the first Head Mounted Display (HMD) (see Figure 2.13.a) was designed by VR researcher Ivan Sutherland who is known as “the father of computer graphics,” and his student Bob Sproull (Bucher, 2017).

Figure 2.12: Sensorama.
Image from Tricart's Virtual Reality Filmmaking (Tricart, 2017)

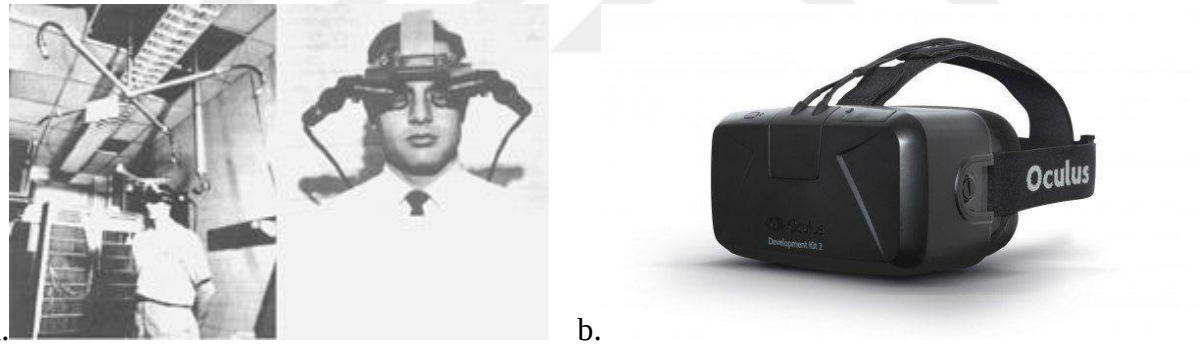


Figure 2.13: Head Mound Displays. (a) The first HMD (b) The Oculus Rift's HMD in 2014.
Image (a) from Tricart's Virtual Reality Filmmaking (Tricart, 2017).
Image (b) retrieved from https://www.pcgamer.com/oculus-rift-dev-kit-2-announced/

The earliest applications of VR were seen in this period, and after a decade, there was a layover period for almost twenty years. Due to the appearance of personal computers, people started to pay attention to this technology in the 1980s and 90s. There were some technical developments that contribute to shape today's technology such as the first developed HMD by Mark Callahan from MIT after Sutherland in 1983, or the CAVE system which is an immersive physical system that uses multiple stereoscopic projects on the wall rather than a HMD which was introduced in 1992 (Basu, 2019). However, it made its breakthrough when social media company Facebook acquired Oculus Rift in early 2014; then, people started to work on this

technology more than ever. The HMD that Oculus Rift has produced (see Figure 2.13.b) was a gamechanger for VR technology. After 2014, the development in VR rapidly increased; for instance, Google created the Cardboard (see Figure 2.14), which is easy to build and works with smartphones to experience VR in a limited but inexpensive way (Bucher, 2017).

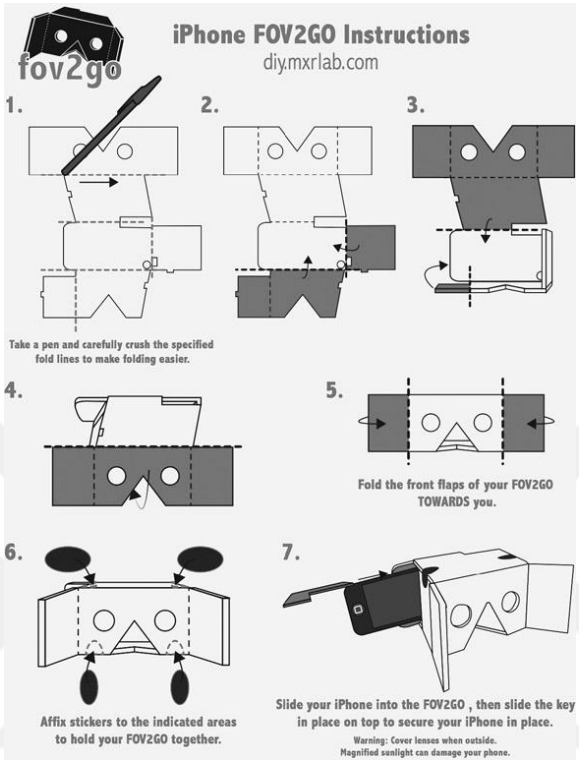


Figure 2.14: A cardboard VR prototype.

Image from Tricart's Virtual Reality Filmmaking (Tricart, 2017).

With the new hardware such as controllers (see Figure 2.15), people can engage with the environment they are in while they use their headsets; thus, the technology now is closer to its ideal form, which is being immersed in a virtual environment more than ever.

Figure 2.15: HTC Vive Pro controllers.

Image retrieved from https://www.wired.com/review/review-htc-vive-pro/

As mentioned above, there are many fields where VR technology has been used in the latest years, such as journalism, games, therapy, education, and many others. Since VR's essence is the real-world experience, journalists use VR to make news from places where people would not be able to go but can experience. For instance, the newspaper *New York Times* broadcasts journalists who can share their VR work in any content under the category *The Daily 360* (Times, 2020). Furthermore, the technology is in the interest of medicine so that it has been used in treatments such as anxiety and some other psychiatric disorders (Maples-Keller, Jessica L.; Bunnell, Brian E.; Kim, Sae-Jin; Rothbaum, Barbara O., 2017) or treatment of Alzheimer's (Clay, Felix; Howett, David; FitzGerald, James; Fletcher, Paul; Chan, Dennis; Price, Annabel, 2020). In addition to these, VR has a vast potential to change the course of the education of children. For example, *ClassVR*[1] is an open platform to bring people together who are interested in using VR/AR/MR in classes starting from pre-school to university and higher education (ClassVR, 2020). These are examples of how VR has been used in different fields, and there are also many others that are not included here.

Since technology continues to evolve day by day, both technically and philosophically, it brings new questions and new challenges. As mentioned in the introduction part, VR is being used in many fields for different purposes, and each field has different expectations and requires different solutions. Using virtual reality for entertainment purposes is one of them, and VR technology in the field of entertainment has become a *medium* by itself. Some researchers believe that this is a new medium and must have its own narrative style like Lev Manovich who believes the roots of virtual reality is very old but with the new enhancements in digitalization, it took the interests of people again as a new media medium (Erkılıç & Dönmez, 2020, p. 321).

Besides the technical improvements and its difficulties, content creation is a topic by itself, and the most crucial part of this is related to this question: "*How to tell the story in VR?*". The response to this question depends on whether the content presented in VR is accepted as a game or a film. People who work as directors, screenwriters, graphic artists, and many others focus on creating content with VR by using different aspects of existing storytelling techniques or experimenting with new ones. The existing contents produced with VR took as a reference many different art forms such as cinema, theater, video games, and literature so that there are many outcomes which already had been used in these art forms. In his book, John Bucher deeply investigates the storytelling for virtual reality from many aspects including the arc plots, the role of the viewer as a character as either a protagonist or an antagonist, linear or interactive

[1] https://www.classvr.com

narrativity, and so on. He interviews people who have been working on VR projects to show the different approaches in the field (Bucher, 2017).

However, cinematic virtual reality (CVR) varies from other VR applications as it is not precisely what VR should be. As Moody pointed out CVR or 360° films are less immersive compared to the traditional VR, in other words, *pure VR* (Moody, 2017, p. 42). *Pure VR* is the basic explanation of virtual reality, while 360° films are the films that have been shot with cameras that were produced to be able to shoot a 360° all-around panoramic view (see Figure 2.16) and provide audiences an all-around panoramic view, but do not have most of the features that pure VR has. Most of the researchers point out that the 360° video is not virtual reality because virtual reality offers free-will and the most importantly feature is that there is an interaction with the virtual environment unlike the 360° video. However, some of the researchers – such as (Dooley, 2020) and (Erkılıç & Dönmez, 2020)- still call the 360° video a new type of virtual reality which is a cinematic virtual reality

Figure 2.16: A virtual reality camera.
Image retrieved from https://www.theverge.com/2017/10/10/16452114/nokia-killing-off-ozo-virtual-reality-camera-310-jobs-lost

Compared with other VR applications like games or art installations, cinematic virtual reality is the closest to the traditional cinema in terms of its purpose, usage, and potential to become a new medium or bring a fresh perspective to the cinema itself. Yet, it does not have the field professionals' attention as it deserves, as Moody claimed (Moody, 2017). There are different genres produced as 360° films, including animation, documentary, thriller, horror, etc.

2.3 What is Cinematic Virtual Reality?

There are several definitions for the term cinematic virtual reality. I prefer the define cinematic virtual reality (CVR) as an immersive environment with a 360° view that is not specifically generated in a computer; thus, it is also called 360° films -although some researchers believe that the 360° video is different from CVR. When VR is mentioned, most people think about content totally created via computer software and imagine that they are in an environment of 3D computer graphics. Although this is true mostly for the games, some contents are not constructed on the computer but shot with a VR camera, and those are videos or films with 360° views. This means that some technical and content related problems are different for CVR products, and they require to be handled from different angles.

Most CVR applications are journalism, documentary films, and short movies. The mainstream media has started to use VR to produce news from places that people cannot go, such as war zones or a village from the remote parts of the world. The aim is to let people immerse in environments while watching produced content, a state of viewing which is not possible to be experienced with classic photojournalism or any kind of live broadcasting. Moreover, documentary filmmakers use VR extensively to create their work since one of the main aims of the documentary genre is to inform people in a broad sense and arouse deep emotions in the viewers. The other type of CVR films are fictional films, whether they are animated or not. There are many examples of this type, and those are mainly trailers of a mainstream movie, animations, or experimental works.

To experience a CVR film, people can wear a VR headset such as Oculus Rift, HTC Vive, PlayStation VR, etc.(see Figure 2.17.a) or use a more simple version where they can put their smartphone into the headset (see Figure 2.17.b).

a.  b. 

