

Augmented reality in Spanish television: the case of *Antena 3 News*

La realidad aumentada en la televisión española: el caso de Antena 3 Noticias



Mercedes Herrero de la Fuente has a PhD in Information Sciences (Journalism) from the Complutense University of Madrid. She is an accredited Professor at the University of Nebrija, in the undergraduate and graduate levels. At that university she has been Director of the Master's Degree in Digital and Data Journalism and the Master's Degree in Television Journalism. She is a member of the research group InnoMedia (Nebrija). She is part of the R&D project financed by the Ministry of Science and Innovation PID2019-105398RB-C21, "Disability and Digital Competences in the Audiovisual Sector". Her research lines are new technologies and their application in the audiovisual field. She has been research fellow at Cornell University (U.S.A.), Salford University (United Kingdom), Radboud University (Netherlands) y Karlova University (Czech Republic).

University of Nebrija, Spain

mherrero@nebrija.es

ORCID: 0000-0002-5361-9056



Carlos Jiménez Narros has a PhD in Information Sciences (Journalism) from the Complutense University of Madrid. He is the Research Coordinator and member of the Nebrija InnoMedia group. He is an accredited Professor at the Faculty of Communication and Arts at the University of Nebrija in the area of graphic design. He is part of the R&D project financed by the Ministry of Science and Innovation PID2019-105398RB-C21, "Disability and Digital Competences in the Audiovisual Sector". His research lines are new technologies, graphic design, teaching innovation and specialized information.

University of Nebrija, Spain

cjimenez@nebrija.es

ORCID: 0000-0001-8311-0261

Received: 13/07/2021 - Accepted: 25/10/2021 - Early access: 05/12/2021 - Published: 01/01/2022 Recibido: 13/07/2021 - Aceptado: 25/10/2021 - En edición: 05/12/2021 - Publicación: 01/01/2022

Abstract:

Augmented reality (AR) has been revealed to be a resource that is increasingly being utilized to transmit the latest news. The main television operators in Spain have already started experimenting with this tool, with the case of *Antena 3* being the most striking, as it has habitually incorporated it in its news programs. The present research study analyzes the use of this technique, starting with a significant corpus of narrated news with the support of augmented reality from the set itself. The method establishes a formal pattern based on the *ad hoc* design of a matrix on which a starting classification of the

Resumen:

La realidad aumentada (RA) se revela como un recurso cada vez más utilizado para transmitir la actualidad informativa. Los principales operadores de televisión en España experimentan ya con esta herramienta, siendo llamativo el caso de la cadena Antena 3, que desde 2018 la incorpora de forma habitual a sus informativos. Esta investigación analiza el empleo de esta técnica a partir de un significativo corpus de noticias relatadas con apoyo de la realidad aumentada desde el propio plató. El método establece un patrón formal basado en el diseño ad hoc de una matriz sobre la que se ha sistematizado una primera clasifica-

How to cite this article:

Herrero de la Fuente, M. and Jiménez Narros, C. (2022). Augmented reality in Spanish television: the case of *Antena 3 News*. *Doxa Comunicación*, 34, pp. 33-53.

<https://doi.org/10.31921/doxacom.n34a1041>

items was systematized. The key elements for its interpretation are the in-depth interviews given to a group of experts and professionals from the different departments of *Antena 3*. The results point to the predominance of static elements as opposed to enveloping and mobile ones. An aesthetic function is observed, which in many cases, along with the informational function, contribute to a clearer presentation of the information. The presenter interacts with the augmented reality, although in a limited manner. *Antena 3 News* bets on the incorporation of AR as an informational narrative, and thus contributes with a differentiating aspect to its brand image.

Keywords:

Augmented reality; *Antena 3* news; new narratives; immersive experience; news programs.

ción de estas piezas. Un elemento clave para su interpretación son las entrevistas en profundidad realizadas a un grupo de expertos y a profesionales de diferentes departamentos de Antena 3. Los resultados muestran que predominan los elementos estáticos frente a los envolventes y móviles. Se observa una función estética que –en muchos casos unida a la informativa– contribuye a una exposición más clara de la información. El presentador interactúa con la realidad aumentada, pero de manera limitada. Antena 3 Noticias apuesta por la incorporación de la RA como narrativa informativa y aporta así un aspecto diferencial a su imagen de marca.

Palabras clave:

Realidad aumentada; Antena 3 noticias; nuevas narrativas; experiencia inmersiva; informativos.

1. Introduction

In a media ecosystem conditioned by new technologies, the traditional media have adapted, more or less successfully, to this new and constantly changing ‘liquid’ context (Bauman, 2005). The competition for capturing the attention of the audiences is now more intense than ever, and in the area of the news, the overabundance of news outlets forces the administration of the content to be more efficient (Simon, 1971). To achieve this objective, the media –and especially the television stations– rely on digital resources that allow for more attractive and interactive formats (Scolari, 2013). Among them, we find virtual reality (VR), which has moved beyond being just another tool for articulating the informational discourse, so that “numerous media outlets have thought of it as another opportunity for developing an innovative manner for telling stories” (Barreda, 2018: 1107). In Spain, *Antena 3*, betting for the formal innovation that defines its trajectory in the last few years (Herrero and García, 2019), is one of the stations that most utilizes this technology. In September 2018 (Antena3.com, 2020), it introduced VR in their studio sets, as an instrument with which the presenters interacted to tell the stories. This is defined as augmented reality, which combines real elements with virtual ones, and allows, as we will analyze in detail, for a more complete narrative, where specific content can be presented more clearly and precisely. Other television channels have also begun to use this resource, such as *RTVE*, *Telemadrid*, or *TV3*. Internationally, many channels are using this resource more frequently, especially as a support for specific content, such as weather information (*Weather Channel*), sports (*Eurosport*), or special programs. We also find interesting examples, where AR is utilized in news items, in the United States (*CBS* and *NBC*), Europe (*BBC*, *France 2*, *RAI*, *RTL*), and other continents (*Al Arabiya*, *Al Jazeera*).

Before delving into our analysis, we should define *Antena 3* within the Spanish television panorama. It belongs to the Atresmedia Group (also the owner of *laSexta*), which along with Mediaset (*Telecinco*, *Cuatro*), shapes the private sector of open generalist television in Spain. Aside from these four, we can also add two public stations: *La 1* and *La 2*.

1.1. The prominence of television is still valid

Despite the great changes in the manner in which content is distributed and consumed, television is still the most popular medium, and has not yet been supplanted by the Internet. According to a report from the Association for Research on Communication Media, in 2019, 85% of the Spanish population affirmed watching television, as compared to 79.9% who declared themselves to be Internet users. Also, the television viewers did so daily for 3 hours and 32 minutes on average, while for the Internet users, this figure decreased to 2 hours and 41 minutes (AIMC, 2020: 12-13).

But this same study revealed that the largest age group within the television viewer groups was composed by those older than 65 years-old (24.4%), in clear contrast with the 20 to 24 age group, which only comprised 5.2%. This data improves up to 20.2% for the next age group, those aged 25-34 (AIMC, 2020: 14). Other research studies indicate similar values and show historical minimums in the consumption of television for the age's groups defined as children, young, and young-adults. Thus, the group aged between 4 and 12 years-old watches TV for 1 hour and 59 minutes on average; the 13-24 age groups do so for 1 hour and 37 minutes; the 24-44 age groups reach 2 hours and 41 minutes, and lastly, the 45 to 64 age groups watch up to 4 hours and 34 minutes (Barlovento, 2019: 16-17).

