ANALYSIS OF THE NARRATIVE COMMUNICATION CHARACTERISTICS OF VIRTUAL REALITY EXPERIENCES: MEANING-MAKING COMPONENTS OF THE IMMERSIVE STORY

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ABSTRACT

Virtual reality is a technology and media that has evolved dramatically in the last decades. Undoubtedly, the medium has developed its own dynamics and narrative characteristics, due to the possibility of interaction and the ability to allow the viewer/user to focus on different levels of action. In this research, the relevant narrative characteristics in virtual reality are described based on a literature review. Secondly, a sample of online experiences of 360º virtual reality, or cinematic virtual reality (CVR), are analyzed to determine the characters and possibilities of narrative features presented. This analysis can help establish parameters and guidelines for the creation of virtual reality and 360º immersive contents in heterogeneous audiovisual and multimedia fields. The results show both the narrative and aesthetic possibilities of the analyzed videos and their technical and expressive possibilities, in terms of the ability to integrate narrative structures, as well as content in the use of innovative formal resources. In this sense, 360º immersive video becomes an added value of considerable dimensions.

1. INTRODUCTION

Virtual reality technologies are today an emerging media (Cipresso et al., 2018). Their ability to develop immersive experiences, in 360º, offers new opportunities for cinema and other audiovisual media. This new technology begs the study of the new narrative dynamics produced in this medium. The classification of these characteristics will help different professionals—designers, developers, computer scientists, etc.—establish guidelines, codes and languages for producing content. These schemes can also be coupled with the results obtained in professional practice (Yu, 2011) and applied to the research of immersive experiences in multidisciplinary creative fields.

The technological advance of immersive media has meant the evolution of the way stories are told and, at the same time, of how content is developed. The characteristics of stories depends, to a large extent, on the expressive and technological potential of the medium (Lum et al., 2021). The capacity of the format to interact with the user and the nature of the story also impacts the narrative characteristics. Although the medium is constantly evolving, research in the field of interaction, narrative, user experience, and other facts related to extended reality, such as virtual reality, continue to redesign these dynamic and mutable patterns.

In the coming years, the improvement and optimization of virtual reality and 360º video experiences will have a strong influence on the production and engagement of all audiovisual and media content (Radianti et al., 2020). This influence, in turn, may have a strong impact on fields such as education or research, as well as the dissemination of scientific, artistic, and cultural content. So, how can virtual reality and 360º videos be objectively analyzed in a way that contributes to the development of such varied and innovative content?

Damiani (2016) presented virtual reality experiences according to their interactivity: responsive VR, with interactivity, and 360º video, which has little to no interactivity. However, 360º requires a minimum decision by the viewer/user and the 360º environment itself already implies a response that influences the users' experience of the narrative. In the same video, with small variations marked by the format, we find different experiences in terms of discourse, rhythm, interaction, etc.

We maintain that the degree of freedom and interaction of the 360º video user depends on distinct variables including but not limited to: novel elements in terms of staging, the visual point of view and audio point of listening, the framing of images, the plane and movement. We maintain that the degree of freedom and interaction of the user depend on these variables, as well as the immersion in the novel and meaningful experience (Rodríguez, Baños and Rajas, 2016).

The current research explores the technological, narrative, and aesthetic possibilities of immersive video. The potential realizations of this format represent the confluence between digital communication and art (Ulrich et al., 2019). Furtheremore, our objective is to propose a

narrative analysis model of 360º immersive videos whose practical utility will help its creative application in areas related to audiovisual and artistic communication. A greater understanding of immersive narrative languages and techniques can help to produce works that expand such creative horizons (Reyna, 2018).

2. METHODOLOGY

Nowadays it is increasingly common to see virtual reality and 360º video experiences in multiple platforms and communication channels, both open and specialized. Analyzing the diversity of proposals from a technical and narrative point of view is a necessary task, due to the heterogeneity and constant reformulation of content. The methodology applied in current research approaches the narrative characteristics with different quantitative and qualitative techniques to determine which elements are present as variables susceptible of analysis and at what levels of development they are found.

First, a literature review (quantitative bibliographic type) was carried out to determine scholarly research on virtual reality, 360º video and user experience in immersive narratives. Our specific focus was the works that explore the narrative potential of the theories and models developed in recent years by the creators of audiovisual experiences in this immersive medium. The bibliographic review is carried out following criteria based on the subject matter of the publications, with keywords such as 'virtual reality', 'immersive narrative/technology', or '360º video'. It should be noted that the interrelation between the factors of narrative and virtual reality is also highlighted, making a tour through the studies that jointly address both terms, from the first attempts to the texts that present the most recent findings and results in this transmedia confluence.

Secondly, virtual reality and 360º video experiences were analyzed in order to identify the different levels of significance of the narrative in linear 360º experiences and some outstanding elements of virtual reality. The analysis was carried out taking into account the levels of significance in the narrative, considering both the elements of the discourse and the narrative, as well as the timeliness, clarity, and complexity of the experience. We sought to define the contribution of the techniques to the clarity of the message and the significant elements of the experience that might be gleaned even without the use of devices such as headsets.

