DOSSIER

AUGMENTED REALITY AND THE ADAPTATION OF TELEVISION DISCOURSE:

the Spanish general elections on TVE (2019)

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ABSTRACT – This study explores the use of augmented reality (AR) on Spain's national public broadcaster, Televisión Española (TVE), focusing on the news coverage of the two Spanish general elections in April and November 2019. The study uses a methodology that combines quantitative techniques (content analysis using a rubric created *ad hoc* on a sample of 42 AR images) and qualitative methods (literature review). The position of AR as a centerpiece of the studio set design is also conveyed in the narrative discourse, reflecting the high level of importance given to this technology by TVE. Beyond the specific events of each election day, the informational and facilitating functions of AR predominate. In view of the advantages offered by this technology, the television broadcaster has recently started moving towards full integration of a virtual set design.
Key words: Augmented reality. Elections. Television. Technological innovation. Political communication.

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REALIDADE AUMENTADA E A ADAPTAÇÃO DO DISCURSO TELEVISIVO: as eleições gerais da Espanha na TVE (2019)

RESUMO – Esta pesquisa explora o uso da realidade aumentada (RA) na Televisão Espanhola (TVE), com foco na cobertura jornalística das eleições gerais de abril e novembro de 2019. O estudo foi realizado por meio de uma metodologia que combina técnicas quantitativas (análise de conteúdo por meio de uma rubrica criada *ad hoc* em uma amostra de 42 peças) e qualitativa (revisão bibliográfica). A posição da RA como peça central no layout do cenário também é transferida para o discurso narrativo, percebendo a importância que a TVE lhe confere. Além das peculiaridades de cada dia eleitoral, prevalece a intenção informativa e a função simplificadora dessa tecnologia. Apesar das vantagens que oferece, a rede iniciou recentemente o caminho para a integração total do cenário virtual.
Palavras-chave: Realidade aumentada. Eleições. Televisão. Inovações tecnológicas. Comunicação política.

REALIDAD AUMENTADA Y LA ADAPTACIÓN DEL DISCURSO TELEVISIVO: las elecciones generales de España en TVE (2019)

RESUMEN – Esta investigación explora el uso de la realidad aumentada (RA) en Televisión Española (TVE), poniendo el foco en la cobertura informativa de las elecciones generales de abril y noviembre de 2019. El estudio se ha llevado a cabo a través de una metodología que combina técnicas cuantitativas (análisis de contenido mediante una rúbrica creada *ad hoc* sobre una muestra de 42 piezas) y cualitativas (revisión bibliográfica). La posición de la RA como pieza central en la disposición del plató se traslada también al discurso narrativo, dando cuenta de la importancia que le otorga TVE. Más allá de las peculiaridades de cada jornada electoral, prevalecen la intención informativa y la función simplificadora de esta tecnología. En vista de las ventajas que ofrece, la cadena ha comenzado recientemente a transitar el camino hacia la integración completa de la escenografía virtual.
Palabras clave: Realidad aumentada. Elecciones. Televisión. Innovación tecnológica. Comunicación política.

1 Introduction

Traditional media outlets have begun exploring new ways of producing and broadcasting their news content. One of these new options is augmented reality (AR), the focus of this study, which not only facilitates the presentation of facts in a more visual way but also reinforces the media-audience relationship. This technology, which straddles the line between physical reality and virtual reality (Sánchez García, 2019, p. 19), maintains its connection with the real-world environment. And it is that connection that allows its integration into the set design to support the presenter's reporting of the news.

Although print media outlets were the first to start using AR to offer their readers new narrative possibilities, current initiatives

by public television networks to integrate it into their programming are turning this media format into an interesting object of study. Moreover, according to the Spanish Media Research Agency's Estudio General de Medios (AIMC, 2019), the small screen still plays a hegemonic role in the daily media consumption of the Spanish (85%), ahead of the internet (81%), radio (56%) and newspapers (20%).

Elections constitute one of the news events for which the advantages of this technology have been exploited the most by television networks, which began using them a decade ago to convey the continuous flow of data generated in real-time more intuitively. As a result, it is an increasingly common feature of news programming on television networks at both the national level (RTVE, Antena 3, La Sexta) and the regional level (TVE, EITB, Telemadrid, TV3, RTVC). This study focuses on TVE1, the first channel operated by Spain's national public broadcaster, Televisión Española (TVE), and more specifically on the use of this technology in the coverage of the country's two general elections on April 28 (28-A) and November 10 (10-N), 2019.

In this regard, in recent years TVE has developed a close relationship with Brainstorm, a technology company that works with international media outlets such as Antena 3, BBC, and Al Jazeera. In partnership with this corporation, on the occasion of both TVE's 60th anniversary and the celebration of the Spanish general elections in 2016, the public broadcaster launched a project that pivoted on virtual technology. As part of this project, it introduced strategies such as live AR, projection mapping, and virtual teletransportation (Brainstorm, 2018).