The aging of the audience is not unperceived by the television stations. Capturing a younger audience demands the production of new formats, where the application of technologies based on virtual reality could be useful. "That the youth do not watch television is a myth –ensues Silvio González, Managing Director of Atresmedia– another thing is that they watch it in another format or at a different time, but they watch it" (*El Confidencial Brands*, 2019).

The inclusion of augmented reality in *Antena 3 News* could have had a positive impact on its audience. According to data from Barlovento Comunicación, this station is the most viewed in the early afternoon (14:00-17:00), from Monday to Friday since 2018. The news program at 15:00, presented by Sandra Golpe, was the ratings leader during the period of time when the present research took place, from September 2018, to March 2020 (Barlovento, March 2020; Barlovento, February 2020; Barlovento, January 2020; Barlovento, 2019: 52; Barlovento, December 2018; Barlovento, November 2018; Barlovento, October 2018; Barlovento, September 2018), and its ranking has been maintained up to the present day (Barlovento, January 2021). Also, during the weekend, a technical tie was observed between *Antena 3* and *Telecinco*, in all of 2019, and the last two months delimited in our study (Barlovento, March 2020; Barlovento, February 2020; Barlovento, January 2020; Barlovento, 2019: 52). In this sense, the affirmation by Watson on the future of television is pertinent: "the audience needs to be placed at the center of any serious plans for the future" (2016: 40).

1.2. Augmented reality and its use in Antena 3 News

Virtual reality and augmented reality are technology systems based on devices that include the digitalization of images. These terms, although related, are also differentiated. Thus, we must delve into their meaning to better understand the connection between AR and VR.

We find many definitions of the term VR in the scientific literature, with each considering a different aspect, and with the technological component playing a leading role. Among the first definitions, we find the one by Lanier, who in 1989 linked this tool with the stimulation of all the senses (not only sight), and with the use of equipment that allow the user to perceive the virtual

world as if it were a physical one (Paíno & Rodríguez, 2020: 4). Bell and Fogler present VR as a “interface characterized by high degrees of immersion, believability, and interaction, with the goal of making the user believe, as much as possible, that s/he is actually within the computer generated environment” (1995: 2). They also add that in an ideal virtual experience, it is impossible to distinguish the simulation from the real. In a summarized manner, Brudniy and Demilhanova stated that “it is the area created with computer technologies and sensed as real existence” (2012:6), while for González and Abad (2020), it is an immersive digital practice which substitutes the real environment for another. Most authors put stress on the tridimensional character of VR and its ability to nullify the real world that exists around us. A virtual experience provides us with a complete view from any angle, so that what is virtual becomes “everything that surrounds us” (Cantero, Sidorenko & Herranz, 2018: 81). As a conclusion, we can extract three elements that are commonly accepted by the main authors when discerning what VR is. These are: “immersion (multisensorial), presence, and interactivity (Paíno & Rodríguez, 2020: 5). These components have an influence on the manner in which the user relates with the virtual world and becomes involved in that experience.

The term “augmented reality” was first mentioned in a scientific publication in 1992 and was introduced by Caudell and Mizell. Both stated that it was a technology which “augmented” the field of view of the user (1992: 660). Many authors understand AR as a variation of VR. Azuma points out that VR immerses the user within a synthetic environment, so that the user cannot see the real world around him or her. However, AR allows the user to perceive a real context with superimposed virtual objects. This means that “AR supplants reality, but does not replace it completely” (1997: 355-356). Drasdic and Milgram (1996) point to the combination of the real world and the virtual one thanks to the possibilities provided by new technologies. Also, Parra, Edo and Marcos (2017) stress that it is the combination of the real and the virtual which differentiates AR from VR. To this effect, in the augmented reality objects from *Antena 3 News*, the presence of virtual objects, either static or mobile, next to the presenter, is observed on the set. Along this line, we find the approach by Tejedor, Cardona, and Cervi, who define AR as the “superposition, in real time, of virtually-created images, signs, or information over images in the real world” (2020: 439). But far from being a mere addition, AR “does not supplant reality, but instead complements it, and improves it up to a certain point, by implementing the combination of virtual and real objects in real time” (Caldera, 2020: 644). According to this author, we can speak about three phases of the use of AR in television: in the first, we find the *chroma-key*, which works as the backdrop of the set. In the second phase, “an image created by a computer is superimposed on a real-world image”, thus adding additional information. This application is very frequently used for offering statistics, signs, or labels in real time. On the third stage, we resort to “external devices for AR visualization”, which can transform the manner in which television is watched, converting it into an interactive experience. For this, additional devices are added, such as mobile phones or *tablets*, which allow the user to access complementary content in different formats (Caldera, 2020: 646). This last phase is still in its initial stages, but it can imply, as mentioned earlier, a point of inflection in the consumption of television. Our sample is found in an intermediate stage, where the virtual objects complements the real world, providing a different dynamic, and allowing a more graphical presentation of specific news items.

The immersion factor is present in both technologies, but it seems to be accepted that the degree of immersion can be varied. Darley (2002) considers that specific elements, especially goggles or gloves, are essential for facilitating an experience in which the representation of the reality created by the technologies surrounds the user. The non-immersive variant is produced through the screen, which inevitably becomes a physical barrier. This is echoed by De la Peña *et al.* (2006), who understands immersion as an essential factor for understanding reality, and concludes that the traditional media, in some manner, under-represents it.

If we ask ourselves about the degree of immersion of the AR present in the *Antena 3* news programs, we find a particular issue. The user does not have access to this experience, as he or she does not have the specific tools needed for the interaction (goggles and gloves) and is separated from that which is received through the screen. However, in some of the examples selected, the spectator perceives the presenter as being immersed in a physical space that is different from the set. The particular enveloping creations analyzed in the present work, such as the Palace of Moncloa, the Congress of Deputies, or Downing Street, just to mention a few examples, perform a very effective ‘staging’ for the audience. However, the experience of the reporter, who is apparently seated in the office of the Spanish prime minister, is not immersive at all, as what he or she observes around him or her is exclusively the set, and he or she only has a monitor available that is used as a guide when moving around the space recreated for the audience. Thus, we think that the term ‘staging’ is more adequate in this case, when referring to this type of enveloping AR (Miguel Oliveros, 2020, personal communication).

In the last few years, the use of these technologies in the news programs guides us towards immersive journalism, understood as how “to create a sensation in people of being in a place, in which credible actions are performed that they perceive as truly occurring, and more importantly, where their bodies are involved in this event” (De la Peña *et al.* 2006: 299-300). Therefore, it is a different way to access the news, in which the user feels transported to the place where the events took place, with the possibility of interacting with them.

Immersive journalism can be based on both virtual and real elements (video 360°). Its main characteristics were defined by De la Peña *et al.* (2010) as the “confluence of three elements: the illusion of presence in the narrative or news scenario, the plausibility, and the possession of a virtual body, that is, an avatar for accessing the reality presented” (Pérez-Seijo & López-García, 2018; 289). The latter imports a narrative factor from videogames, and it is only possible through VR. The immersive experience takes us to a space where the user experiences an alternative reality, with the perception of participating in an event that is truly occurring. To create this immersion, specific technological resources are needed (glasses, gloves, and helmet), but the immersive news narrative is not only based on these tools, which alone do not guarantee immersion. To achieve this type of information experience, the narrative is fundamental. As explained by one of the experts who was interviewed for this research study, it is essential to define “what aspects of the narrative must be considered to know if immersion or not is being promoted” (Eva Domínguez, 2020, personal communication). Other authors also express themselves in the same manner, such as Frasca (2007), and Oliveros (2018). Can this immersion be achieved without digital resources? From the psychological point of view, this is affirmative. Gerrig (1993) sustains that immersion can be experienced without mediating the interaction, when the individual feels transported to another place, or experiences that which occurs to the characters as if it was happening to him or her. This is definitely the experience of the reader or the movie watcher.