The main object of analysis is the short film *Pearl* (Osborne, 2016) from Google Spotlight Stories. It has been selected among other 12 VR videos analyzes as having the highest score in the textual analysis according to technological, narrative, and aesthetic criteria of audiovisual production (20 variables of analysis in total). In turn, the analysis of the other 12 works helps to expand upon significant elements to complete the study from the point of view of audiovisual construction, describing components and detecting phenomena that can be applied to other audiovisual stories and, ultimately, contributions that give value to 360º and VR experiences from different interrelated aspects, including the

descriptions of creative processes that lead to the production of immersive content.W

In turn, the heterogeneity of narrative languages and resources introduced in virtual reality makes it necessary to extend *Pearl's* analysis to other stories that incorporate other innovative 360º creation techniques based on figures, procedures, or narrative and aesthetic codes typical of cinema, television, and video games.

Those complementary works include *Dreams of Dali* (Silverstein, 2019) and other 11 360º short films produced by Google Spotlight Stories. Each story brings procedures and characteristics that allow the configuration of a specific and unique narrative, different from those works developed in other analog or digital media. The main reason why these works have been chosen for the analysis is their innovative character in the narrative construction of the possible worlds of 360º video. transfer the languages and stories observed in them to other video formats, such as traditional linear video. This means that, among others, these works take advantage of the possibilities of the 360º video medium in a particularly efficient way, which makes it possible, precisely, to establish the parameters that will help determine the levels of significance of the different stories that can be conceived for this specific medium. In this sense, the intention of approaching a broad study of 360º art that includes both a central work, *Pearl*, and 12 other virtual reality stories, is carried out with the specific objective of highlighting the variety of specific recording, animation or design techniques that can be included in the 360º universe.

3. LITERATURE REVIEW AND APPROACH TO NARRATIVE IN VIRTUAL WORLDS

The characteristics of virtual reality have been addressed by several research works since the emergence of the medium and the technology that enables it. In the 1990s, the nature of virtual reality was addressed by several authors under different perspectives. Theorists such as Bates (1992) compared virtual reality with other media such as television, cinema, and literature. Their main lines of research focused on the development of computational theories for cognitive-emotional agents, presentation style, or dramaturgy. Other approaches, by authors such as Steuer (1992), focused on the defining characteristics of virtual reality and telepresence, in order to establish mechanisms for developing content in this medium with the current technology available. We also find the *Placeholder* project, developed by Laurel et al. (1994), in which characteristics of the story and environment in the virtual experience are essential to developing such experiences. Aylett (1999), for his part, makes an approach to narrative in virtual environments by addressing the concept of "emergent reality" as a way of avoiding the clash and conflict generated between the freedom granted by an environment in virtual reality, at one point, and the design of characters, at the other.

In the following decade, authors such as Aylett & Louchart (2003) developed a general narrative theory of virtual reality, considering aspects

included in other fields and media, such as cinema and literature, and advocating for a narrative oriented to a participatory process, paying special attention to the particularities and characteristics of the stories in this medium and its representation mechanisms. The same authors also investigate issues such as narrative theories—classical and emerging—adapted to optimize their application to virtual reality environments (Louchart & Aylett, 2004). Other scholars, in the same decade, focused on the optimization of content development including "intelligent" virtual environments (Cavazza et al., 2005) and enhancement of narrative qualities such as time, content, and user participation (Brooks, 2003).

Visch et al., (2010), on the other hand, focused their research on the cognitive and emotional effect when users/viewers are immersed in a 360º text. This fact is relevant insofar as the perception of the real world is not the same as the perception of an immersive world generated by computer graphics. This fact is more evident when the narrative relates real events as, for example, immersive journalism (De la Peña et al., 2010). The first-person approach to recording live events in 360º has distinct advantages for some communicative situations, such a reporting on an ongoing event, but the interaction with virtual environments generated by infographics presents its own distinct characteristics.

In recent years, a remarkable number of studies have also focused on the issue of narrative in virtual reality. Innovative theories have been developed and approaches to the topic, under a narrative point of view, have been an important object of research. Thus, narratives in the medium of virtual reality and immersive 360º videos have necessitated an approach to conceptualization and story design, including script writing, as argued by Dooley (2017). Dooley argues that there is not a one-size-fits-all approach to this medium and no fully established cinematic grammar that could be applied to 360º immersive virtual reality narratives. Nevertheless, it does seem possible to provide models or templates for the construction of 360º immersive virtual reality films. For example, Reyes & Zampolli (2017) make a proposal for a script writing framework for interactive virtual reality and 360º video technology. In their research, they present the possibilities in diegetic and extra-diegetic interactive options on a story, focusing also on the possible different navigation alternatives offered.

Other researchers are addressing the related issue of senses and perception. The recent, dramatic evolution of immersive VR technologies is begging questions about how perception and cognition determine virtual reality experiences and influence their narratives. Harley et al. (2018) review of sensory interactions suggests that, in virtual reality, one can not only see and hear (above all), but also smell, touch and even taste. In the same vein, Jones & Dawkins (2018) explore the multisensory approach of 360º immersive virtual reality narrative-linear movies. In their work, the authors aim to evaluate how such a sense of presence can be enabled by introducing multisensory input into immersive experiences. Under this approach and based on the work of other authors (Ryan, 2015), degrees

of immersion, interactivity and narrativity help to make virtual reality a fully artistic medium of expression.

The complexity of the medium is also addressed by authors such as MacQuarrie & Steed (2017), exploring a set of metrics comparing 360° cinematic virtual reality (CVR) with other non-immersive video formats, such as film and television. Some of the relevant aspects examined in the experiment's video included: spatial awareness, narrative engagement, viewer/user/viewer concern about missing something, as well as memory, fear, attention, and enjoyment (MacQuarrie & Steed, 2017). Other authors (Kang, 2017) put the focus on other aspects related to film production in virtual reality, compared to postmodern 2D films. Thus, Kang identifies four relevant aspects in VR films to take into account: framing (mise-en-scène), point of view, interactivity and shot. Rico-García et al. (2017), on the other hand, propose new systems and models to produce VR stories that allow users a fluid interaction. The developed system enables interactive live-action experiences by reproducing real-life sequences instead of animation.