The RTVE website is also notable for its use of new technologies, as it offers a wide range of interactive content including webdocs and 360º videos. In fact, TVE is one of only eight public TV broadcasters in Europe whose website features a section dedicated to 360º content (Pérez Seijo et al., 2018, p. 1.128). In 2008, the year it was launched, the website would serve as a platform for online coverage of the Olympic Games in Beijing. Three years later, TVE would launch the RTVE Lab, an audiovisual area for the creation of new forms of narrative consumption through individualized and immersive browsing (Zaragoza-Fuster & García-Avilés, 2018).

However, it was not until the elections on April 28, 2019, that TVE would make a qualitative leap forward with a circular screen, a centerpiece for AR animations, and a "great new innovation", as for the first-time members of the public were able to attend an election night special in person (Terán, 2019). Audiences have responded

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positively to these changes. On both election nights, TVE1 received the second-highest audience share in the country: on April 28, it had an audience share of 11.5% (Barlovento, 2019a), while on November 10 it achieved a similar figure, 10.9% (Barlovento, 2019b).

It is worth highlighting that after the success of AR technology on TVE in the 2019 elections, in 2021 the network decided to commit to the use of this technology in both its daily news programming and on its breakfast news show, "La Hora de la 1". The set for both programs has undergone a complete restructuring to incorporate AR and to offer a higher level of immersion in and interaction with the three-dimensional images. It is a transparent space with a reflective floor and two LED screens extending behind the presenter's translucent glass table, which is located in the very center of the set (Digitalmagazine, 2021).

This study identifies the contributions of AR to the general election coverage on TVE1. The analysis of the special programs broadcast on the election nights of 28-A and 10-N will help clarify AR's role and importance in these news spaces. The comparison of the two election campaigns will facilitate the identification of common patterns suggestive of features inherent in the use of AR.

In view of the above, this study is articulated around the following hypotheses:

H1. TVE adapted its virtual set design for the coverage of the Spanish general elections on April 28, 2019, to include interactive features such as augmented reality. Based on this adaptation, the replication of the same formula would be expected for the coverage of the elections on November 10, 2019.

H2. The AR images featured in the election specials were more elaborate and offered a higher degree of interaction due to the temporary nature of these political events.

H3. The need to broadcast the details of the complex political situation in real time on election night suggests that AR would be used for informational purposes rather than merely as a visual aid.

2 Augmented reality: a window between the real and virtual worlds

The essence of the concept of augmented reality could be said to exist in the context of a mixed reality that combines real and virtual settings. However, in view of the terminological confusion surrounding

the concept, it is useful to compare this technology with its main analog counterpart: the hologram. In explaining this phenomenon, a number of prominent scholars have highlighted the lack of consensus with respect to the terminology used, pointing out that terms such as "artificial/virtual environments" or "virtual reality" have often been used interchangeably to refer to AR (Galán-Cubillo, 2008; Väätäjä et al., 2013). This is why a good starting point to characterize AR is by considering how it differs from holographic images. As Bove (2010) explains, holography is a display medium based on diffraction that can reproduce the directions and intensities of the light rays passing through a scene in such a way that it can (re)construct the scene even when it has been removed (p. 2). Conversely, in the case of AR, virtual objects are superimposed on a real environment, and the fusion of the two is viewed on the screen by the spectator (Meneses-Fernández & Martín-Gutiérrez, 2013; Sánchez-García, 2019).

Thus, for Sirkkunen et al. (2016, p. 298), augmented reality is in between the two ends of the "reality-virtuality continuum". This is an idea also suggested by Parra et al. (2017), who emphasize the wide range of possibilities offered by ICTs, which can facilitate the storage of these multimedia elements (audio, photos, videos, etc.) with a direct impact on the software processes that generate AR (p. 1.670). And it is in these innovative new environments where the "three Is" of AR (immersion, interaction, and imagination) become key factors (Burdea & Coiffet, 1996).

All these elements come together in the definition offered by Ronald Azuma, who describes AR as a technology that "allows the user to see the world, with virtual objects superimposed upon or composited with the real world" in a way that "supplements reality, rather than completely replacing it" (1997, p. 356). Three-dimensionality, the combination of the virtual and the real, and real-time interaction thus constitute the foundations on which this technology is constructed (pp. 355-385) (figure 1).

Just a few years earlier, Paul Milgram and Fumio Kishino took this same perspective as a reference for their widely studied model of augmented reality (1994, pp. 1.321-1.329). The number of virtual elements integrated into the real-world setting is related to the four categories that make up this ordered continuum running from the lowest to the highest level of virtuality, as follows: (1) real environment; (2) augmented reality; (3) augmented virtuality; and (4) virtual environment.

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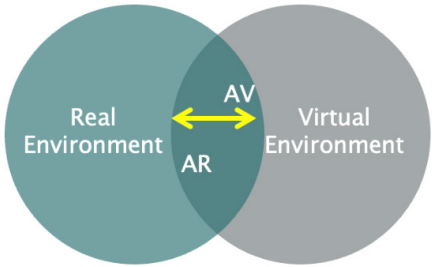
Figure 1

Reality-Virtuality (VR) Continuum model developed by Paul Milgram and Fumio Kishino



Source: Milgram and Kishino, 1994.