Thus, focusing on the narrative, Domínguez (2015) states that the immersive rhetoric is solidified into a series of resources or strategies. If we confront these points with the AR creations from *Antena 3*, we find specific coincidences with more complex examples. We can highlight the following: the composition of the interface with a single frame (without compartments), the hyper-realistic graphical style, or the movement through continuity (without mediation from the production). However, there is no capacity of interaction from the spectator, which could include direct manipulation, emerging menus, choosing what is seen, or simulating a character.

One of the most important aspects of immersive experiences is the ability to create empathy with respect to specific situations. The user feels transported to the context where a specific event has taken place, and, as we have pointed out, can even physically interact with the different actors involved. For De la Peña *et al.*, given the indifference provoked by news saturation, immersive journalism could become the ideal tool for “restituting the emotional involvement of the audience” (2019: 298). In line with the proposal by Gerrig (1993), De la Peña emphasizes the importance of participation in the first person, placing oneself in the place, and experiencing the recreated reality.

But this involvement also brings with it risks related with rigor and objectivity of the news content. Pérez-Seijo and López-García point to the “manipulation of the environment, the conditioning of the sources of information, and the exposure of sensitive images” (2018: 296) as the most important ethical dilemmas. The virtually-created distortion of reality, the conditioning of those involved in a news item, implied by some recording strategies (such as the face-to-face, to speak directly to the camera to appeal to the user), and the emotional impact that certain content can provoke, are very delicate aspects to consider when creating an immersive journalistic piece.

We will not insist on this matter, as the immersion factor is hardly relevant for the experience of the *Antena 3* News viewer. If a prospective exercise is performed, we believe that the use of AR in the news program from this station can evolve, resorting to a series of already-existing technological possibilities (*smartphone*, headphones, 60° sound specialization system, and virtual goggles), thereby being able to offer a more interactive experience in the future (Miguel Oliveros, 2020, personal communication).

To conclude this exercise of conceptually placing the AR pieces included in the news program from *Antena 3*, we introduce an element that is ever more present in the television news: the spectacle factor. In agreement with the observation by Perez-Arozamena, “(...) the Spanish generalist television news are presented to the viewers as a product that can be converted into a type of show in itself, if the ultimate aim of the information is undermined, which is to inform” (2016: 258). The use of moving visual elements that reproduce the spaces where we do not usually have access to, with great fidelity (the Oval Office in the White House, the House of Commons, or the previously mentioned Palace of Moncloa, Downing Street), could draw our attention away from the content of the news itself, wrapped in a series of powerful visual resources. This debate, which could be extrapolated to any information that integrates VR, depends entirely on how this technology will be utilized. This is how it is unanimously understood by the experts and professionals consulted for this article, whose evaluation could be summarized by the words expressed by the expert in technologies Manuel San Frutos: “When a graphical or audiovisual tool is utilized as if it were pyrotechnics, it will remain that way. Everyone likes fireworks, but once you’ve seen one, you’ve seen them all. Also, the problem with this is that the next one has to be better, it is a never-ending race” (Manuel San Frutos, 2020, personal communication).

1.3. Professional profiles demanded by augmented reality

The media panorama is, as not too many sectors, the empirical embodiment of ‘liquid modernity’ formulated by Bauman (2005). In this sense, Cerezo (2018) refers to the ‘liquid media,’ oriented towards the satisfaction of new and ever-changing consumption habits, within a business model dominated by distribution platforms. In this volatile context, the professional qualification demanded also changes fast, and due to this, we approach this research study with the concern for defining which professional profiles, either new or already existing, are directly involved in the AR creations within the area of television news programs.

The new profiles “are distinguished for their hybrid character and are integrated into multidisciplinary teams” (Herrero and Sierra, 2020: 97). In fact, the professionals interviewed (Kevin Álvarez, 2020; Javier Gallego, 2020; Jesús Lozano, 2020) point to the involvement of different areas for these productions, such as: production, graphic design, editing, and technical department. Although the AR in *Antena 3* is performed with a producer, a graphic designer, a presenter, an editor and a camera operator, we cannot forget the importance of the computer scientists and digital designers for the creation of the *software programs* (*Maya, Viz Artist, Photoshop*) destined to different environments (videogames, movies, and other audiovisual productions). All of this, together with another of the characteristics that are usually attributed to the new profiles: “They possess an important technological component and work in different areas, focused on matters that go beyond content and formats” (Herrero and Sierra, 2020: 97).

Lastly, we believe it is important to highlight the observation by Karan (2017), remembering that beyond that of the technological, the information is still created by journalists, who are rigorous and responsible professionals: “It changes the format and tasks, but not the social function, or the illustrative act of informing about important and objective, pertinent facts” (Karan, 2017: 66).

2. Objectives

This research study will approach the area of augmented reality and its incorporation as a resource that supports the television news content; in this case, we will delve into how the news services from *Antena 3 News* utilizes them. For this, the following specific objectives were defined:

- To analyze AR as a narrative resource to tell stories. To verify the main functionality of AR utilized in the news pieces from *Antena 3*, evaluating if the aesthetic, aesthetic/informational, or informational character predominates.
- To establish the elements and typology that characterize the pieces created with AR in *Antena 3 News* in the period of analysis established for this study, which took place between September 2018 and March 2020.
- To reflect on the possibilities of interaction by the viewer and the news presenter, focusing on the particular case of AR in *Antena 3*.
- To identify which subjects are more frequently addressed with the support from AR in the news programs from the television channel analyzed.
- To define the team of professionals involved in the creation of AR that appear in *Antena 3 News* and detect the demands of specific training that exist in these work environments of teamwork that are characterized by their multi-disciplinary character.
- To achieve these objectives, the following methodological approach was designed.

3. Methodology

For this research study, considering the objectives defined, we utilized three methodological approaches: descriptive, quantitative, and qualitative. The first of them is built on a study based on secondary and primary sources that help with providing a context of the television phenomenon and the use of augmented reality, trying to differentiate it from other disciplines with which it shares

some aspects, such as virtual reality or immersive journalism. The study focuses on the news programs from *Antena 3*, which are some of the most viewed in Spain, especially at 15:00 O'clock, where it is the ratings leader since 2018. We approach the terrain of immersive journalism and the possibilities of interaction offered by these augmented reality pieces on current affairs. We also approach the concept of 'spectacle' as a possible existing risk when the aesthetic component is abused, and the informational function is forgotten.

We delimit the new professional profiles and the training needs of the communicators who work with audiovisual content.

The qualitative focus of the research study is founded on 6 in-depth interviews conducted through a videoconference with the *Blackboard Ultra* platform in the months of July and August 2020, with each of the interviews lasting about 1 hour. All the interviews were recorded and transcribed for their study and consideration. The interviewees responded to two different professional profiles. On the one hand, active journalists or professionals (producer, graphic designer) from *Antena 3 News*, and whose work was related with the creation or staging of the news that are supported with augmented reality; on the other, augmented reality, new narratives, and immersion experts. Their contributions have been very important for the interpretation of the data obtained in our analyses. The following table shows the names, profiles, and the date the interview was given.