Finally, researchers are addressing the challenges of *streaming* video (Lo et al., 2017) as well as 360° video generated by rendered computer graphics and 360° videos shot and edited with a 360° camera. Real-time immersive 360° video today is a complex format, dependent on many factors, and live *streaming* of 360° videos has been handicapped due to the amount of data to be transferred and the lack of traditional video editing techniques, such as transitions.

4. THE NARRATIVE LEVELS OF SIGNIFICANCE OF THE STORY

But what are the different factors associated with narrative and how can they be applied to develop 360º experiences? Unlike other audiovisual media such as cinema, linear 360º virtual reality experiences offer the possibility of paying attention to different actions and components of the plot or story, allowing the user/viewer to follow different levels of sub-stories. These levels can be analyzed, classified, and referred to as 'levels of story significance.' In 2D cinema, the shot and framing determine the action and the way the story will be told, but in linear 360º virtual reality experiences, on the other hand, it is a choice of the viewer/user which, like such a choice, has its advantages and disadvantages, but undoubtedly reflects a new paradigm in narrative studies.

Narrative is, in the case of the present research, a relevant factor, already addressed previously by authors such as Metz (1974) from the perspective of the construction of narrative discourse through the development of a system of categorization of scenes, called *"syntagms".* These categorization systems are important to try to find equivalent structures in other media, such as, in the case at hand, virtual reality. Other authors, such as Bordwell (2013), approach the taxonomic classification of potential types of narrative theory, structuring them into two fundamental blocks: mimetic theories and diegetic theories. García Jiménez (1994), for his part, also classifies the strategies of narrative

discourse, identifying different types of narrative planes. Prósper Ribes (2019) establishes the differential elements of the narrative structures of certain genres such as suspense, in which the conflict of the characters is reflected with the actions, giving special relevance to the temporal organization of the actions, which are those that contribute to create a sense of intrigue in the viewer. Marfil-Carmona (2017) also proposes the guidelines and parameters for narrative construction in media such as 360º video, directly related to virtual reality. The irruption of 360º video in virtual reality is a phenomenon capable of altering, potentially, the symbolic levels and the correlation between the images visualized in this medium and the referents of the images themselves.

It is also important to highlight the role of transmedia storytelling. Recent studies in content production (Abba, 2009, Scolari, 2009), as well as in the development of theoretical models for understanding the phenomenon (Garambato, 2013, McErlean, 2018), are a reference when continuing the development of research around the medium of virtual reality and 360º video. Thus, authors such as McAdams (2016), Erdem (2018) and, more recently Javanshir, Carroll & Millard (2020) have developed models and strategies for the creation of transmedia narrative content, and the implications of its application in the medium of virtual reality, highlighting the importance of structural patterns and classifying them in a taxonomic way (Javanshir et al., 2020).

Therefore, it is necessary to determine and establish how the different actions are integrated into the experience, how significant they are to the main story, and other components that are part of the whole context of the story itself but may also go unnoticed. The reason for this fact is directly related to the enormous number of possibilities for focusing the attention of users/viewers, even if the story is the same. Thus, if in 2D cinema and audiovisuals we can find many levels of interpretation for a single story, in 360º virtual reality films we can also find several levels of subplots or micro-narratives, as well as elements of the landscape and virtual scenery to give the story a greater degree of precision. Thus, a story in virtual reality needs a scenario with atrezzo or scenery and offers the possibility of inserting sub-stories into these atrezzo.

Therefore, factors such as 'Fear of Missing Out' or FOMO (McQuarrie & Steed, 2017) also need to be considered. FOMO, in the context of immersive virtual reality experiences, is defined as situations where users/viewers have more than one option and choosing to focus on one activity causes them to "miss out" on another plot activity. Similarly, in CVA or 360° virtual reality video, the FOMO factor can be defined as the *Fear of Missing Out* parts of the narrative and story that occur outside the viewer's current field of view (Aitamurto et al., 2019). Thus, stories in virtual reality, even if they show a linear (non-interactive) development, may also need to be experienced multiple times. And, on the other hand, guidelines are needed to establish what is the relevance and role of certain actions or components in the narrative of the story, in order to optimize the development of the story, on the one hand, and the viewer's experience, on the other. Along the same lines work authors such as

Rothe et al. (2019), who develop guidelines for cinematic virtual reality and describe how different researcher's work from multidisciplinary areas on issues such as gaze direction or attention.

Another fact directly related to FOMO, and necessary to understand the perceptual process in the context of virtual reality, is JOMO. This is defined as *The Joy of Missing Out*, as opposed to FOMO (Riba, 2014, Aranda & Baig, 2018). Authors such as Aitamurto et al. (2021) also focus on JOMO defining it as the "feelings of enjoyment driven by being able to choose not to participate" or to 'opt out' of maintaining and participating in social activities. But, if FOMO has its correspondence in the context of immersive virtual reality experiences, how would it be possible to apply the idea of JOMO to this context? Is it possible to improve the design of narratives that allow the user/viewer to put the focus on a main point of an immersive story developed for the virtual reality format? It could be this notion of losing or missing some facts and components is necessary to passively engaging the story as a landscape or atrezzo. These and other questions are intended to be answered in this research work, insofar as FOMO and JOMO help establish the terms of the relationship of the users with the virtual medium. Thus, both concepts, among others, are among those that contribute to establish the order of importance of the elements that will compose a virtual reality experience, so that it is possible to establish an integral design at a narrative level.