Figure 2.17: VR headset examples. (a) A man wearing a VR headset (b) smartphone compatible VR headset

Image (a) retrieved from The Guardian: https://www.theguardian.com/technology/2015/jan/07/oculus-vr-virtual-reality-facebook Photograph: Steve Marcus/ Reuters

Image (b) retrieved from Verge: https://www.theverge.com/2016/11/1/13489018/google-daydream-view-headset-release-date-november-10

If they wear a VR headset such as Oculus Rift, HTC Vive, and PlayStationVR, they can then watch the CVR films by choosing the content via platforms presented in the headset WithinVR and select the content they want to see (see Figure 2.18). Also, CVR films can be watched from video platforms that allow playing 360° videos.

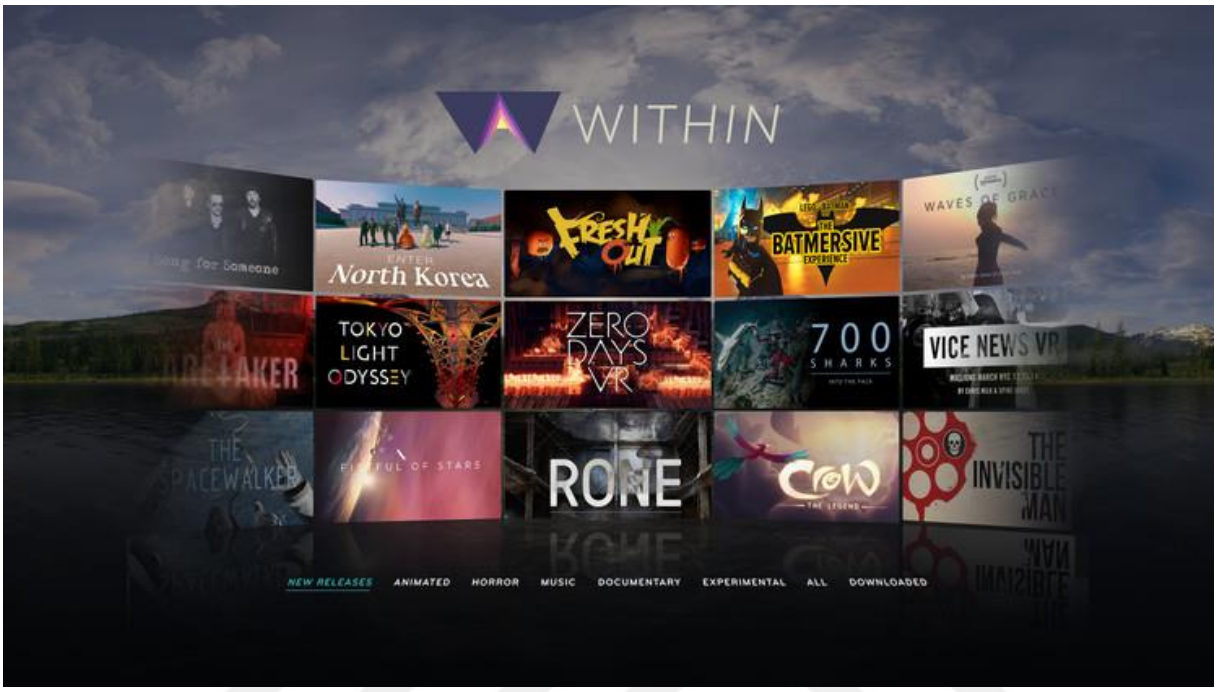


Figure 2.18: Home page of a VR platform from inside a VR headset.

Image retrieved from Variety:https://variety.com/2018/digital/news/within-vr-website-webvr-1202843564/

For instance, the viewers can use YouTube for viewing CVR films (see Figure 2.19.a); while they are watching a 360° video, they can change their viewing perspective via mouse or touching the screen in smartphones or via simply using the icon similar to the compass that is located at the corner of the screen (see Figure 2.19.b).

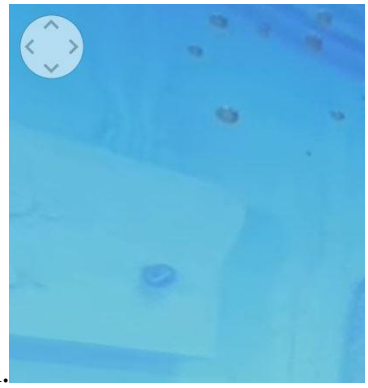
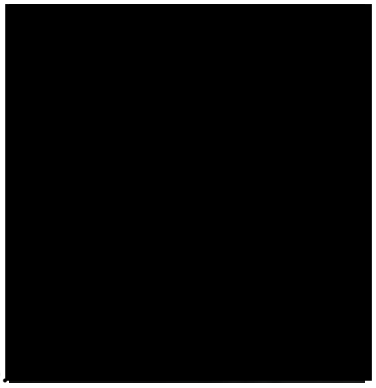
a.  b. 

Figure 2.19: Examples of instruction icons usage in 360° films.

Image (a) from Ashes to Ashes (Hallema & Schenk, 2017).

Image (b) from Great Performers of L.A. Noir: The Bartender (Prince-Bythewood, Great Performers of L.A. Noir - The Bartender, 2016)

In contrast to the other VR types such as games, simulators, or installations, CVR has become an interesting form for VR artists in the last few years. It needs more attention from filmmakers and artists as it has enormous potential to become a leading medium. As it can be understood from the term itself, CVR means VR with a cinematic approach that means the closest VR type to the cinema. Therefore, it is inspired by cinema in many ways but is developed independently since we talk about a cinematic form that is part of the new media. Since cinema has a very sophisticated and complex structure of presenting space and time, VR artists can benefit from this, but there are more to find out in order to understand the essence of the new medium. In the following part, VR and its relationship with storytelling are analyzed, which assists and leads us to this study's next chapter.

2.4 Virtual Reality and Storytelling

VR-based contents -games, films, or other types of applications- generally use similar narrative phases that have been used in literature, cinema, or theater in terms of the story's plot. An inciting incident triggers a series of events, leading to a conflict with a peak point (climax) and a resolution. However, the way the story is told can be different since the human being is the principal agency in VR work. In cinema, the spectator is passive during the viewing experience. The film is a finished product, and the viewer’s task is to understand and interpret the presented story. He or she cannot change the screened material. The spectator in virtual reality, however, is actively involved in the story creation, so the narrative structure is different from the one in traditional cinema. Also, the length of VR based content is usually shorter compared to the feature-length movies mainly because viewing a VR film can cause nausea.

The VR headset user can be the main or the side character or the observer of the story. VR artists use some techniques to direct viewers and assist them to progress and reach the end of the story without losing attention since leaving the user without a lead would create an interruption in the flow of the story. This is something which is not normally desired. To be more precise, the headset provides a 360° view to its user, or, in other words, VR offers a frameless view unlike traditional films where the frame is one of the most essential features. This “freedom” can be both seen as an opportunity and a cause for distraction. While creating VR content, the artists try to include many techniques such as sound or lighting guides which can help the viewing experience and prevent possible confusion.

2.4.1 Sound and Visual Tips

For the artist, it is easy to guide the user's attention inside a VR content by using sound and/or lighting clues. For instance, the spectator can be directed by a sound to the point that he/she would realize that there is a need to redirect his /her gaze in order to continue following the story in an optimum position of the view. The artists can use visual tips inside the immersive environment, such as arrows that guide the user about which path should he/she follow (see Figure 2.20).

Figure 2.20: A sample of visual indicators in VR (*Food Fight*).
Image retrieved from https://foodfight.healthimpact.studio/blog/food-fight-development-blog-indicators/

Like the arrows, there can be some other visual indicators that the viewer can use to progress within the content, such as texts. For example, *Invisible Hours* (Invisible Hours, 2017) is a video game developed within a VR environment that contains some texts as visual indicators. During the game, characters can find some diary notes, and the viewer can bring them together, which would help him/her to understand the story (see Figure 2.21).

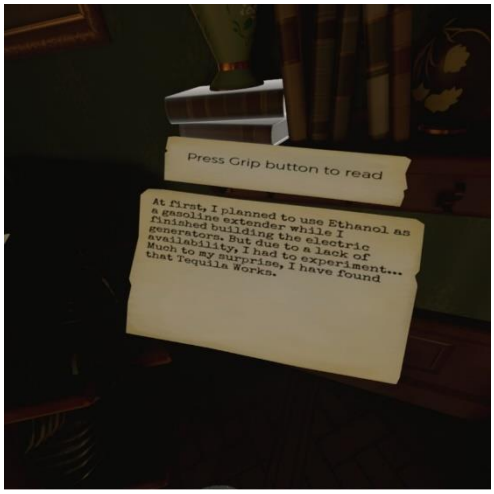


Figure 2.21: A tip indicator from the VR game *Invisible Hours* (Works, 2017)

Bucher points out that sound is the main driver for people's attention in VR based content, which can be considered as an advantage. Also, he believes that the sound tips – the performer's voices or recorded music- revive spectators' emotions to the place where the reality seems natural (Bucher, 2017). Like lighting and visual tips, sound is also used by VR artists extensively. While a user wears an HMD, he/she is inside of a virtual environment with a 360° panoramic view, and some sound tips can direct him/her within the content, such as a sound of a train can draw the attention of the viewer to turn his/her head to the direction of the sound source. Another example from *Invisible Hours* demonstrates how sound is useful in VR. In the game, the viewer is inside a multi-storey mansion with many rooms. During the game, the viewer can hear voices from some rooms and check out what is happening there so he/she can see those characters in the rooms while other characters follow a different path.