Table 1. Reporters, professionals and experts interviewed in-depth

Names and last names	Professional profile	Interview date
Antena 3 professionals		
Javier Gallego Regalado	Antena 3 editor and anchor	July 21 st , 2020
Kevin Álvarez Mercado	Antena 3 graphic designer	July 22 nd , 2020
Jesús Lozano Corchón	Antena 3 imaging and productions director	August 28 th , 2020
Augmented reality experts		
Miguel Oliveros Mediavilla	Expert in immersive narratives	July 17 th , 2020
Eva Domínguez Martín	Expert in immersive narratives	July 29 th , 2020
Manuel San Frutos Forja	Expert in new technologies	July 30 th , 2020

Source: author created

The third methodological approach was quantitative and was based on the analysis of a series of news items presented with the support of augmented reality and broadcasted in a period of 18 months in the *Antena 3* daily, weekend, and special news programs. The period examined ranged from September 2018 to March 2020. The study begun on this date because it coincided with the moment in time in which *Antena 3* decided to incorporate this new technology to their sets, and the ending date was due to the COVID-19 pandemic, which forced the station to meter out the human teams that could work in-person. To measure these news items, a matrix was constructed which established some formal patterns that would help with the first classification

of these items. The creation of this tool was supported by the previous work from Azkinaga, Gaztaka, and Eguskiza, 2019. We began by the registration data, which indicated: name of the item, broadcast date, duration (less than 30", between 30 to 60", and longer than 1 minute), theme, and news program where it was broadcasted, after which the aspects related to augmented reality were measured. The character (static, mobile, or enveloping), the interactions between the augmented reality and the screen, the immersion (within the scenario, behind, left, or right), and interaction of the presenter (limited, elevated, without interaction), the functions of augmented reality (aesthetic, informational, and aesthetic-informational), the incorporation of data, and the item's approach ('outside the set', virtual element in the set, or based on data, figures and data), were determined.

The sample was comprised by 51 news items presented with the support of augmented reality broadcasted by *Antena 3*. We included news items that were the most representative for our period of analysis. In the selection of the sample, we found all the news items tagged by *Antena 3* with this category and stored in its webpage dedicated to augmented reality. We only eliminated those that promoted the television station, always considering the objectives of the research study. Each sample unit was analyzed with this matrix, and the extensive volume of the data was codified and processed. The recording and extraction of data was conducted with the Excel software program. During the filtering process, we compared different variables of interest for the proposed research study, and always in agreement with the objectives set.

4. Analysis of the results

Antena 3 is the television channel which has incorporated the most augmented reality objects in its news programs. Since 1993, they have pioneered the use of technology (Jesús Lozano, 2020, personal communication), and in this sense, they were the first to end with the traditional talking bust, inspired by other international productions, but also creating their own proposals (Javier Gallego, 2020, personal communication).

From the data obtained, we should underline, as related to the broadcast data, that 43.1% of the news analyzed were broadcasted in the first afternoon edition of the news program, 33.3% in the second, 9.8% during the weekend, 7.9% in the morning news program, 2% in the morning program *Espejo Público* (*Public Mirror*), and 3.9% were found in special programs on the elections. When analyzing the subject variable, a clear predilection was observed for society news contents (51%), followed by politics (23.5%), international (13.7%), economy (7.9%), and culture (3.9%). Some international examples we detected and reviewed indicated that we are dealing with a technology that is very promising as support for the information presented, and also in sectors such as sports and meteorology, coinciding with what was pointed out by our interviewees (Jesús Lozano, 2020, personal communication). In this sense, the journalist Javier Gallego points out that in the United States, there are some meteorological channels with amazing productions. "They are greatly exploring (...). They do not use this element as a spectacle, but to explain the effects of these phenomena" (Javier Gallego, 2020, personal communication).

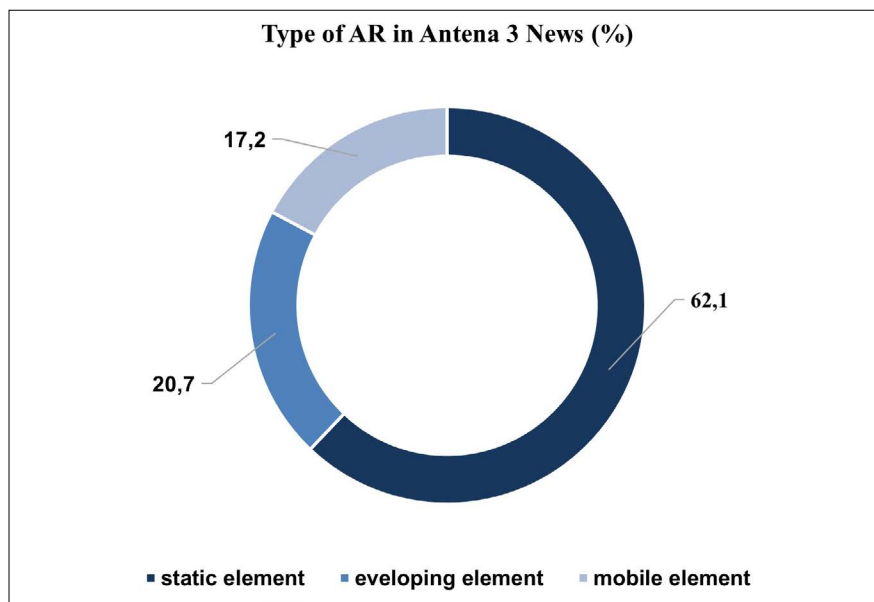
The duration of most of the items analyzed was less than 1 minute. There were only 8 that lasted longer, and these were enveloping news, in which the presenter was located in another stage, 'outside the set', and his or her main functions were aesthetic and aesthetic/informational. This reveals that for this 'staging', a longer news piece was needed. In those that were shorter than 30 seconds, we found an abundance of virtual elements on the set (especially static ones), and with tri-dimensional signs, figures, and data, with the ones that took us outside of the studio being exceptional. In most of these short creations, the function

highlighted was aesthetic/informational, followed by an aesthetic one. In the news with an intermediate duration, between 30 and 60 seconds, the static AR elements also prevailed, followed by the enveloping and the mobile ones, with a clear relationship between duration and functionality not observed.

4.1. Type of augmented reality, immersion and interaction of the presenter

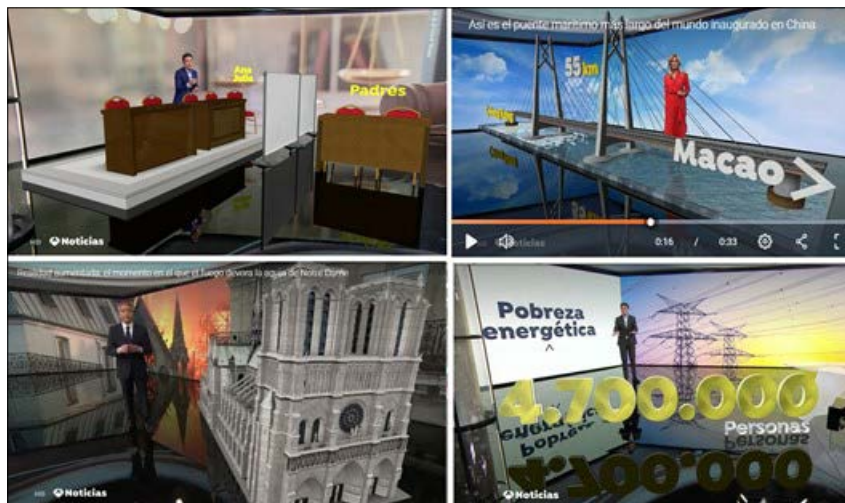
We analyzed the data recorded related to the use of augmented reality as a support for the narration of a current event and paused on its typology. We observed that in most occasions, a static element was introduced, such as signs, tables, graphics, or representational resources (maps, buildings, bridges, or pumpkins). In second place, we found enveloping elements (Congress of Deputies, Oval Office, Westminster Palace, or the Palace of Moncloa), and to a lesser percentage, the graphical support was a mobile element (rocket, metro, plane, helicopter, or car).