In relation to the importance of stories in the world of VR, we can find a series of basic components that contribute to designing VR experiences with strong narrative components. These are the *components of significance of the story*:

● Virtual Landscape (VL): the actual environment. It is necessary to host the other components.

● Virtual Atrezzo (VA): often mixed with scenery, it is the set of components found in the environment to place the film in context.

● Plot Key Objects (PKO): are objects that actively participate in the plot.

● Plot Key Actions (PKA): these are the actions relevant to the development of the plot.

● Parallel stories or side stories (PS): stories or micro-stories that occur simultaneously with the main plot.

● Main plot (MP): the main story. The rest of the components depend on it.
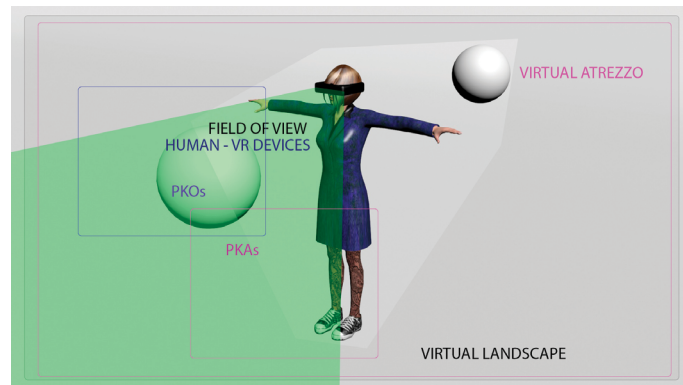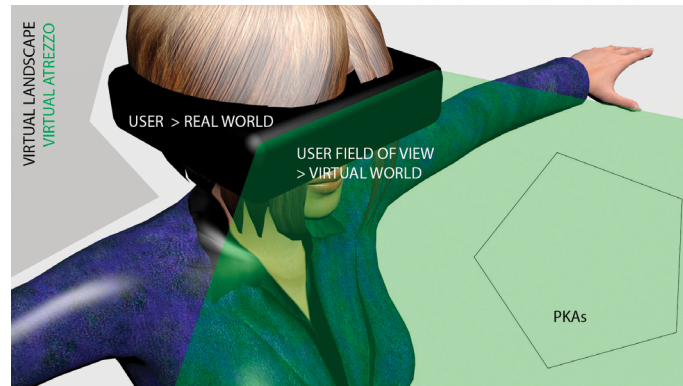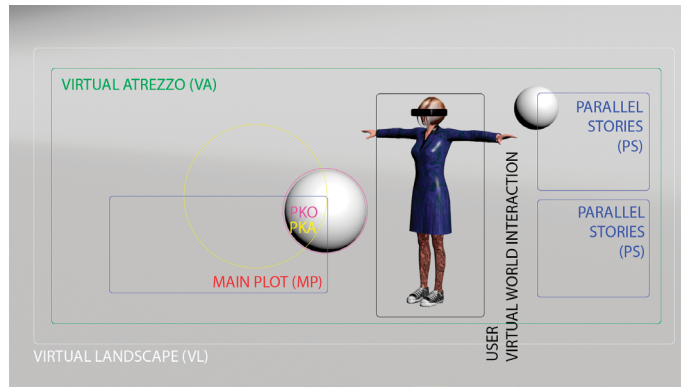
Figures 1, 2, 3. Computer illustration infographics that explain the possible distribution of the components of a virtual reality story with respect to the user's point of view. These components would make up the set of elements of a virtual reality experience, also positioning the user in relation to these elements. Thus, in this configuration, the virtual landscape (VL) and the virtual atrezzo (VA) contain, in turn, the main plot (MP), which involves plot key actions (PKA) and plot key objects (PKO). Parallel stories (PS) are also relevant components of the virtual environment, they are complementary to the main plot and occur in a different location within the virtual landscape. These elements would only be accessible through certain devices, and real-time viewing would be limited to the user's field of view through that device, determining the user's point of view with respect to the plot. Source: Own elaboration.

Figures 1, 2 and 3 show the relationship between the components of meaning in the story and the position of the user/spectator. The virtual landscape as the environment in which the action takes place and in which the elements that make up the story coexist; the atrezzo as the meaningful elements that make possible a more dynamic and meaningful interaction. Together they contain, in turn, the main plot (MP), which involves the Plot Key Actions (PKA) and the Plot Key Objects (PKO). The key actions for the plot should be triggered by interaction or immersion in the space; to maintain a clear narrative, it is not advisable to fill the 360° path with too many elements. The parallel stories or side stories (PS) are also relevant, but they can be constructed in a way that compliments the main plot without affecting its meaning.

5. CASE STUDY

Pearl was produced in 2016 within Spotlight Stories, Google's division of creating 360º interactive animation videos for mobile devices or virtual reality viewers. The work won an Emmy Award in the "Interactive Narrative" category and was also nominated for an Oscar for Best Animated Short Film.

First, the story was created for three media sources at the same time: a linear 2D version, an interactive 360º version, and a fully immersive VR version. As we will see below, one of *Pearl's* most outstanding values lies in the differential and exclusive treatment of the audiovisual production solutions for each of these final products.