2.4.2 First-Person or the Ghost

Generally, VR experiences rely on the first-person experience where the user is the protagonist of the story. In this type of VR experience, the user can interact with the environment he/she is situated in from his/her point of view. Also, there is another type of VR story presentation, which is called *first-person peripheral*, where the user is not the main character but has some role in the narrative. In other words, he/she is not the driving character (Bucher, 2017). Bucher also mentions that the *second-person* point of view, meaning that the story is still told from the viewer's perspective. In another VR game called *The Solus Project* (The Solus Project, 2016), the viewer plays the game in the first-person view (see Figure 2.22).

Figure 2.22: First-person view from *The Solus Project* VR game (Studios, Digital, & Jong, 2016)

When VR is the topic, most people think it is about the first-person experience, which is mainly correct, but another option is the third-person experience or the *ghost* mode, as Bucher named it (Bucher, 2017). According to him, the third-person point of view can be divided into three; limited, multiple, and omniscient. In the limited mode, the viewer or the narrative sees and/or knows through only one character's perspective, while in multiple modes, the viewing experience can be increased to several characters. The omniscient mode is about knowing everything, which is why it is preferred for interactive and gaming experiences (Bucher, 2017). In the ghost view, the viewer watches the content from above, from an optimal point of view, or simply from the eye of a neutral person (see Figure 2.23).

Figure 2.23: The third-person view example from Moss a VR game.
Image retrieved from https://medium.com/kids-digital/third-person-vr-948aaa0c3ac6

These are some basic techniques that have been used for creating a story for VR that the artists choose and experience in different contexts. Obviously, the same techniques have also been applied in movies as well, which means that VR storytelling is influenced by cinema;

however, there are also some differences. In the next part, a general comparison and analysis of the existing usage of the mentioned techniques will be evaluated.

2.4.3 Immersion, Presence, and Embodiment

One of the main aims of VR is to break the boundaries between the real and the virtual as much as possible like it was also a goal for some other mediums such as cinema. For this, some essential elements need to be considered independently from the discussion about the different types of VR, and those are immersion, presence, and embodiment (Tricart, 2017). Immersion is explicit by its meaning; it is about surrounding the audience with images, sound, and set design to achieve a realistic environment. It is vital to set up the environment as much as immersive as possible so that the audience -the spectator, who wears the headset- can feel inside a different environment from his/her physical environment, leading us to another element: Presence.

Presence is about having a sense of inside the environment that surrounds the audience. Tricart mentioned that this is the core of virtual reality, and it is really important to achieve this, and it can be possible by improving technology (Tricart, 2017). The importance of the presence is also defined in other works since it refers to the *suspension of disbelief* in classical cinema, which means accepting the told story's conditions and feeling like an insider (Mateer, 2017). As Slater and Wilbur (1997) discussed, the following three criteria are essential to maximizing the presence in virtual reality: (1) Clean interaction rules; the viewer should know how, when, and where he/she changes his/her gaze or move; (2) Inside the VR navigation must be smooth and visceral that can assist the audience; (3) Transition between environments should be steady (as cited in Mateer, 2017). In addition to these, Steur's telepresence theory is very popular within the context of virtual reality. Pérez summarizes Steur's theory by emphasizing that a VR experience should have two basic elements: (1) *vividness* that relies on *depth* and *breadth* and (2) *interactivity* which consists of *speed*, *range*, and *mapping* (Pérez, 2016)

Another essential element that Tricart mentioned is the embodiment that refers to interacting within the virtual world. It is usually achieved by an avatar that allows the user to have a body inside this virtual world and move within it. She separates the embodiment into subcomponents; the sense of self-location, the sense of agency, and the sense of body ownership contribute to the VR in terms of physical representation (Tricart, 2017).

Cinematic virtual reality requires a deeper analysis of storytelling and its essence. This type of virtual reality is the closest one to traditional cinema; thus, techniques from traditional film grammar can be used to evaluate CVR products. In the following part, some CVR examples will be analyzed according to the five criteria that were aforementioned.

CHAPTER 3

ANALYSIS OF CINEMATIC VIRTUAL REALITY EXAMPLES

Cinematic Virtual Reality (CVR) is a special form of VR applications that I believe is the closest to traditional cinema. It can be stated that the CVR form was born due to the struggle to find a VR form that can present a narrative as effectively as a traditional film presents. For this, when the first CVR films were made, the artists didn't search for a new technique of VR but just found a solution by restricting some of the interaction possibilities presented during a basic VR experience. By doing this, they succeeded in designing a VR film that has a similar effect on the traditional cinema lover. CVR films, like traditional cinema films, contain predetermined stories. The only extra feature is that users of CVR films have the opportunity to navigate in a 360° environment. The place of the camera is still predetermined, but the viewing direction can be selected by the user. Since he/she is in a 360° environment, at any moment of the CVR film, he/she can look towards any direction of the space he/she prefers to look. He/she can look up or down, left or right, and he/she can perform this by just turning his/her head towards this direction. And he/she can also make slow turns or quick turns, and the physical movement of the head of the user is exactly reflected in the CVR film as the same movement of the camera.

There are non-fictional CVR films, but in this study, I mainly evaluate fictional CVR films; fiction is the type of film where the audience is in a more sincere relationship with the protagonist of the film. When I evaluate the existing works, I see that fictional CVR films present the most sophisticated forms of CVR. Next to this, in my analyses, I also included some animations, which I see that reached the level of sophistication of fictional films.

In the introduction part of this study, I mentioned that I am going to analyze CVR examples according to the following five criteria;

(1) a first-person view and/or a ghost view

(2) still viewing position and/or moving viewing position

(3) existence of a guiding content

(4) space and time transition between scenes

(5) vertical and horizontal movements of the viewer

I believe that these are the most crucial features of a CVR film that should be discussed to investigate the essence of the medium. They are also points that create a difference between a CVR film and a traditional film. So, if I study these critical points, I will have the opportunity to search the difference between these two film forms. It can also lead me to a thorough description of the CVR film and to describe the unseen opportunities of this medium.

3.1 The First-Person View vs. Ghost View

The type of view that the user is provided during a CVR film is arguably the most significant part of the CVR experience. When I analyzed traditional films (see Section 2.1.1), I showed that ghost view and first-person view are used interchangeably in most of the films in classical filmmaking. The ghost view is dominant in traditional cinema, but the first-person view is also used usually to present the scene from the point of view of the protagonist and help the viewer to create an identification with the character. I also argued that this is the norm. Also, there are some anomalies but they are exceptional examples in cinema. It is very rare to see a film only with a ghost view (for example, *1917* (2019)) or only with a first point view (some hyper-realistic films are shot with an only first-person view such as *The Blair Witch Project* (1999) or *Cloverfield* (2008), but here we see all the action in the films not through the eyes of the protagonist but through the perspectives of the protagonists since they hold a video camera. This still creates the first point of view). However, CVR films mainly use one of these views. Among the films I selected, there is only one example where the ghost view and first-point view are used interchangeably: *An Obituary* (2016) (see Chapter 4 for details). As a result, the usage of only one type of view is the norm for CVR films.

Dinner Party (2016) is a perfect example of using the ghost view in a CVR film. From the beginning of the film till the end, the viewer, who wears HMD, watches the film like a ghost. He/she is always located at the heart of the scene (one of the best views in the space) but like an invisible observer. The opening scene of the film takes place in a room. This scene, like most of the scenes in the film, is shot with a moving camera. The first movement of the camera is from top-down, and we quickly realize that we should look down and see the room from the top and slowly fall into it. During this falling, we also have time to observe the room and the characters within it. We can say that this first shot can be seen as an establishing shot (see Figure 3.1.a).

When we stop with the vertical fall, the camera starts to move horizontally, but we are still in ghost mode. (see Figure 3.1.b-c). The camera's slow movement creates a dynamic viewing. It is also easy to navigate between two groups of people in the scene by turning horizontally -the couple is the center of the action, and other people are mainly observers.

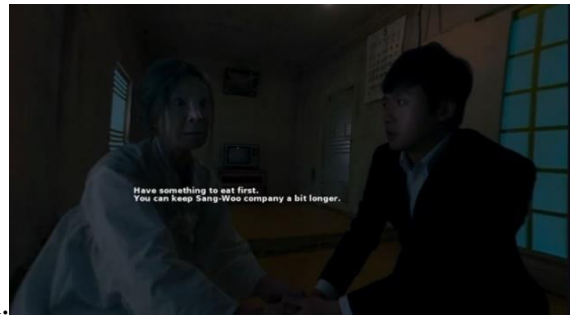
a.  b. 

c. 

Figure 3.1: Ghost view example from Dinner Party (*Dinner Party*, 2016)

Some other ghost view examples can be seen in a VR film that was shown at the Tribeca Film Festival (2018), which is *An Obituary* (2016). In the first one, we see two main characters talking to each other. But here, it is clear that they are aware of the position of the camera, and they have their bodies turned slightly towards the camera (see Figure 3.2.a). That would not be an issue for a traditional film because, in this kind of film with a cut, we would be shown with the close-up frontal shots of the characters (see Figure 2.9). But here, since there is not cut to close-ups of the characters, they adapt to the situation by turning their bodies slightly.

In another scene of the film, when the main character drives the car, the viewer watches the event from the back seat as if he/she is one of the passengers (see Figure 3.2.b). In this ghost view example, we are set with a specific position in the film, and since the character tries to escape from the evil in this scene, we are also kind of trapped with him in the car and share similar fear with him.

a. 

b. 

Figure 3.2: Ghost view examples from An Obituary (*An Obituary*, 2018)

Next to the ghost view type, there are some films where we see the events from the perspective of a character, a position known as the first-person view. For instance, the New York Times has created a series of short films with Hollywood stars that are called *Great Performers of L.A. Noir*, and in most of them, we watch the scene from a first-person perspective. In one of these short movies (*The Bartender*, 2016), we see the scene from the perspective of a bartender. When the actor Don Cheadle enters the bar, he sits down and starts to talk directly to us (see Figure 3.3.a). At that moment, we understand that we see from the perspective of a character. After a while, two other people enter the bar and shoot Don Cheadle from behind. Although we embody a character, we don't react to the action but maintain our position (see Figure 3.3.b). We don't hide, or we don't try to help the character played by Don Cheadle. As a result, although we are a character in the scene (first-person view), we don't act realistically and don't react to the scene but maintain our privilege of being a neutral viewer our optimal viewing point. We are a first-person viewer but behave like a ghost viewer.