Graphic 1. Type of augmented reality used in Antena 3 News



Source: author created

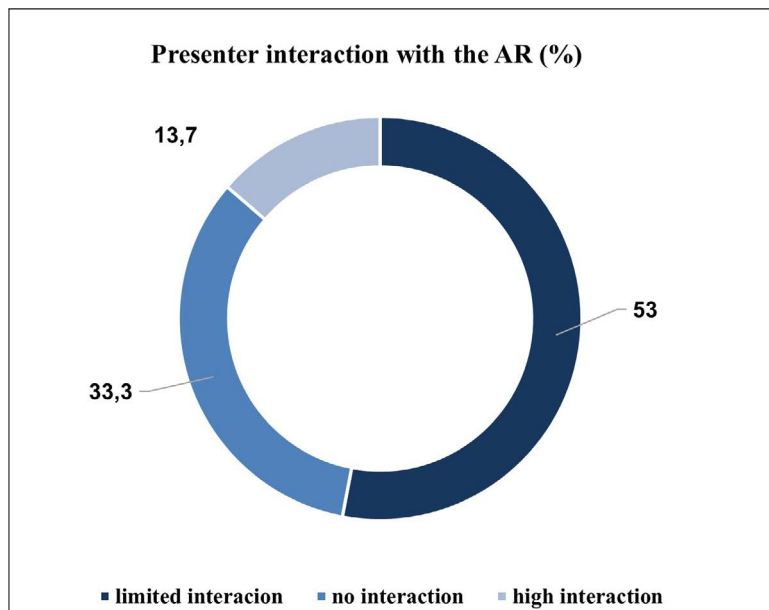
In the case of the static elements, the most recurring ones, according to Figure 1, were those whose function was aesthetic/informational or aesthetic, and in which the presenter exerted a small interaction, limiting himself or herself to pointing when referring to the virtual object.

Image 1. Static augmented reality elements

Source: Antena 3

When focusing on the immersion terrain, or ‘staging,’ as some experts prefer to name it, we can point out that in 79.2% of the AR creations, the presenter was behind, to the left or to the right, while in 20.8%, he appeared to be on another stage that was not the set. As Manuel San Frutos clarifies, this aspect is very interesting when we are talking about immersion in a news program, because we are “normally used to immersive experiences in first person, and in these cases, this is not the case” (Manuel San Frutos, 2020, personal communication). The dominant position of the presenter on the set is behind the augmented reality object, especially when the reporter is shown sitting behind the desk, although on some occasions he or she moves around the augmented reality element and stops at one of its sides. As for the viewers, they do not interact with the medium at any time, given the limitation of the television screen and the conditions in which the audience are found when watching the news.

The data on the possible interaction exerted by the reporter with the augmented reality object show a predominance of limited actions, followed by no interaction and high interaction, as shown in Figure 2. When we detected a limited interaction, the presenter pointed and mentioned the object referred to in the news item. In this case, we observed an abundance of objects with aesthetic functions (46.5%), where we found content without data, followed by those that had an aesthetic/informational function (32.14%), and lastly, by those that were informational (21.42%).

Graphic 2. Degree of interaction established by the presenter with the augmented reality object

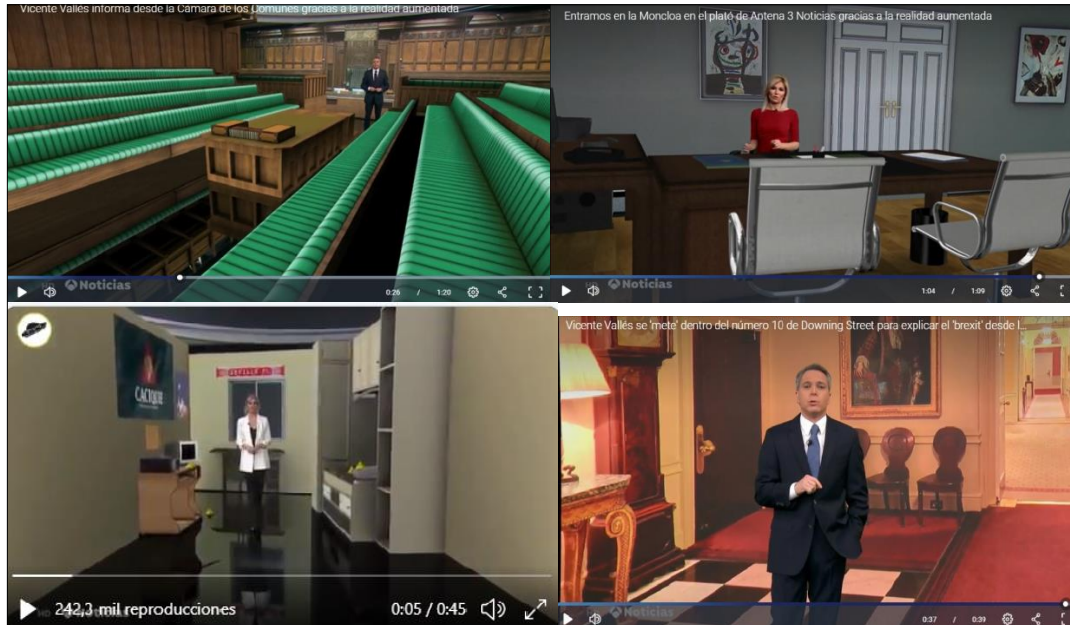
Source: author created

In most of the cases where interaction did not exist (33%), the presenter was found behind the augmented reality object, and in an exceptional manner, he or she was found at the right or left of the object. This position makes a lot of sense, because, as interaction is not produced, the reporter can be placed behind. As the data reveal, in these sample units, there was a predominance of the aesthetic/informational function (41.2%), closely followed by an aesthetic function (35.3%), while only 23.5% of them possessed an informational function. If we relate the non-interaction with the focus of these augmented realities, we underline that in 52.9%, there was a virtual element on the set (table, bridge, capitol, map, or pumpkins), and in 47.1%, there was prevalence of signs, figures, and data. The maximum interactions with augmented reality were recorded between the months of January and September 2019, which were more frequent in the early afternoon edition, followed by the second evening edition. At these times, *Antena 3* made a greater effort on the creations with which it experimented with this new technology, those that required a more detailed forecast and a higher economic budget. Some significant examples were the two pieces created for the 50th anniversary of the arrival of man to the moon, one presented by Vicente Valles, and the other by Roberto Brasero and a collaborator. Also highlighted were two elements presented by Sandra Golpe, one of them due to the debut of the television program 'The Voice,' and another when we saw the inside of the Palace of Moncloa.

This same strategy was utilized for the news item in which Vicente Valles was transferred to the Oval Office. Likewise, we should highlight a news item in which the editor of *Antena 3 News 1*, Javier Gallego, talked to us about the rainstorms, and how the water level rose. To make it more understandable, he showed us a car that floods little by little. This same idea was previously developed

by the *Weather Channel* in the USA. Another item that was very representative of AR was the news item in which Sandra Golpe and Javier Gallego were placed inside a kitchen due to a current events news item.