The 360º version is the original source from which the others derive, but each adaptation allowed the creators to introduce narrative mechanisms that highlight its advantages or strengths with respect to the others. Thus, while the 2D version resembles the projection of home movies shot in time (external and objective point of view), the VR version simulates the experience of living in the same universe as the characters (internal and subjective point of view). Also, the editing pace of the VR version is much slower than that of the 2D version, which has twice as many editing cuts between scenes.

Compared to common productions of short fiction film, *Pearl* stands out for articulating narrative codes of various audiovisual formats such as the video clip or the video game. Thus, as we shall see, *Pearl* appropriates techniques and resources from these generic types of content to configure itself as story, as musical content, and a participatory game.

Likewise, the work exhibits characteristics of recognizable film subgenres such as the road movie, the family drama, or the teen comedy to complete a story that combines heterogeneous features in such a way that, while allowing the viewer-user to be placed in a recognizable and identifiable narrative context, manages to add original components to a truly innovative experience for the subject through the hybridization of formats and genres.

The 360º piece analyzed has a duration of 5:39 and consists of 26 scenes divided into 38 shots. Designed to be enjoyed on phones, computers or with virtual reality glasses, the 360º version offered on YouTube stands out both for its differential marks in terms of story or content, and in terms of the form or discourse that configures it.
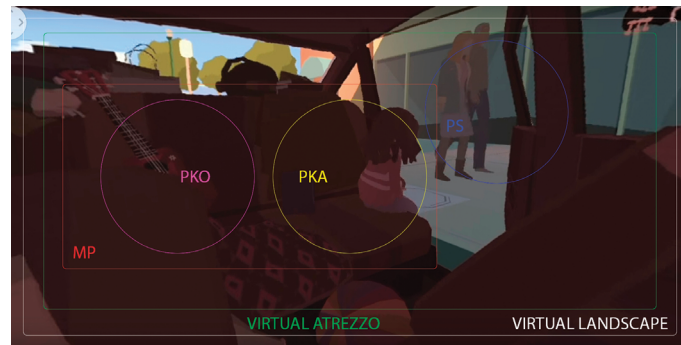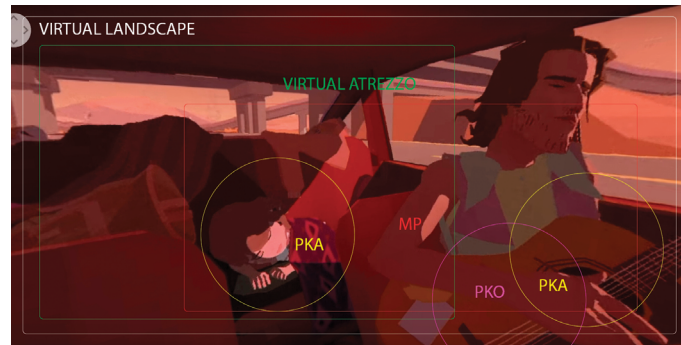
Figures 4, 5, 6. Identification of components in the virtual landscape of the 360º VR film Pearl (Osborne, 2016). The virtual atrezzo would be the set of components inside the car and outside on the street. The MP occurs mainly inside the car, and it is possible to identify PKOs such as the guitar, and PKAs that lead users to rotate the view anywhere in the car. PSs are also common alongside the story. Source: Own elaboration.

On the one hand, unlike most of this type of productions, which are usually composed of a single shot in the style of a shot-sequence, the narration is discontinuous; that is, temporal ellipses covering a very long period of years are frequent. On the other hand, these jumps in time, although produced by cuts, try to maintain a continuity, a fluidity that integrates the fragmentation or segmentation of scenes that make up the story in a single 360º space that can be traversed by the active gaze of the viewer-user. *Pearl* illustrates the time of the characters' lives while at the same time trying to ensure that the space understood remains unaltered, so that the interaction of the subject in the diegetic universe is not continuously interrupted.

The progressive composition of the elements in the frame, the smooth transition of colors and shapes and, above all, the use of an unaltered and recurrent space such as the interior of the car allow the montage of the different shots-scenes to go unnoticed by the viewer. Instead, they are carried away by the static dynamics of a space that varies substantially and imperceptibly from one moment to another without

limiting the experience of being able to observe all the angles of the virtual world.

At the same time, there is no downtime in *Pearl* as in other 360º stories. The narrative always moves forward, following the usual scheme of actions, turning points, informative and emotional progression, character transformation arcs, etc. In other words, a conventional dramatic structure and narrative resources typical of linear fiction. The proximity or similarity of *Pearl* with video clips and the proposals proposed within the cars recall emblematic references of works popularized in the 90s, the peak of this format.

The point of view is articulated from the car, which provides the visual frame of reference. Through the car windshield, windows, and doors, the viewer looks outside. The photographic figures of reframing and overframing help to modify the size of the shot and the composition of what is seen beyond, while also contemplating the interior of the vehicle and the subjects and objects that inhabit it. Once again, a paradox is produced in the 360º universe: edges, limits, framing are introduced within the frame. The different openings and windows of the vehicle's chassis, which is a point of view, a mobile perspective, but, precisely, in order not to have constrictions when exploring the space in its four cardinal points and to attend to the different actions of the characters that take place both inside and outside the car. That is to say, the variety of motifs and events is produced while maintaining the visual constants unaltered, which is, mainly, what is achieved by placing the viewer-user in the passenger seat throughout the story.