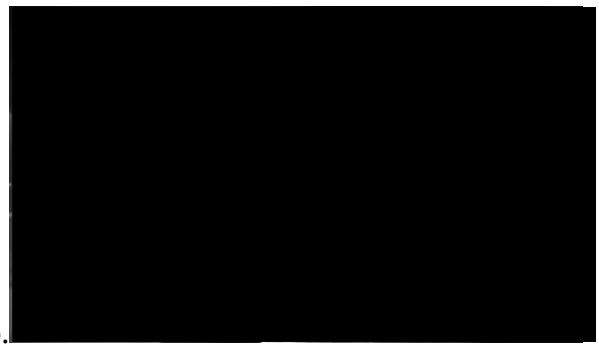
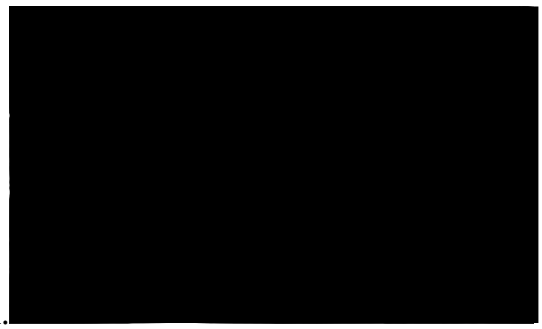
a. 
b. 

Figure 3.3: First-Person examples from *The Bartender* (*Great Performers of L.A. Noir – The Bartender*, 2016)

In another short movie of the series, a pregnant woman (Natalie Portman) looks directly and talks to the viewer, in other words, to us (see Figure 3.4). We, the audience, are the addressee of the talk. We have the opportunity to look around, but since the talk is direct and an intense one, we would concentrate on the words and expressions of the woman. Looking around, we will also see that nobody is interested in the ongoing conversation.

Figure 3.4: Point of view example from *Fiancé* (*Great Performers of L.A. Noir - Fiancé*, 2016)

Another interesting example of the series is the film *Cheating Husband* (2016). Similar to the previous example, we see the scene from the perspective of a man sitting opposite a woman (Ruth Negga) in a bar who is about to shoot him. We see two police officers behind her and one on the right side who are aware of the situation and try to close the distance (see Figure 3.5.a). We are embodied with a character who is about to be killed. When the woman shoots (see Figure 3.5.b), we don't react, which is unrealistic. The police officers arrest her, and one of the officers checks the situation of the victim, in this case, the viewer (see Figure 3.5.c), who doesn't move but only closes his eyes as if he is dying (see Figure 3.5.d).

a. 

b. 

c. 

d. 

Figure 3.5: Consecutive point of view examples from *Cheating Husband* (*Great Performers of L.A. Noir – Cheating Husband*, 2016)

With the help of the first-person view in CVR, the viewer experiences the events actively and can feel as if he/she is one of the characters. In traditional films, the viewer is passive and has no choice to view off-screen space. However, in CVR, the viewer can change his/her point of view at will. For instance, in *The Bartender*, when the two guys shot the character who talks to the bartender, a woman screams; the viewer can choose to see that woman by turning his/her head to the left (see Figure 3.6). This is the freedom of the CVR viewer. He can observe his/her environment at any point in the film.

Figure 3.6: Changing the angle of the view (*Great Performers of L.A. Noir – The Bartender*, 2016)

3.2 Still viewing position and/or moving viewing position

The second criterion is related to the position of the viewer in a CVR film. Once the viewer wears the headset, his/her position does not change throughout the film. Or I can say that walking around during a CVR film doesn't affect the viewing experience. From one point to another, the physical movement of the body is not transferred as a mirror movement in a CVR film; only the movement of the head to any direction is transferred to the virtual world. *So how the viewer moves from one space in the film to another one?* It is not related to the physical movement of the viewer. It is predetermined within the film. Like in traditional cinema, movement from one space to another in a CVR film is possible by moving the camera during the shooting process or cutting to another space designed during the editing process.

Viewers in some of the CVR films have a fixed position from the beginning of the film until the end. The animation *Fresh Out* (2018) presents a still viewing position. In the beginning, the viewer sees some carrots around (see Figure 3.7.a) and realizes that he/she can't change his/her position, but only can change his/her point of view such as he/she can turn around and

see his/her back view (see Figure 3.7.b). With time, the viewer realizes that he/she also sees the film from the position of a carrot. In other words, he /she is one of the carrots, the characters of the film. One of the interesting features of the film is that there are some tips that encourage the viewer to change his/her point of view in some scenes. For example, in one of the scenes, a light indicator appears suddenly and directs the viewer to turn to that side and get better information about the event at that point (see Figure 3.7.c).

a.  b 

c 

Figure 3.7: Still viewing examples from *Fresh Out* (*Fresh Out*, 2018)

The same approach can be seen in a scene of the CVR film *The Invisible Man* (2018). In this film, the viewer sits in a chair and never moves during the film. He/she watches the story from a stable position (see Figure 3.8).

Figure 3.8: The viewer's position is stable during the film (*The Invisible Man*, 2018)

Some CVR works allow the viewer to move within the content instead of staying in a stable position. It should be emphasized that this movement of the viewer is a predetermined one and that the viewer cannot change the camera's trajectory. In the previous examples from the CVR film *Dinner Party*, I talked about how the camera first moved vertically and horizontally (see Figure 3.1). In this example, the camera movement was very slow, and the main approach was to come close to the main action of the scene.

In another example from the same film, we have a similar technique but this time applied in an outdoor scene. Here the scene starts with an eye-level position, and we are located on an intercity road. We immediately realized that there is a car approaching and that the main action of the scene is related to this car since there is no other indicator in the space (see Figure 3.9.a). The car slowly moves towards us (see Figure 3.9.b), and then we come really close to our two main characters (see Figure 3.9.c). The camera technique used in this scene is quite similar to the one example of the film *Green Book* (see Figure 2.2).

a.  b 

c. 

Figure 3.9: The viewer moves from the air to the inside of the car. (*Dinner Party*, 2016)

The Caretaker (2018) is another CVR film that prefers to move the viewer into some parts of the film and is very successful in this. The viewer watches the film from a third-person perspective or the ghost view, and the camera mostly follows the character during the film. The film takes place in a hotel, and when one of the characters leaves her room, the camera slowly comes close to the character (see Figure 3.10.a), then the scene changes. This time, the viewer moves away from the character (see Figure 3.10.b); once the viewer turns his/her head in order

to see where the character is going to, he/she continues to move in the hall off the hotel, but this time as if he/she is viewing the film from a first-person perspective (see Figure 3.10.c).

a.  b. 

c. 

Figure 3.10: Examples of the moving position of the viewer (*The Caretaker*, 2018)

These are basic examples of the position of the viewer in CVR films. When we have a moving camera, it has a direction. It goes away for someplace and comes close to some other place. In this kind of situation, it is expected to see some development of the story or some action in the space that we are approaching rather than in the space we leave behind. This is the case with the examples from *Dinner Party* (see Figures 3.1 and 3.9). The evaluation of these choices will be deeply discussed in the following chapter of the study.

3.3 Existence of a guiding content

The most prominent feature of VR is that it provides its user to navigate in the VR environment with a high degree of free will, but CVR does not have this feature as most of the VR applications do. CVR limits the viewer within the content compared to VR. Despite the limitations, the viewer still needs to be guided within a CVR environment. Since the viewer has a 360° panoramic view, his/her attention can easily be distracted, or he/she would prefer to look around at any point of the film. Some of the CVR films prefer strictly to guide the viewer, and if the viewer doesn't follow the guiding tips or, in other words, if he/she does not look where he/she is supposed to look, he/she will not be able to understand the story of the film in a proper way.

CVR filmmakers use some tips or techniques to guide the viewer during the film. Thus, the viewer's attention would not be distracted, and he/she can easily follow the story. For example, *Kinoscope* (2017), which is an animated CVR film on the cinema's history, uses visual and audial tips to guide the viewer during the film. At the beginning of the film, first, we see a pointed flashlight in the sky (see Figure 3.11.a), and then we see a missile traveling along with this light (see Figure 3.11.b). These two symbols guide the viewer to follow the missile, which reaches a symbolic animation from one of the earliest films of cinema history, the Moon with a human face (see Figure 3.11.c). The movement of the viewer's head is neither horizontal nor vertical. He/she just follows the moving objects, which leads him/her to the conclusion of the scene. Here the famous scene of the film *A Trip to the Moon* (1902) is represented.

a.  b. 

c. 

Figure 3.11: Guiding the viewer in *Kinoscope* (*Kinoscope*, 2017)

There are also other techniques used to guide the viewer. One of them is talking directly to the viewer. In an experimental CVR work, named *Ashes to Ashes* (2017), the viewer is inside an environment that starts as a normal ordinary space but then turns into a film set. Firstly, the viewer is in the position of a VR camera that is set over a slider, and the characters directly talk to the viewer; thus, they drew his/her attention to the upcoming event (see Figure 3.12.a-b). When a character starts to talk to the viewer, and when the viewer starts to move over the slider, he/she understands where he/she is supposed to look or whom to follow.

a.  b. 

c. 

Figure 3.12: Examples of characters in the films which talk to the viewer (*Ashes to Ashes*, 2017)

3.4 Space and time transition between scenes

Space and time changes are among the most critical parts of a narrative structure in traditional cinema. It can be stated that the traditional fiction film has a sophisticated narrative structure because of this feature. In the traditional film, we can jump to space miles away from our destination only with a cut, or we can jump to a time years ago or in the future. This helps us present a more economical story (we can skip unnecessary events) with a non-linear structure (we can show events in non-chronological order).