Image 2. Augmented reality with an enveloping character



Source: Antena 3

The Imaging and Production Director from *Antena 3* points out the following when referring to these creations: “before, their implementation was more costly, but now everything has been simplified, because there are objects libraries that can be bought and modified to fit the set, especially when immediacy is required” (Jesús Lozano, 2020, personal communication). “Augmented reality is here to stay, because as it is a very visual graphical resource, it brings something extra to the table, and it is guarantee in an audiovisual medium such as television, it is just like the infographic to the newspaper” (Javier Gallego, 2020, personal communication).

When the reporter simulates being in another virtual space (‘The Voice’ set, Palace of Moncloa, Oval Office, and kitchen), his or her interaction with augmented reality is limited in 100% of the cases (he or she sits, touches, strolls, goes around, shows, and points). In this sense, the term ‘staging’ is more adequate, as the presenter is not observing the augmented reality imported to the set at any time, except for the television monitor, which he or she cannot watch constantly either. Javier Gallego points to this aspect:

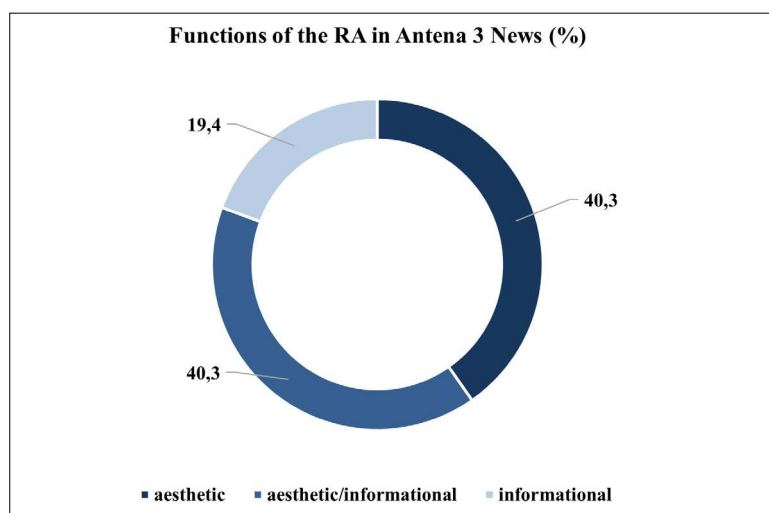
You have to know the volume and more or less delimit the space where you can move so you don't invade the AR space. It is flat object that is in front and the presenter cannot go through it. Also, there should be a proportional relationship between the presenter's body and the volume of the object or building created. AR is a fixed plane that cannot be moved, although it can be rotated or spun. If one is not aware, one can invade this area, and the building, for example, would be small, and I would be large. This is one of the difficulties, and this is why you must have a spatial limit in your head to know up to which point you can move, and how you can move and gesticulate. For me, for example, as I like to gesticulate and be dynamic and move, I have to keep everything under control to not ruin everything (Javier Gallego, 2020, personal communication).

In this sense, Manuel San Frutos points out that if the presenter goes through the signs marked on the floor of the set (safety area), and goes over them, an interference is created, so that the object is pushed out of the narration (Manuel San Frutos, 2020, personal communication).

4.2. The functionality of the contents with AR and the addition of data

If we pause on the variable of functionality of the augmented realities, we verify, according to Figure 3, that the results of the aesthetic and aesthetic/informational categories, are the same: however, the informational function is lower. Thus, we can add that the augmented reality objects whose aesthetic function is not clear, primarily do not contain data (90.5%), and tend to be, preferably, static elements that are added to the set (53.6%), followed by those that are enveloping, which are found outside the set (28.6%).

Graphic 3. Functions of the augmented reality objects utilized in Antena 3 News



Source: author created

As pointed out by the interviewees, in the case that the aesthetic prevailed over the information, we should be careful that the news programs and their staging do not become a spectacle. “Augmented reality is a very interesting type of help for capturing the interest of the audience, it is visually impacting and can be a very efficient resource in the news programs” (K. Álvarez, personal communication, July 22nd, 2020). As for the concept of spectacle, the editor and presenter Javier Gallego attests that:

The risk of becoming a spectacle goes beyond other programs that are not information-related. In a news program, the spectacle is very limited or does not exist. There is no margin, we have the current events and day-to-day script. The current events write the story, and you adapt it to the graphical, visual, and narrative elements, and if possible, obtain the maximum audience (Javier Gallego, 2020, personal communication).

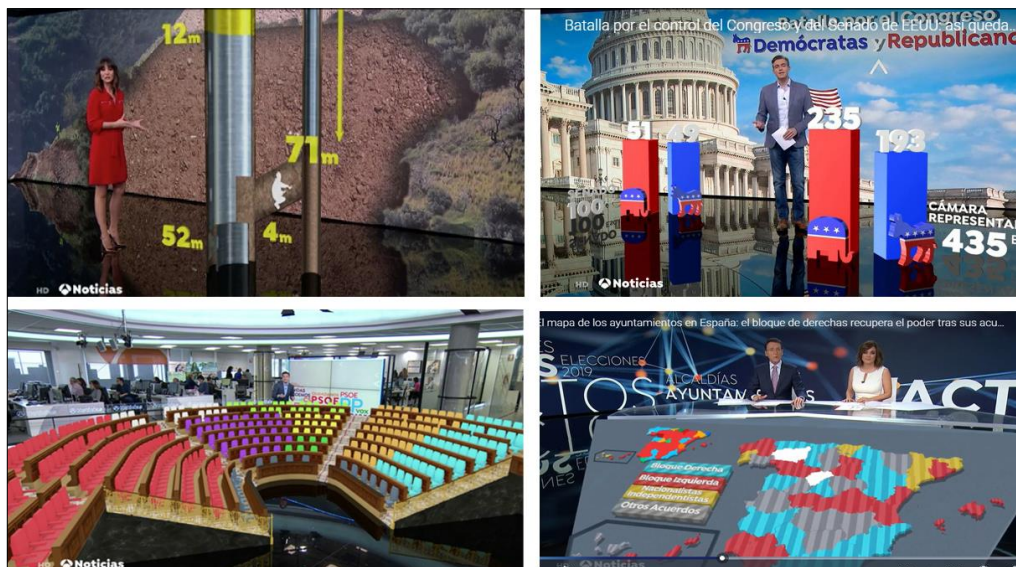
The producer Jesús Lozano adds:

It very much depends on the person and the medium that utilizes it. The risk exists, but this occurs with anything you give to a human being. One could use it one way, and another in another way. The same tool is being used in many countries and in many different media and channels, and its use is found within the editorial line. I believe more on the information than in its use as a spectacle, but the news programs also evolve towards the ‘magazine’ type of program, and this is not negative at all (Jesús Lozano, 2020, personal communication).

Eva Domínguez, an expert in immersive narratives, positions herself along the same train of thought. She recognizes that “there could be a certain type of ‘spectacle’ in these news programs, although it is important to consider that they overcome the challenge of capturing the attention of the viewers. If it is well utilized, it is a resource that helps with the understanding of the content, but this is dependent on each case” (Eva Domínguez, 2020, personal communication).

If we focus on items that have an aesthetic/informational function, we noticed that the percentages are quite close. Of these, 57.1% possessed content with data, with 42.9% of them not having data. Also, 57.1% were static elements, 23.8% were mobile, and 19.1% were enveloping. When analyzing the augmented reality object with a clear informational function, we detected that 90% of them showed content with data, and were all static (signs, figures, data, schemes, or maps), and in most of the cases, they were based on figures and data.