Larsen (2018) comments that immersion enhances and accentuates empathy, favoring mood and emotion. In the first-person point of view (POV), the way of narrating is required to have as many multiple options as degrees of freedom the user has. Although the perception of the world in 360º VR has been changing and today it encompasses narrative experiences that go beyond the complexity of the technological dimensions it comprises. In this case, the third-person point of view as in *Pearl* or in another Spotlight Stories production, *Age of Sail* (Kahrs, 2018) brings new elements to the immersive experience and the interaction that the user can generate with camera movements and offers control and sense of direction to the viewer.

The difference between these two videos is accentuated in the differentiation of the point of view. In *Pearl* it is almost diegetic, the camera looks like a subjective look of a character that is never seen, who is like a ghost, but could be anyone occupying the passenger seat. In contrast, in *Age of Sail* the point of view is the same, in third person disembodied, ghostly, but extradiegetic, the camera does not occupy anyone's place. It is also the same moving space inside or on top of a vehicle/boat. In these proposals, guided by a pilot who directs the tour, we can only interact with the other characters to understand the story in all its magnitude. In *Pearl*, interaction gives us more details, but no more understanding of the story. In contrast, in *Age of Sail* this interaction does help to understand the story, in fact, it is necessary to conveniently follow the

story. The protagonist switches scenes, entering the cockpit to offer another perspective, unlike *Pearl*, where we never move from the co-pilot's seat. Yet Pearl does employ temporal ellipses to move forward in time and show the passing of the years—the time of the story is longer than that of the speech. In contrast, in *Age of Sail* everything happens in the here and now.

The choice of point of view is one of the most significant contributions of cinematographic direction to audiovisual narrative. Similarly, in the so-called cinematic virtual reality (CVR), the director chooses the point of view with which the user can interact and thus contribute to the narrative CVR and be able to tell stories where the discourse is constructed by the filmmaker and finished by the user through the immersive experience.

As for the narrated story, there is a main plot that is practically unique. Although there are other secondary situations, they do not reach the narrative entity of subplots or parallel lines of action. The only remarkable thing are the different reactions of the characters that we may have overlooked in a first viewing-travel, but by placing us in a single spatio-temporal point of view, the user is not allowed to navigate freely through several stories hierarchized in importance or alternatives in terms of the characters involved.

The audience's attention, therefore, is directed in a linear fashion to individual events without being allowed to recompose other different episodes that may be relevant to the main plot.

This balance between immersion, interactivity, and narrativity, in which the traces of representation are not perceived to unbalance the balance in any of the three options, is what the short film has tried to achieve through various 360° editing resources: the highlighted events always happen in a place determined by its spatial position; the sensation of presence is built with various sensory inputs (e.g. visual, sonic, synesthetic), etc.) that simulate that we can even hear our own breathing as invisible subjects inside the car. The folkloric theme of the music unifies while allowing the lives of the characters to evolve dramatically.

Always, when creating stories organized in plots or not, there is the fear of missing something that is happening in that circular space, that uncertainty of the user of not attending important events (FOMO). Here a small incongruity arises at the narrative level. The stories are organized in dramatic blocks, which we can call acts, which are formed by dramatic incidents that move the action forward. If the story has a plot that develops in a certain space and time, it is organized, necessarily, with a beginning, a development, and an end. The possibility of interacting in that space immersed in a 360° vision gives us the possibility of varying the point of view and the place from which we see what is happening, so we will hardly miss any interesting aspect of the story. Now, and here arises a differentiating element: what is our point of view in the story? Are we passive spectators, are we mere observers, but we can be active at certain times, we can interact with the characters at specific points?
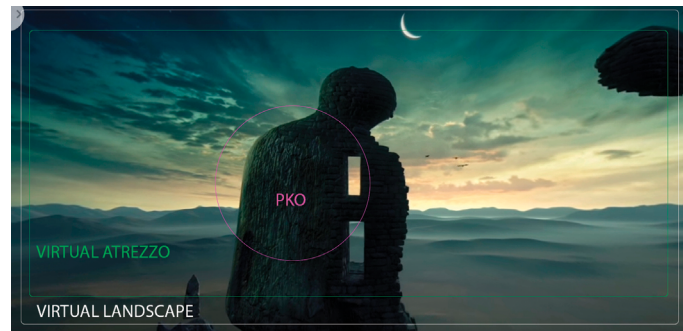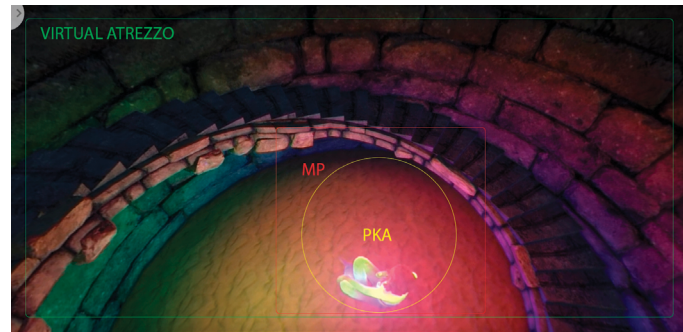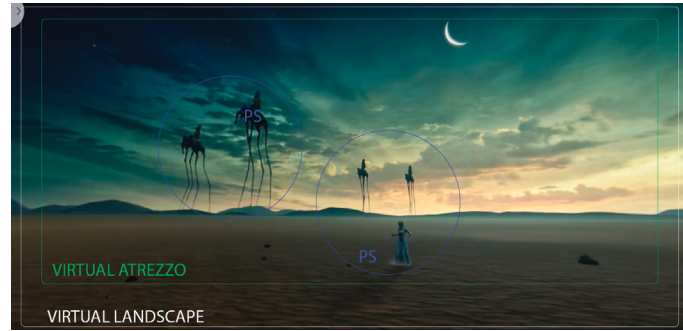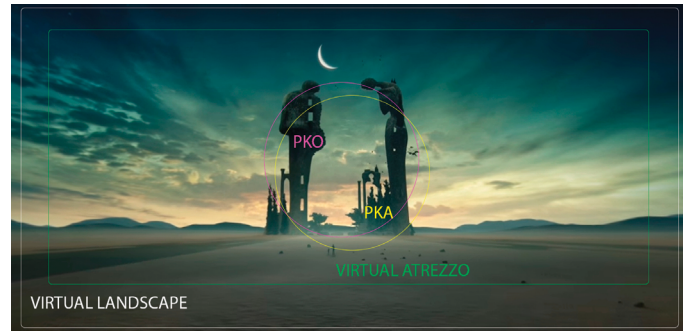
Figures 7, 8, 9, 10. Components of the VR 360º Dreams of Dali cinematic experience, created by the Dalí Museum in St. Petersburg (Florida). The work itself is based on the painting Archaeological Reminiscence of Millet's Angelus (Dalí, 1934), including elements from other paintings, such as The Temptation of Saint Anthony (Dalí, 1946). In a vast virtual landscape, we can identify a simple virtual atrezzo, and components such as MP, PKOs and PKAs are well identified and focused, also succeeding PS. Source: own elaboration.