In CVR film examples, there are also moments of space and time change. One of the challenges for a CVR film is that before the planned change of space and time, in other words, before the jump to another space or time, the user might be looking in a different direction than the suggested one. In most cases, the look of the user is guided in a CVR film. Or there is a maximum of two or three options where the viewer is expected to look at a specific moment in a CVR film. On the other hand, the viewer of the film has limitless freedom to look in any direction he/she wants. Before a cut to another space or time, the viewer might be looking in a direction that is not planned. Because of this, a change in space and time might cause confusion for the viewer. He might need time to adapt to the new situation created in a new environment.

When I analyze CVR films, I can see that there are several changes in space and time. *Dinner Party* is a good example of this. Here there is a jump with a cut between scenes that I mentioned in the previous sections. In the first scene (see Figure 3.1), all characters are inside a house's dining room, and there is a specific action in the spotlight. We, the viewers, are

expected to look at these two characters who are active in the scene. Moreover, the interior space is well illuminated.

With the cut, we move to a new environment (see Figure 3.9). It is easy to understand that this is a new space. It is dark, and we started to listen to a record (audial indicator). Slowly we realized that we are at night, outdoor, on an intercity road, and we approach a car. From the development of the story, we also realize that this is a flashback. The film started to show events from months ago, which means the viewer's space and time changed with this cut.

A similar transition of time and space can be seen in another example from the film *Dinner Party.* In the same scene, we see our two characters inside the car. A strong direct light fills the frame making it all around white (see Figure 3.13.a-b). With the cut, the viewer jumps to a totally black screen (see Figure 3.13.c). It is easy to understand that there is a transition of space. After a few seconds, one of the characters appears in front of the viewer (see Figure 3.13.d). As was the case with the previous example (see Figure 3.9), it is easy to follow what happens in the scene because she is the only attractive point in the 360° environment. The change in space is completed seamlessly. She stands up, and some graphic animations appear around her (see Figure 3.13.e).

a.  b. 

c.  d. 

e. 

Figure 3.13: Space change example from *Dinner Party* (*Dinner Party*, 2016)

The Caretaker (2018) is also an impressive work in terms of space and time transition in CVR films. The film is very successful in integrating traditional cinema techniques into a CVR film. It contains probably not as much as a traditional film but more space and time transitions than the other CVR films. One type of these is a transition within the existing space with continuity of action and time. At the beginning of the film, we have an example of this.

The first scene of the film starts with a traveling camera. As I mentioned before, when a traveling shot is applied in a CVR film, the viewer is mainly directed to pay attention to the approached space. We are in a hotel lobby approaching an empty reception desk (see Figure 3.14.a). Simultaneously we hear a conversation off-screen. When we come closer to the reception desk, we realize that a couple enters the lobby and also that they are talking. We are directed to turn slightly left in order to see them (see Figure 3.14.b). When we continue to follow them, we see that the man reaches the information desk of the hotel and is about to ring the bell (see Figure 3.14.c-d). Since there is no other stimulator in the 360° environment to encourage the viewer to look in some other direction, a huge majority of users at that moment of the film will have a similar perspective. This is the moment where there is a cut. And Figure 3.14.e shows what is going to be the new perspective of the same scene. In the previous shot, we saw that the man is about to ring the bell. Now we see the same action from a closer view. After he rang, the receptionist appears, and the viewer would be expected to look a bit up to see their faces in one frame (see Figure 3.14.f).

a.  b. 

c.  d. 

e.  f. 

Figure 3.14: Three different spaces from The Caretaker *(The Caretaker, 2018)*

During the transition explained here, two editing techniques of traditional cinema are used simultaneously: the 30° rule and cutting during the action. This shows us that if you prepare the viewer for the situation, you can use some of the norms and conventions of classical filmmaking.

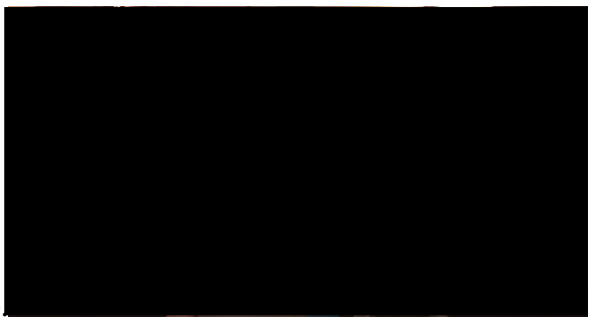
Another example of space and time change in the film is about the transition between spaces. Different from the examples of the CVR film *Dinner Party* presented above; in this case, the transition has a similar effect to the ellipsis device in narratives: omitting a portion of action for the economy of the storytelling, which can be inferred by the viewer and thus the gap created by this omission in the sequence can be filled. In the film, after the couple decided to move to their room, we see this sequence in several separate scenes. The first scene is from the hotel's lobby, where the characters wait for the hotel receptionist to lead them to their room (see Figure 3.15.a), and then we cut to the corridor where they follow him on their way to the room (see Figure 3.15.b). With another cut, in the next scene, we are in the hotel room (see Figure 3.15.c). The camera is positioned at such an angle that only one direction is interesting for the viewer because all the action happens there. Some of the users might prefer to look around during this scene, but still, they would know where the characters are positioned in the 360° environment.

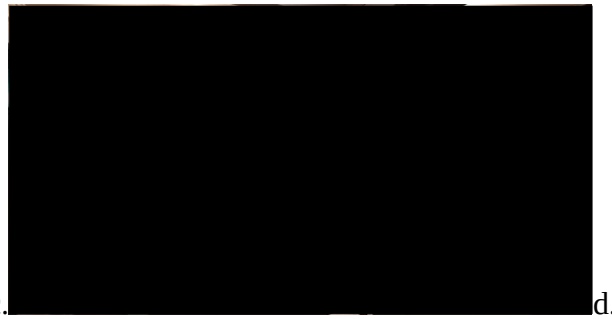
a.  b. 

c. 

Figure 3.15: Three different spaces from The Caretaker *(The Caretaker, 2018)*

The film also has a tremendous example of a time warp. After the female character is left alone by her boyfriend, she investigates the room and starts to drink a glass of red wine (see Figure 3.16.a). After a while, she starts to feel dizzy. She answers the door (see Figure 3.15.b) and sees the room clerk with bloody eyes (see Figure 3.15.c). The scene is very intense. The camera starts to shake, the light turns on and off, and we hear scary music. She holds her head with her hands and starts to beg (see Figure 3.15.d). With a cut, we are in the same room but at a different time. With an aerial shot, we see the woman from a bird's view down in bed with a wedding dress, and the dominant light of the scene is red (see Figure 3.15.e). We know that we are in a new scene, an aftermath of the previous one because everything changed: lighting, music, camera position, and camera movement, this is an example of the time warp, and we infer that our character passed out at the end of the previous scene.

a.  b. 

c.  d. 

e. 

Figure 3.16: An example of a time warp in CVR (*The Caretaker*, 2018)

3.5 Vertical and horizontal movements of the viewer

In the CVR films, the viewer is able to change his/her point of view in any direction he/she wants in the 360° environment. However, most CVR films prefer to guide their viewers for a linear change of viewing direction. One of the reasons for this is that a complex and constant change of viewing direction would lead to dizziness and nausea. It also would cause problems such as losing attention and missing the events of the film.

The most common approach in CVR films is to guide the viewer to change his/her viewing direction horizontally. Animation CVR film *Kinoscope* is an excellent example of this. I already showed how this film guides its audience for a linear movement of the viewing direction (see Figure 3.11). But most of the scenes in the film encourage viewers to move horizontally. In one of the scenes, trees separate the 360° space horizontally into different screens and create a place that is easy to understand and navigate (see Figure 3.17). Just by turning our head left or right, we can easily see different screens and figure out what the action is at a specific moment of the film.