Image 3. Augmented reality elements with an informational function



Source: Antena 3

On some occasions, such as in the two news items about ‘Julen’s rescue,’ we found that a virtual element coincided with data presented to the viewers. In these items, the informational value was very high, in the words by Javier Gallego (2020):

For me, it is an amazing resource (...). A very clear example we had was Julen’s rescue. For us, AR was a very essential tool, because we were providing information about something that could not be viewed, that was underground, the shape of the galleries in parallel tunnels, how they arrived. AR was like saying we have an ideal audiovisual tool for explaining to the viewer what was occurring down below. You cannot show this in a video, because you don’t have it. In the case of the elections, the animated graphics give you something extra for the viewer to focus on, to observe the comparisons, and so that everything is more digestible, to digest it, and so that everything is closer; completely visual and easy to understand (Javier Gallego, 2020, personal communication).

The expert in immersive journalism, Miguel Oliveros, considers that although the informational experience is enriched, it still co-habits with an aesthetic component that adds spectacularism (Miguel Oliveros, 2020, personal communication). On his part, Manuel San Frutos highlights the efforts made by *Antena 3* when betting for a different way to create different content in a traditional informational format (Manuel San Frutos, 2020, personal communication).

This is a technology with a long road ahead, as pointed out by the experts and professionals interviewed, among which we find Eva Domínguez:

AR provides the value of tridimensionality into your context. I understand things better when I’m the measurement of what you are showing me (...). Within the value of the tri-dimensional, we must explore the narrative (...). To say that AR contributes with

tridimensionality is like writing the first sentence of something that is very long, and that will be several pages long (Eva Domínguez, 2020, personal communication).

When focusing on augmented reality that includes content with data, we discovered that almost half of them added data (43.1%). Of these, the distribution was the following: aesthetic/informational function (52.2%), informational (39.1%), and aesthetic (8.7%). On the contrary, we found the items whose content did not show data (56.9%), and in this case, as related to their function, the AR objects were preferably aesthetic (65.5%), followed by the mixed category aesthetic/informational (31%). As a conclusion, we can point out that the addition of data and the aesthetic function were inversely proportional.

If we consider the items that took us ‘outside the set’ 89.9% did not contain data. The results indicate that the main function of these objects was aesthetic (63.6%), followed by aesthetic/informational, and lastly by informational (9.1%), and the presenter showed interaction that was either limited (63.6%), or high (36.4%). Some of the spaces that were recreated were: Downing Street, House of Commons, ‘The Voice’ program, Palace of Moncloa, the Oval Office, or the Congress of Deputies. The most experienced reporters were those who normally presented the news items: Vicente Valles, Sandra Golpe, Javier Gallego, and Roberto Brasero. We can conclude that the augmented reality elements, whose purpose was to take us to a location outside of the set, did not generally show data, that their main function was aesthetic, and that in all of them, some type of interaction was produced. To conclude, the news items based on signs, figures and data, complied with functions that were informational (40%), or aesthetic/informational (40%). Thus, information and data were always united.

5. Conclusions

Augmented reality, and more specifically, their use in the *Antena 3* news programs, is still in an experimental phase, but this technology has already become a habitual tool for re-enforcing, classifying, and converting the narration of current events into something that is more attractive. This is not a passing or temporal resource, as shown by the addition and use of AR in more and more autonomic, national, and international television channels. After the analysis of the data, the following conclusions can be made:

- The most-utilized type of augmented reality in the *Antena 3* News consisted on introducing some static object into the set: signs, tables, graphics, or other representational resources. In second place, we found the recreation of enveloping spaces, and lastly, the integration of mobile elements. The great investment in time and human resources of the most ‘enveloping’ objects resulted in that they were broadcasted less frequently. When static elements were incorporated to the set, on some occasions, templates were used that were edited for each occasion.
- The AR pieces analyzed in *Antena 3* News showed a clear predominance of news with an aesthetic function, as compared to those that were purely informative. But if we add the creations that contained an ‘informational component’, we can state that 60% used this criterion. The pieces with a purely informational function showed their content through data, and in almost every case, there was a static element that helped with understanding the news item.
- The strategy of the *Antena 3* News program has not planned, for now, for the interaction with the viewer. Also, immersion was not produced, mostly due to the interference of the screen on this process. However, it is striking that the appearance of

immersion was observed in the case of the presenter, who appeared to move around a location that was different from the set. This is a type of 'staging,' as the reporter was not submerged in an immersive experience, and what he or she perceived was still the same studio set. However, possibilities exist for offering this immersive experience to the user, by taking advantage of the already-existing technologies, but within a narrative that should be focused on the first-person experience and on its possibilities of interaction and empathy.

- The interaction by the presenter in most of the cases was reduced, only limited to pointing or mentioning the object that the news items referred to. When there was no interaction, it was because a virtual element, or sign, figures, or data, was incorporated to the set.
- We found that most of the AR objects were related to the subject of society. Other recurring contents were: politics, international, economy, and culture. Some subject matters in these sections were foreseeable, and their creation could be anticipated. For example, the elections or the anniversary of the landing on the moon.
- The design team from *Antena 3* dedicated to the creation of AR objects is very small. It is normally composed by 2 people, one in charge of modeling the shape, and another responsible for the texture. Also, during the process prior to the broadcast, the editor and the producer of the news program intervene, as well as a camera operator on the set, and a camera control technician, in the control center of the studio. This is not always related to new work profiles, but of professionals who have improved themselves and updated their professional qualifications for performing this task. In the case of graphic design, it is indispensable to be able to use specific programs, such as *Maya*, *Viz Artist*, or *Photoshop*, among others. In this sense, there is a demand for specific design skills.

The immersive experience of the user with the use of AR has not been explored to its full potential. Some of the experts consulted suggested the creation of an application for mobile phones, so that the spectator, through sound and images, could approach the recreations created on the set in a more interactive manner. Others considered viable to resort to a game engine that exports the content to *smartphones*, so that with the help of headphones and a specialized sound system, a more immersive type of access could be accomplished.

The bet by the Image and Production Department from *Antena 3* for the addition of augmented reality is the result of a project created many years ago, which has been able to maintain its continuity through time, and to base its brand image with technological innovation. Its example has been followed by other channels, especially the La 1 channel from Radio Television Española (Spanish Radio and Television), which has just implemented a technological transformation in their sets to add AR as another resource for narration in its news programs.

6. Acknowledgements

This article has been translated by Mario G. Font.

We are thankful to all the professionals from the news services of Antena 3 News and the experts we consulted for their selfless collaboration in the development of the present research study.