If the stories are presented with different plots in the same space-time, the situation varies, and its expressive dimensions increase exponentially: which plot do we want to see? Which one do we want to interact with, if possible? Where does observing one plot or another lead us? These are dilemmas posed by the narrative design for 360º stories, amplified by the audiovisual production resources: for example, how to manage the out-of-field when it is dramatically representative for the story. You can participate in the story by occupying the point of view of the characters and decide it as a user, and thus understand the stories from different places. That is, they are parallel plots to the main plot or secondary plots that allow you to move freely to another place in the story.

The narrative possibilities are many if we can vary the point of view from which the story is told, and it is important to emphasize in that choice the very action of telling. 360º VR narrative videos are not based on the interactive or immersive experience but are built with the need to tell a story. The action of telling implies a gaze, a vision; that vision represents a discourse, a point of view from which the story itself is told. The decision to choose from where to look and tell the story will mark the story, that is to say, the *mode* of the story. That is why it is so interesting to be able to vary the point of view of narrative films in this format. It's a complicated technique, because it involves varying not only the angle of vision, which is already solved with the 360º, but also the place from where the viewer views the environment and the action.

Therefore, some of the most interesting research that can be carried out goes beyond the analysis of a specific work in 360º to the comparison of the different narrative and aesthetic elements together with the user experience. Thus, in the same Google Spotlight Stories series we find, in addition to *Pearl* and *Age of Sail*, another set of stories that address specific aspects of the audiovisual construction of a story in virtual reality. We summarize their relevant and differentiating elements in reverse order of their production/dissemination date on YouTube or through the Google *app* for mobile devices.

Piggy (Pinkava and Oftedal, 2018) stages a minimalist environment in which spatial coordinates are not relevant; rather, the story focuses on the protagonist's design and his simple visual actions to capture the attention of his potential viewer-users, young children.

Back to the Moon (Goby and Leroux, 2018), a heartfelt tribute to the work of George Méliès, uses panoramas, tilts, and 360º pans and allows the viewer-user to follow vicissitudes of the protagonist couple on a journey through the French director's proto-filmic theatrical work.

Isle of Dogs (Lajeunesse and Raphaël, 2018), a virtual reality remediation of Wes Anderson's film, articulates a simultaneous double space within the 360º environment: on the one hand, the protagonist dogs comment on aspects of the story in a 3D animated space; on the other, the creators of the film are seen at the same time working, just 180º from that *stop-motion* puppet set, on various tasks of creating scenarios, editing shots, or digital composition, usually articulating, even, two actions at the same time to the right and left of the viewing angle of the device and incorporating the *time-lapse* technique, which allows two different temporalities - real and accelerated time - in the same simultaneous shot.

Son of Jaguar (Gutiérrez, 2017) combines tracking the main plot on screen and searching through the 360º environment for the actions and reactions of the protagonists - the fighter and his family - with temporal effects that allow freezing the image to simultaneously introduce another timeline, as well as integrating codes from the 3D fighting video game and the music video clip.

Sonaria (Stafford and Chromosphere, 2017) narrates the evolution of two creatures through the change of visually coordinated shapes, lights, and sounds. The viewer-user follows the visual components through the immersive environment and perceives how the surrounding space is generated in a sensory, quiet but dizzying way.

Rain or Shine (Massie, 2016) has an equally linear development, in which we follow the protagonist girl through the 360° square space while the adventures produced by her sunglasses take place - an internal point of view to the environment that modifies it and turns it into two different superimposed worlds - and that also allows us to reframe the scene during the shot-sequence and appreciate the narrative nuances it contains.

Planet of the Couches (Google, 2016) is a virtual reality gag of the famous couch from the intro of *The Simpsons* (1989-x) in which homage/parody is paid to the movie *Planet of the Apes* (Schaffner, 1968). The comic scenes take place in a 360° environment enabled to perform simultaneous dynamic gags in any direction. The sketches evolve independently and require the viewer-user to be permanently active as a co-author of the story so as not to miss any of the action.