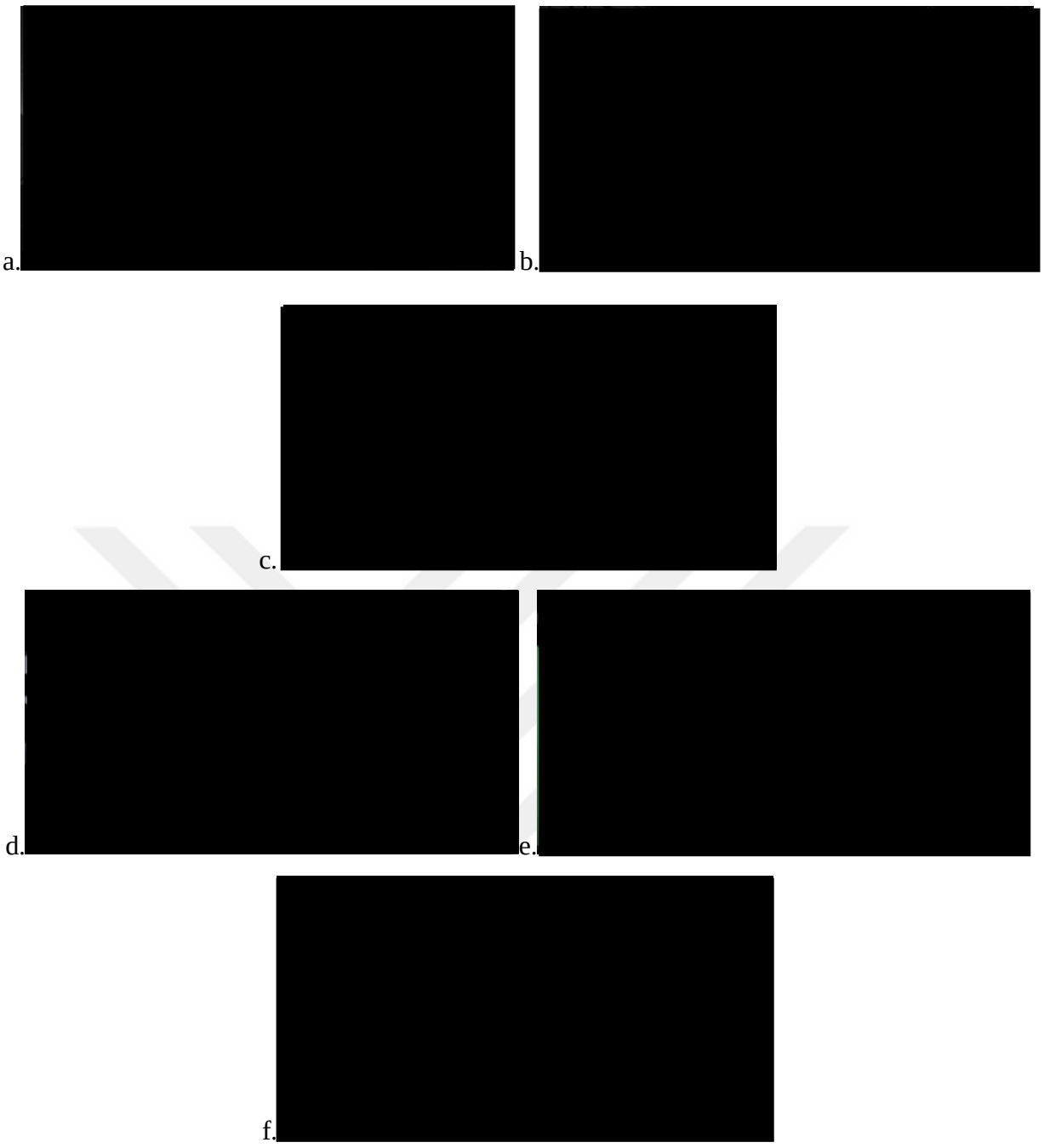


Figure 3.17: Example of the viewer's horizontal movement *(Kinoscope, 2017)*

CHAPTER 4

EVALUATION OF THE FINDINGS

In light of the analyses that are presented in the previous chapter of this study, I can evaluate the findings and present a *guideline*. Indeed, there are many aspects of the CVR films that are not included in this study; however, I believe that the criteria that I selected to analyze CVR works are enough to understand the essence of the CVR in terms of narrative structure.

The analyses showed us that CVR films have the potential of becoming places where a sophisticated story can be presented. They can be as effective as traditional films. Most of the film grammar, which is the main reason why profound, complex, and advanced storytelling is possible in cinema, can be applied to CVR films. CVR films are different from traditional cinema, but they can be as effective as a well-designed film is.

In this chapter, I will try to describe the rules for an effective CVR film. The analyses showed me that CVR films have two main features which also describes their difference from traditional films:

1. The main feature of the CVR film is that it allows the viewer to select his/her viewing point/direction from the 360° environment around him/her at any moment of the film. In traditional cinema, all the frames are predetermined for the viewer; however, in the CVR film, the viewer selects the frame on the fly. What is important is that this option can be either an opportunity or a distraction for the viewer. One of the aims of this study is to present how this option can become an opportunity.

2. The other feature of the CVR film is related to the presence of the viewer. Since the viewer is surrounded by a 360° environment, he/she has a stronger feeling of presence. While one of the main struggles of the traditional film is to create an immersive relationship between the viewer and the film, for a CVR film, this is an easier task. CVR environment is an immersive one from the very beginning. Therefore, one of the challenges for CVR films is to set the balance between this strong feeling of presence and a more neutral viewing of the events.

Considering these two features of the CVR film, I will evaluate the findings of analyses made about each of the criteria of my study. The first of them is about the type of viewing during the CVR film. Generally speaking, many of the CVR films use a first-person view. In an immersive environment like a CVR film, the first-person view strengthens immersiveness.

Its advantage is that you can really feel the embodiment. You are there in the film as a character. On the other hand, its huge disadvantage is that you, as a viewer, can never see the image of yourself. Although some of the CVR works use mirrors to make connection with the viewer when the viewer is in the first-person view. *Trinity VR* (2018) is one of these films (Erkılıç & Dönmez, 2020).

The first-person view is a broadly used technique in video games. However, in the cinema, I showed that it is not a preferred approach throughout the film (see Section 2.1). The dominant viewing form in cinema is the ghost view. Considering all this, I believe that for the CVR films, the first-person view should be used rarely.

There is another view that is close in effect to the first-person view in CVR films. This is the ghost view from the eye-level perspective. This type of view is also used in a broad way in CVR films. It also triggers a strong immersiveness. Here you are not a character, but the effect on the viewer is as if he/she is there in the scene as one of the unseen characters. In classical cinema, this approach was used only in some specific moments of the film (for instance, the scene from the film *Saving Private Ryan*, see Section 2.1). I showed that some film examples with this type of viewing technique throughout the film are exceptions (see Section 2.1).

For some CVR works, positioning the viewer as a ghost viewer is the right choice as it gives the impression of watching the story from a better and more informative perspective than the first-person view. However, using only this technique for the whole movie is not the best case, either. In the traditional film, these two techniques are used together concerning the effect that the director wants to achieve. In other words, traditional film directors use both techniques while presenting the space and time in a film that allows them not to lose the attention of the audience and tell the story in a more complex way.

One of the advantages of having the ghost view and the first-person view together is that in this way, more than one character's first-person view can be presented in the story. In this case, the ghost view can be used as a transition point from one characters' first-person view to the other's. Nonetheless, most CVR works use the first-person view only for one character, but there are some exceptional cases. For example, in *An Obituary*, the director shows a view from the eye of the second character of the story (see Figure 4.1).

a.  b. 

Figure 4.1: Showing another character point of view (*An Obituary*, 2016)

In the first shot of the scene, we see one of the main characters while leaning on a tree in the forest from a ghost view perspective (see Figure 4.1.a); then, we see the same scene from the other character's eye/perspective. There is a visual effect in the second shot to indicate that now we view the scene from a first-person perspective (see Figure 4.1.b). One of the reasons why the first-person view is not a clear one is because the other character is a devil, according to the story. This example is very close to the traditional film's grammar as such scenes can be often seen in today's films.

The choice of the point of view is also related to space and time transitions or the so-called editing techniques in traditional cinema. In traditional films, there are moments when the viewer sees the event from the first-person view of the character. These moments are often the most intense ones in the film and also help to identify with the character. In one of the scenes of *The Caretaker*, when the viewer watches the event as a ghost viewer, an opportunity to move to a first-person view is missed. In this scene, the woman first looks around and investigates the room (see Figure 4.2.a-b) and then moves to another part of the room with a glass of wine in her hand, and the viewer is located at the corner of the place where she moves towards (see Figure 4.2.c). The camera is not at an eye-level perspective, which helps us think that we see the scene from a pure ghost view. After a while, the woman walks close to a deer sculpture, and she stops next to it and leans forward to have a closer look at the sculpture. Just at this moment, in a traditional film, there would be a cut to the first-person view of the woman, and we, the audience, would get a chance to look at the sculpture from her perspective. In this way, we would start to share in a more effective way the curiosity of the woman. As a matter of fact, the sculpture is not an ordinary one, and in a few seconds, it becomes alive, and the deer slowly starts to move its head (see Figure 4.2.d). Consequently, the viewpoint can vary regarding the director's intention and the story's interest; however, the best approach is to use techniques close to the traditional filmmaking.

a.  b. 

c.  d. 

Figure 4.2: Point of view changes example from *The Caretaker*. (a) the woman character look around (b) she changes her intention (c) she walks close to the deer sculpture (d) the deer sculpture becomes alive. (*The Caretaker*, 2018)

The other criterion is about the position of the viewer in a CVR film. In most of the CVR films, the viewer has a stable position. For instance, the viewer can watch the events from the corner of the room but cannot move within the room, and the same situation is also valid for other scenes in the film. This approach can be beneficial for some cases, such as a CVR work entitled *Anonymous* (2020) that aims to emphasize the feeling of loneliness for widowed people. According to the researchers of a case study on this film, participants mention that they feel desperate throughout the film because they cannot interact with the character and lack choices (Bahng, Sojung; Kelly, Ryan M.; McCormack, Jon, 2020).

On the other hand, using the still viewing position restricts the viewer. There can be many people in a room, and the viewer can see only a few of them. Therefore, he/she may wonder about the impression of other characters who are not in his/her perspective. As a result, keeping the viewer in a stable position from the beginning till the end can decrease the level of the experience.

Besides these, the filmmakers can have a moving camera in the CVR films. In the films *Dinner Party*, *The Caretaker,* and *An Obituary,* this approach is applied. This is a very close one to traditional film grammar. In the first scene of *The Caretaker*, we watch the film from a moving camera's perspective, which is moving towards the reception area of the hotel and then stop in a good position where the main characters appear on the screen (see Figure 4.3):