7. Bibliographic References

- AIMC (2020). Marco general de los medios en España (2020). <https://tinyurl.com/y4xdm5gc>
- Antena3.com (2020, 23 enero). Realidad aumentada, así contamos hoy las noticias. <https://tinyurl.com/y327xggs> Antena3.com (2020, 23 january) Realidad aumentada, así contamos hoy las noticias. Available at: <https://tinyurl.com/y327xggs>
- Asociación para la Investivación de Medios de Comunicación (AIMC) (2020) *Marco general de los medios en España*. Report. Available at: <https://tinyurl.com/y4xdm5gc>
- Azkunaga García L, Gaztaka Eguskiza I and Eguskiza Sesumaga L (2019) Nuevas narrativas en televisión: La Realidad Aumentada en los telediarios de Antena 3. *Revista de comunicación* 18(2): 25-50. DOI: 10.26441/RC18.2-2019-A2
- Azuma RT (1997) A survey of augmented reality. *Presence* 6(4): 355-385. DOI: 10.1162/pres.1997.6.4.355
- Barlovento Comunicación (2020) *Análisis mensual del Comportamiento de la Audiencia TV marzo 2020*. Report. Available at: <https://tinyurl.com/y3xfwgpdp>
- Barlovento Comunicación (2020) *Análisis mensual del Comportamiento de la Audiencia TV febrero 2020*. Report. Available at: <https://tinyurl.com/yy3v9lhm>
- Barlovento Comunicación (2020) *Análisis mensual del Comportamiento de la Audiencia TV enero 2020*. Report. Available at: <https://tinyurl.com/y59jqhxs>
- Barlovento Comunicación (2019) *Análisis televisivo 2019*. Report. Available at: <https://tinyurl.com/y4nq3efj>
- Barlovento Comunicación (2018). *Análisis de audiencias TV diciembre 2018*. Report. Available at: <https://tinyurl.com/yyfubr7d>
- Barlovento Comunicación (2018). *Análisis de audiencias TV noviembre 2018*. Report. Available at: <https://tinyurl.com/yyeykr63>
- Barlovento Comunicación (2018). *Análisis de audiencias TV octubre 2018*. Available at: <https://tinyurl.com/y6a4bww9>
- Barlovento Comunicación (2018). *Análisis de audiencias TV septiembre 2018*. Report. Available at: <https://tinyurl.com/y6f3r4ju>
- Barreda Ángeles M (2018) Periodismo inmersivo en España: Análisis de la primera generación de contenidos periodísticos en realidad virtual. *Estudio del mensaje periodístico* 24 (2): 1105-1120. DOI: 10.5209/ESMP.62204
- Bauman Z (2005) *Liquid life*. Cambridge: Polity Press.
- Bell, J.T. & Fogler, H.S. (1995). The investigation and application of Virtual Reality as an educational tool. Proceedings of the American Society for Engineering Education Annual Conference, Session 2513. California. <https://goo.gl/JymA2V>
- Brudniy A and Demilhanova A (2012) The Virtual Reality in a Context of the " Mirror Stage". *International Journal of Advances in Psychology* 1(1): 6-9.
- Caldera, J, (2020). Realidad aumentada en televisión y propuesta de aplicación en los sistemas de gestión documental. *El profesional de la información*, 23(6), 643-650. <https://doi.org/10.3145/epi.2014.nov.12>
- Cantero de Julián JI, Sidorenko Bautista P and Herranz de la Casa, JM (2018) Realidad virtual, contenidos 360° y periodismo inmersivo en los medios latinoamericanos. Una revisión de su situación actual. *Contratexto* 29: 79-103. DOI: 10.26439/contratexto2018.n029.1816

Caudell TP and Mizell DW (1992) Augmented reality: An application of heads-up display technology to manual manufacturing processes. In: *International Conference on System Science*, Hawaii, USA, 7-10 January 1992, pp. 659-669, vol. 2. DOI: 10.1109/HICSS.1992.183317.

Cebrián Herreros M (2004) *La información en televisión. Obsesión mercantil y política*. Madrid: Gedisa.

Cerezo Guilarranz P (2018) *Los medios líquidos. La transformación de los modelos de negocio*. Barcelona:UOC.

De la Peña N et al. (2010) Immersive journalism: Immersive virtual reality for the first-person experience of news. *Presence: Teleoperators and virtual environments* 19(4): 291-301. DOI: 10.1162/pres_a_00005

Domínguez Martín E (2015) Periodismo inmersivo o cómo la realidad virtual y el videojuego influyen en la interfaz e interactividad del relato de actualidad. *El profesional de la información* 24(4): 413-423. DOI: 10.3145/epi.2015.jul.08

Drascic D and Milgram P (1996) Perceptual issues in augmented reality. In: *SPIE: Stereoscopic Displays and Virtual Reality Systems III*, San José, USA, 16-17 February 1996, pp. 123-134, vol. 2653.

El Confidencial Brands (2019) Gracias al 'big data' podemos segmentar la publicidad que ven nuestros espectadores. Available at: https://brands.elconfidencial.com/empresas/2018-06-18/accnture-atresmedia-cocinando-innovacion-bra_1579461/

Figley Ch (Ed.) (2002) *Treating compassion fatigue*. New York: Brunner-Routledge.

Frasca G (2007) *Play the message: Play, game and videogame rhetoric*. PhD Thesis, IT Universitet, Denmark.

Fundación Telefónica (2019) *Sociedad Digital en España 2018*. Report. Available at: <https://tinyurl.com/y2e9h5l4>

Gerrig RJ (1993) *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. Yale: Yale University Press.

González Zamar MD and Abad-Segura E (2020) La Realidad Aumentada como recurso creativo en la educación: una revisión global. *Escuelas creativas. Creatividad y Sociedad* (32): 164-190. DOI: 10.37475/creatividadysociedad1/32.8

Herrero De la Fuente M and Sierra-Hernando F (2020) Evolución de los perfiles profesionales en los medios digitales. El caso de Atresmedia. In: Perlado M, Grijalba N (coords.) and Vivar H (ed.) *Sociedad digital y empleabilidad en comunicación*. Salamanca: Comunicación Social, pp. 97-124.

Herrero De la Fuente M and García Domínguez A (2019) Facebook live y la televisión social. El uso de streaming en Antena 3 y La Sexta. *Vivat Academia* 146: 43-70. DOI: 10.15178/va.2019.146.43-70

Karam T (2017) Nuevas tecnologías, ¿nuevos perfiles profesionales en comunicación?. *Alaic* 14 (27): 56-67.

Kinnick K, Krugman D and Cameron GT (1996) Compassion fatigue: Communication and burnout toward social problems. *Journalism and Mass Communication Quarterly* 73: 687-707. DOI: 10.1177/107769909607300314

Oliveros Mediavilla M (2018) *Lo sublime en la era postdigital La obra tecnológica en el contexto del arte experiencial*. PhD Thesis, Universidad Complutense de Madrid, España.

Paíno, A. & Rodríguez, M.I. (2020). Past, present and future of Virtual Reality: Analysis of its technological variables and definitions. *Culture & History Digital Journal*, 9(1): e010. <https://doi.org/10.3989/chdj.2020.010>

- Parra Valcarce D, Edo-Bolós C and Marcos-Recio JC (2017) Análisis de la aplicación de las tecnologías de realidad aumentada en los procesos productivos de los medios de comunicación españoles. *Revista Latina de Comunicación Social* 72: 1670-1688. DOI: 10.4185/RLCS-2017-1240
- Pérez Arozamena R (2016) *Análisis de la espectacularización de los rótulos de los sumarios en los informativos de la televisión generalista española*. PhD Thesis, Universidad Nebrija, España.
- Pérez, S. & López, X. (2018). Las dos caras del periodismo inmersivo: el desafío de la participación y los problemas éticos. En M. López (ed.), *Nuevos escenarios de la comunicación: retos y convergencias* (pp. 279-305). Quito: PUCE.
- Scolari CA (2013) *Narrativas transmedia. Cuando todos los medios cuentan*. Barcelona: Deusto SA Ediciones
- Simon HA (1971) Designing Organizations for an information-rich World. In: Greenberger M (ed.) *Computers, communications, and the public interest*. Baltimore: The Johns Hopkins Press, pp. 36-52.
- Tejedor, S., Cardona, N. & Cerví, N. (2020). Augmented Reality and Journalism: 10 use-cases analysis from television, printing and web media platforms. *IC - Revista Científica de Información y Comunicación*, 17, 437-455. <http://dx.doi.org/10.12795/IC.2020.i01.19>
- Watson Z (2016) *VR for news: The new reality?*. Oxford: Reuters Institute for the Study of Journalism.