Buggy Night (Oftedal, 2016) brings into play a visual resource, a spotlight that highlights part of the image from the surrounding darkness. This demands the participation of the viewer-user, who has to follow the light to see what is happening on screen. In addition, it articulates the ominous presence of the toad that scares the beetles in the out-of-field and builds the user experience from a successful combination of directed actions rather than from patterned movements, emphasizing the search for emotional involvement in the story.

On Ice (Tindle, 2016) is a combination of 3D animation and video game format that offers, despite its linear and barely open character, several interesting narrative elements in 360°: the fast-paced dynamics of following the action without break in a circular space, the redesign of the environment as the story progresses or the use of some very prominent out-of-field element, such as when the bear prevents us from seeing what is happening behind him and as viewers we try to move to one side and the other to avoid him. All of these techniques are used carefully in this specific work.

HELP (Lin, 2016), a thriller and science fiction story that evolves narratively in shot-sequence while we can focus our attention on the different characters that make up the story, which are the alien and the protagonist, mainly. Camera movements can be reframed with the viewer-user's point of view and there is a sensational articulation of off-field, in which we search for the monster's presence through our dynamic point of view through the city or through the suburb.

Finally, *Special Delivery* (Ruffle, 2015) stands out by using 360° to portray multiple spaces simultaneously, taking advantage of the windows of the building—as in the famous Hitchcock film, The *Rear Window* (1954). The text incorporates cause/effect elements in the plot, as we see how the snow falls to the ground and we look for what has caused the collapse as well as suspense: we have information about the whereabouts of Santa Claus while the protagonist is unaware of it. Finally, there is a suggested out-of-field tension as we wait for the next appearance of the characters and the evolution of light and color as significant "living" elements of the virtual environment.

When analyzing the set of proposed works, a series of very outstanding values can be appreciated. First, these suggest how the incorporation of narrative, visual and sound resources might influence the field of filmmaking or television. Virtual reality allows us to discover, to find multiple creative resources that serve to tell stories while the story itself is being experienced. Second, these elements are found in a significant and relevant way, not just as an accessory. For example, the out-of-field or the small bits of information in different simultaneous plots, to cite two mechanisms among many, are an inherent part of the 360º worlds themselves. Third, the freedom of movement and the possibility of generating personal, unique, subjective, and non-transferable stories, give the user the possibility of participating, of acting as a protagonist; finally, virtual reality content takes the possibilities of audiovisual languages and narratives even further by connecting them with other types of audiovisual perceptions and sensory experiences that demand new ways of creating images and sounds. For example, traditional camera movements take on a new meaning in immersive universes where there is no camera as a conventional capture device, but a virtual dynamic that allows the portrayal of impossible angles, modification of optical parameters in a creative and continuous way (depth of field, diaphragm, sensitivity, etc.) and transforming formats, framing, colors or compositions in relation to the viewer's/user's gaze and not the space recreated or built from scratch by 3D animation or other computer techniques.

6. CONCLUSIONS AND DISCUSSION

Virtual reality is a powerful tool for developing content and addressing new types of stories (Lum et al., 2021). However, stories are often complex, and the rules determined for media such as film or television have also changed. These changes need to be analyzed and integrated into narrative studies, to contribute to new approaches by developing experiences in immersive 360º virtual reality technologies, both in linear and non-linear narratives. Identifying the components of the virtual landscape, such as the set of objects belonging to the virtual atrezzo, as well as the key plot actions (PKAs), key plot objects (PKOs) and parallel stories (PSs), will help content developers and creators, as well as other virtual reality stakeholders, to establish guidelines for such immersive experiences.

In this sense, the possibilities of narrative and aesthetic creation multiply: the languages of image and sound are enhanced by the 360º extension of the story space and the innovative capacity of virtual reality to integrate the most outstanding narrative structures and techniques of cinema, television, or video games (Anthes et al., 2016). Thus, as we have seen, in terms of content, resources such as the articulation of successive and simultaneous plots and subplots, the possibility of capturing the reactions of different characters, the change of point of view within the fictional universe, the variable articulation of the relationship between the information that the viewer has regarding the character

and vice versa or the treatment of different times within the same shot are procedures that are amplified in 360º environments. Likewise, in terms of audiovisual production, the use of out-of-field, the parallel editing of actions, the reframing of the camera movement made by the viewer-user or the enhancement of sensory experiences through image and sound are narrative and aesthetic decisions that increase the creativity and expressiveness of the most relevant techniques of art direction, photography, sound, editing, 3D animation, and visual effects in audiovisual stories.

These artistic and communicative applications of immersive narratives have only just begun, but the use of 360º environments to build immersive narratives applied to the world of education, business, or culture -museums, architectural spaces, etc. is one of the most outstanding aspects of this medium's capacity to narrate in a different, innovative and particular way, far from the language of cinema or television (Rodríguez, Baños and Rajas, 2015).Therefore, it is necessary to continue to analyze which audiovisual techniques are enhanced, redesigned, or reinvented by virtual reality and 360º video production. The analyses carried out suggest guidelines are beginning to be established, trends are being defined, and characteristics are emerging that will help to a complete catalog of narrative and aesthetic techniques specific to the virtual reality of 360º video. We expect this catalog of the most significant strategies, procedures, and processes for reinventing the dynamic languages of image and sound will aid in the evolution of the field.

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