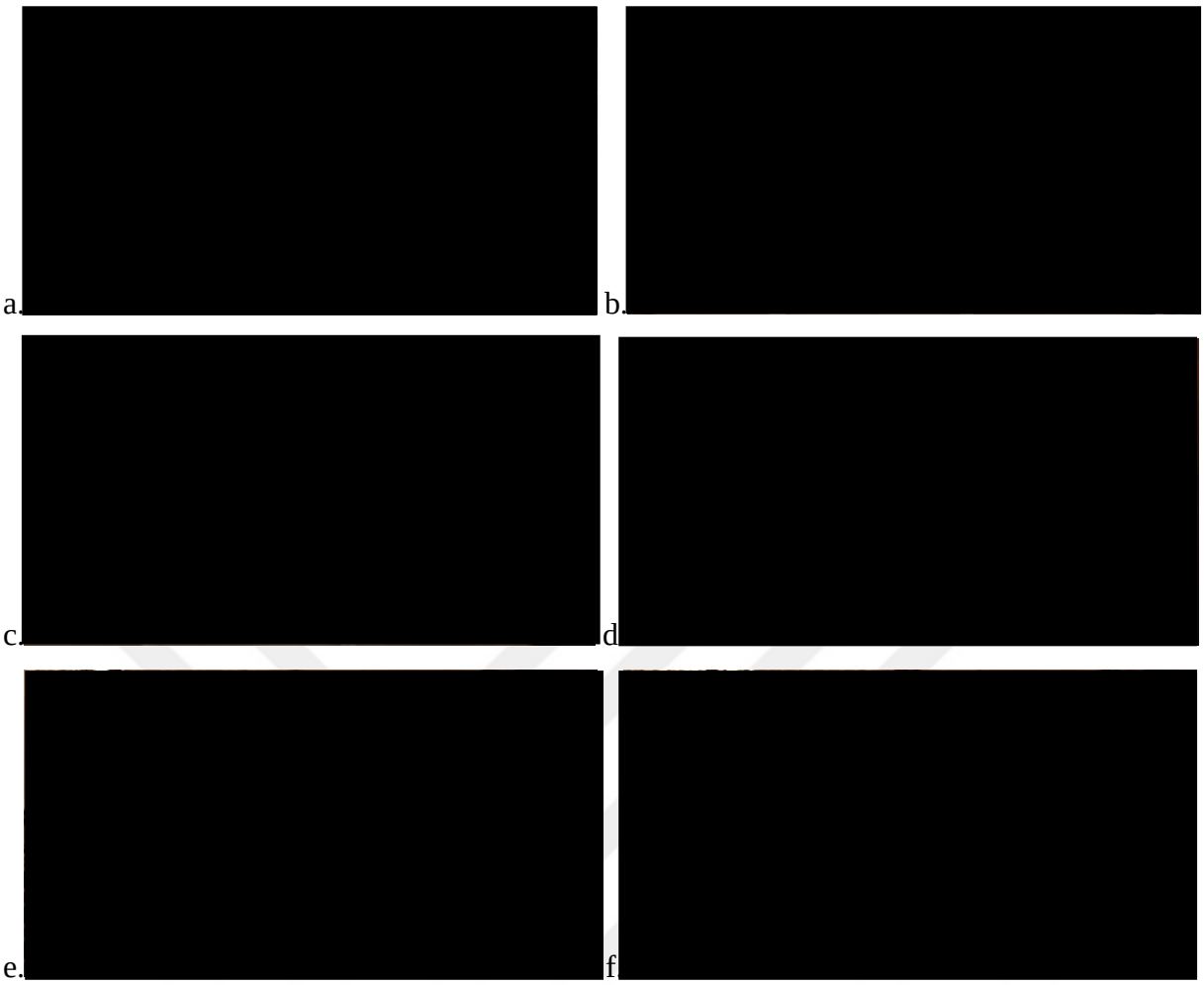


Figure 4.3: Moving the viewer in the content (*The Caretaker*, 2018)

Another example can be given from the film *Dinner Party*. During the last scene of the film, the viewer suddenly returns to the dining room, but the position of the viewer is a very close one to the male character's face and slowly moves away from the character. As Dooley pointed out in her article, the movement of the viewer helps to emphasize the character's emotions (Dooley, 2020). Also, this is closely related to the close-up shot in the traditional film.

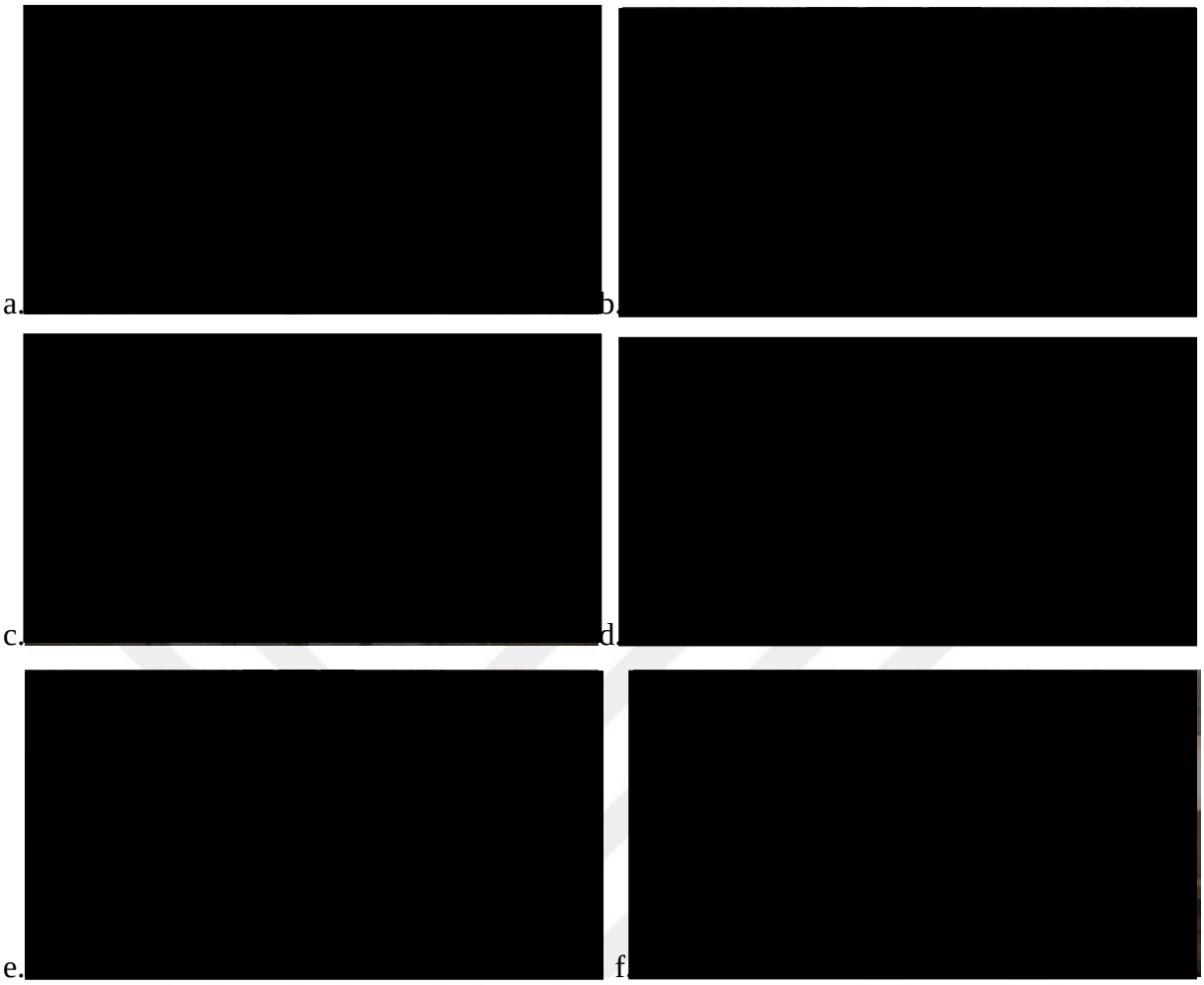


Figure 4.4: The viewer moves away from the character (*Dinner Party*, 2018)

This is an excellent example of how VR filmmakers can present the actor's emotions to the viewer by moving the viewer's position inside the film space. Moreover, some views from the above (bird's eye views) can be considered as establishing shots that allow the viewer to recognize the environment. The CVR films that use this technique are relatively prosperous and close to classical film grammar.

Moving the viewer also has some disadvantages. If the viewer is in motion throughout the film, that can cause an increase in motion sickness, which is a widespread problem of VR technology, and so the viewer cannot follow and understand the story. It means that keeping the position of the viewer stable is required and beneficial too. Therefore, a CVR film that prefers to move the viewer within the content is considerably more successful than keeping the viewer stable during the film; however, the best approach is to use both techniques in other words to find the balance between the two techniques.

Due to the 360° panoramic view, the viewer of a CVR film can change his/her perspective vertically and horizontally, unlike in a traditional film. This behavior of the viewer

brings both new problems and solutions. There are significant questions that the filmmaker should answer *"What should happen if the viewer looks up when he/she is not supposed to?"* or *"Shall we design our virtual space in a way that the viewer will not be bored and will find out some extra details of the story when he/she looks around unintentionally?"*. In most scenes and spaces of the films, there are interesting details to see when the viewer changes his/her perspective and starts to look around aimlessly. These are small but welcoming surprises for the audience, and using them would help to create a bond between the film and the audience.

However, most CVR films strictly prefer to guide their viewers. An interesting example is the approach in the film *An Obituary*. In some of its scenes, the viewer can see only a black screen when he/she changes his/her view, which can be interpreted as the filmmaker forcing the viewer to look where he/she is supposed to. Besides, there are also some creative solutions as *Kinoscope* film presents. The film turns the disadvantage of this into an advantage by presenting the story vertically and horizontally; thus, the viewer has to change his/her view to many directions and still not be distracted.

The representation of space and time is very crucial in the traditional film so that in CVR. Generally speaking, a film takes place in more than one space – except one place films- and the representation of these spaces can vary during the film. Techniques that are discussed until now all directly affect these representations. As demonstrated in previous parts, editing is one of the main techniques to construct the cinema's narrative structure. It is the best way to deconstruct and rebuild space and time while telling the story. However, to apply this in a CVR film is complicated than applying it in a traditional film and needs more attention to details. As mentioned several times, the technology of VR allows the viewer more free will than any medium; thus, space and time representation should be considered carefully.

There are different approaches in the existing CVR examples, but CVR works that use fundamental editing approaches from the traditional films are the most successful ones. Films such as *Dinner Party*, *The Caretaker*, and *An Obituary* use editing techniques very effectively. Figure 3.14, 3.15, and 3.16 from the last chapter are examples that directly shows the change in space and time in *The Caretaker*. The director of *The Caretaker* uses common editing techniques such as the 30° rule, cut in action, and ellipsis. These are general approaches in traditional films, and using these makes the mentioned CVR films more successful than other CVR films. An essential point of changing spaces in CVR is that the viewer can be looking in a not guided direction before the cut to another space, and he/she can miss the upcoming event, and making the transition fast can affect the viewer badly. Therefore, the filmmakers should

consider making space transitions slowly, not to lose the interest of the viewer and guide the viewer to follow the next event.

Existing CVR films show that they contain quite successful transitions. Also, some experimental approaches exist in changing space and time like *Ashes to Ashes*. The film is very similar to *Birdman or (The Unexpected Virtue of Ignorance)* and *1917* since there is no jump cut and the events appear continuously so that we see one continuous space. Moreover, the positioning of the viewer also affects how the filmmaker represents the space; for instance, the viewer's position is changed more than once in the hotel room of the film *Dinner Party*, as demonstrated in Figure 3.16.

In addition to these, viewers need to be guided during the film as their focus can easily be distracted because of the nature of the technology. As mentioned before, some guiding techniques have been used in VR games; however, filmmakers should be careful with adopting these techniques to CVR films. Sound and visual indicators are the most common tips in VR, and filmmakers can easily direct the viewer during the film. For instance, the viewer can be directed by raising a sound from a position where he/she probably is not expected to look, or a light source can draw the viewer's attention, as shown in Figure 3.11 from *Kinoscope*. Besides, the characters inside the film can directly talk to the viewer, such as telling the story and giving him/her clues about the story as it is applied in *Ashes to Ashes*.

Additionally, using multiple techniques together rather than one can be very beneficial. Using sound and light together can trigger more than one sense of the viewer, which is a well-known design approach. A narrator can be a guide for the viewer, which was also the case in *Kinoscope*, and that can be interpreted as using the tips together is beneficial. Alternatively, the viewer's viewpoint and position are closely related to guiding the viewer since all techniques are used to construct the narrative structure indeed. In *Kinoscope*, while the narrator tells the story, the iconic scenes from the history of cinema appear horizontally. The viewer changes his/her view guided by the narrator and also by sound and light tips together. Moreover, moving the position of the viewer can be considered as a guide, too, like moving the camera in the traditional film. If the viewer is in a stable position for a long time, his/her interest can be distracted, as mentioned in the previous parts; however, moving the viewer during the film to a place where he/she is supposed the pay attention is beneficial in terms of guiding.

As a result, I can summarize the suggested rules of a successful CVR film. An effective CVR film should include and use the following techniques:

- *Using only the first-person view or third-person view by itself is not the best approach. If there is no specific intention, the best solution is a hybrid approach: using both techniques together. Also, showing the events from the eye of one of the characters when the first-person view is used can be a cliché; thus, the filmmakers should also consider using other characters' points of view during the film. Since the VR medium is an immersive one, the third-person view or the ghost view should be the basic type of view in a CVR film. Camera angles that are not from the eye-level perspective should also be used to have a more complex approach to storytelling. I should emphasize that for some genres of cinema such as horror or thriller, immersiveness is a required specification. For these films, using the first-person view or eye-level ghost view when moving along with the main character would increase the feeling of tension, fear, and suspense in the scene. Moreover, the ghost view can be considered in three different types, as Bucher suggested: limited, multiple, omniscient (see Section 2.4.2 for details).*
- *Like in choosing the viewpoint of the viewer, using both still viewing and moving viewing techniques would be the best choice to create the narrative structure of a CVR film. Again, if there is no specific intention for the related work, a change of still and the moving camera is a proper solution. The scene in the hotel room of* The Caretaker *shows us that cuts between different still camera positions also can work in a very intense scene. The most important issue is presenting the event from the best point of view for the viewer. If a moving camera is not used, then there should be cuts from one still position to another in the same space. Because the viewer of a CVR film has the opportunity throughout the film to look in any direction, the movement of the camera should be slow and steady. Only in some more intense scenes, a shaky camera can be preferred for a short time to cause an effect similar to the one in* Saving Private Ryan (1998) *(see Figure 2.7).*
- *Because of the all-around nature of the view in the CVR film, the viewer has a chance to look where he/she prefers to look. And since this opportunity is provided, with every new space, the viewer is expected to look aimlessly around to learn the space and fulfill his/her curiosity. To prevent any confusion during the film, the look of the viewer should be wisely guided. Jessica Brillhart who is a pioneer in CVR films brings a concept which is called Point of Interest (POI) which is about determining the viewer's field of vision in the virtual environment and deliberately placing the objects of interest in the next scene according to the place of the POI in the previous one* (Brillhart, 2016). *She*

believes that in this way the confusion can be prevented. Gödde et al (2018) in their case study demonstrate the effects of placing the objects regarding the POI (Gödde, Gabler, Siegmund, & Braun, 2018). *These academic works support the idea of guiding the viewer during cutting in CVR. During some moments, the viewer can be strictly controlled with presenting some important events of the story, and during some other moments, he/she would be left free to look aimlessly around, and at these moments, he/she should be awarded with some interesting details of the space and of the plot. I believe that strict control of the POI of a viewer in a CVR film would limit the creativity of the CVR filmmakers. Free-will of the viewer in a CVR film is one of the significant aspects of the medium and rather than being strict about controlling the viewer the CVR films should adopt their storytelling to the fact that a viewer at any point of the film would prefer to not look at the POI but look around.*

- *To present the space and time in CVR, filmmakers should follow the basic rules of the editing from the traditional film grammar, such as ellipses and cut in action. The position of the viewer can be changed periodically to show the different parts of the space and see the characters' impression from different angles. After a cut to a new space and scene, a period of time should be let for the viewer to adopt the new space. Therefore, an important action should not be presented immediately after a change of space and scene.*

- *Presenting all the events on the horizontal plane of the space is restricting. Since the surrounded viewing experience is optional in a CVR film, actions can take place on different planes and directions of the space. Some of the existing CVR examples use this technique, and this is one of the innovative features of the medium. A film designed to use horizontal and vertical planes would be an excellent example of an effective CVR work.*

Indeed, there can be many other ways to create a CVR film; however, following the above suggestions is essential to make a CVR film, which is a successful one.

CHAPTER 5

CONCLUSION

In the Introduction chapter of this study, I asked three questions defining the aim of this research. After analyses and evaluation, I can answer these questions one by one in details:

- *How differently CVR functions from traditional cinema?*

Although the technology used in CVR films differs from the technology of traditional cinema, the analyses showed us that the storytelling in CVR films has too many similarities with the storytelling of the traditional film. Films that use traditional film grammar to a large extent, such as *The Caretaker* or *An Obituary,* are more successful in presenting their stories. I can state that most of the rules of traditional cinema are also valid for the CVR film.

- *What is the essence of CVR?*

The main feature of a CVR film is its 360° environment. At the beginning of the previous chapter, we explained the situations that this main feature brings about in detail. The most important features are the following ones. CVR offers a frameless view compared to traditional cinema because of the nature of the technology. Unlike, *pure VR*, people are restricted in CVR contents -except some experimental works- which means there is no interaction with the virtual environment. Compared to traditional cinema things can take place vertically as well.

The main issue of a CVR film is immersiveness. Immersiveness is inherent in the VR medium. Next to this, one of the main dynamics of a traditional film is to decide on the level of relationship between the character and the audience. It is the way to control the motivation and feelings of the audience. It is probably one of the main elements of the art of cinema. On the other side, because of the nature of the CVR film, which presents an immersive environment, from the very beginning, the audience is more close to the characters in a CVR film. The viewer is more like an *insider* from the very beginning of the story. This is the main difference that should be considered and probably controlled in a CVR film. And this also defines the essence of CVR.

- *Can we define the rules of production of a successful CVR film?*

For this, I created a guideline for an effective CVR film (see Chapter 4). For further research, CVR contents can be created according to the suggested guideline. Case studies can be conducted to observe the outcomes and see whether the proposed rules are effective as

considered. As I mentioned before, the level of immersiveness and guiding tips in the VR space are two main issues that should be considered during a CVR production.

In addition to these, mise-en-scéne which is one of the important elements of storytelling in traditional cinema is not included in this study and needs a deeper analysis since the CVR offers frameless and 360° -or even 720° according to Yu (Zhang, 2020)- environment. Most of the editing techniques from cinema are not investigated because I believe editing in CVR requires a work that is constructed entirely on that.

In traditional cinema, the director is the storyteller and has full control over the story and the audience as he/she presents the story in a pre-defined rectangular frame. However, in VR, people are free to look around. Although the viewer in CVR is restricted compared to *pure VR* contents, this still brings a question about the role of the director and this can be investigated in further researches.

Another future research topic can be the arc plots in CVR which is intentionally descoped for this study. For VR, interactive stories are the main preferences and easier to apply as there is an interaction between the viewer and the virtual environment, however, in CVR interaction is not the first preference. Therefore, the type of storyline can be another topic to work on. Besides, when we talk about interaction in CVR it raises some questions such as *"How will it be different from a game?" and "How much the viewer will interact with the environment and decides to boundaries of the story?"*. Costa showed in her work that people who joined her case study indicated that when they interact with the content, they felt like they are playing a game rather than watching a movie, and also some of them suggested that there should be clear limits regarding interaction in CVR films (Jesus Costa, 2018, s. 54). This study shows that interaction in CVR is a significant topic that needs further investigation.

It is obvious that CVR technology is a huge opportunity for filmmakers, but we are in the early years of the medium. Therefore, it can be stated that the CVR film has the potential of becoming an effective platform for storytelling. Telling an effective story is the main goal of a traditional film director. It is also the same for a CVR director. This study showed that the essence of CVR both limits the effectiveness of storytelling and brings new opportunities for filmmakers. Investigated CVR films present a good adaptation of elaborate techniques of cinema but fail to analyze and implement some main opportunities of this new medium. The storytelling of CVR should benefit from film techniques but there is a need for some detailed behavioral studies of the CVR viewers and the results of these studies should also be adapted to the storytelling art of CVR.

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