The categorization proposed by these authors offers a framework for considering the aspects that differentiate AR from virtual reality (VR). Although the two technologies have points in common, the first should be understood as a derivative of the second. In other words, AR is based on VR. This point has been made by Daniel Abril (2012, p. 2), who defines virtual reality as a predominantly virtual environment that integrates virtual and real elements, while AR refers to a real-world setting containing various virtual components.

3 Three decades of progress toward a digital horizon

Experimental projects associated with AR began in the late 1960s when images first began being superimposed over other elements such as speeches, data, and still or moving images (Meneses-Fernández & Martín-Gutiérrez, 2013, p. 208). According to John Pavlik and Frank Bridges (2013), however, this technology would not become widespread until the 1990s. These authors identify four historical stages based on technological advances and the emergence of new possibilities for their application.

The first steps in the research and development of this technology were taken at the end of the last century. A few years later, a second stage began with the widespread implementation of AR, which was successfully integrated into diverse contexts such as medicine,

the arts, and communication. The third stage identified by Pavlik and Bridges began in the early twenty-first century and was marked by the boom in the use of mobile devices such as smartphones, giving rise to a form of AR characterized by miniaturization, commercialization, and on-demand viewing (Pavlik & Bridges, 2013, p. 7).

In consonance with the widespread use of this technology by media outlets and organizations, Pavlik and Bridges anticipated a fourth stage that has yet to arrive. This future stage will see the full integration of AR into the media ecosystem as a resource for telling stories in an appealing and innovative way (2013, p. 7).

4 A versatile tool for connecting with reality

More than two decades ago now, Ronald Azuma predicted that by 2020, AR would be present as a support for specialists in numerous professional fields, such as medicine, architecture, and robotics (1997, p. 357). However, it is in teaching that it has had the biggest impact, according to scholarly research over the past two decades (Kerawalla et al., 2006; Spector et al., 2014; Yilmaz & Goktas, 2017). In journalism, the area that concerns this study, the influence of AR has been analyzed by numerous authors (Barabas, 2014; Pavlik & Bridges, 2013; Sirkkunen, 2016), who have pointed out its functions both for enhancing the aesthetic quality of news reports and for facilitating comprehension of the information (Meneses-Fernández & Martín-Gutiérrez, 2013, pp. 207-208). In this sense, the introduction of this technology has brought about a transformation, modernization, and specialization of professional profiles (Vargas Alzate, 2012), requiring even higher levels of creativity from journalists to attract media audiences (Väätäjä et al., 2013).

John Pavlik (2001) was a pioneer in research on the yawning gap between print and digital media, with the former practically relegated to the background due to the irrepressible growth of the latter. However, AR has emerged as a technology that can reconcile and combine more traditional media with new narrative formulas. The incorporation of AR into work routines has also sparked a revolution in the production processes of non-digital media, the key points of which are outlined by Pavlik and Bridges (2013). These authors refer specifically to the redefinition of the news' business models, the media-audience relationship, and the development of news' content (p. 5).

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In the new media intersection that television has now become, technologies like AR are fostering a new way of doing journalism (Sirkkunen et al., 2016). In a sense, the importance that the TV studio set had lost has now been regained, with a mise-en-scène for news reporting that is more interactive, visual, and modern (Galán Cubillo, 2008). Television producers and media outlets will thus be able to leverage the technical opportunities offered by AR (Pavlik & Bridges, 2013; Sirkkunen et al., 2016).

Meanwhile, professionals working in this industry are beginning to recognize the many opportunities of a "stimulating" new context (Fundación Telefónica, 2011, pp. 16-21) facilitated by content "optimization", as rather than being replaced, the physical news studio is now being combined with 3D content that they can interact with in real-time (Meneses-Fernández & Martín-Gutiérrez, 2013, p. 214). This is why, as Mercedes Bunz suggests, journalism and AR are a perfect pairing for helping to bring daily news content to life (Bunz, 2010).

5 Television: a key source of political news coverage for audiences

According to Casero-Ripollés (2018), new ways of disseminating information, such as digital news sources, blogs, and social media platforms, have inevitably changed the processes and rhythms of news production (p. 965). The result is a much more intricate, saturated, and complex media environment, characterized by faster communication flows, a wider range of choices, and consequently, an increasingly fragmented audience (Van-Aelst et al., 2017, p. 12).

As Paíno-Ambrosio and Rodríguez-Fidalgo (2016) point out, media outlets need to adapt to the changes brought by the new mechanisms for the circulation of information in the digital environment (p. 157) and rethink their communication strategies, as well as their content and activities (Arrojo, 2015, p. 752). The new media structures and increased engagement with audiences have facilitated the dissemination of all kinds of information, including political news. In this context, journalism, with its objective to facilitate the transmission of information that is necessary for a democratic society, is absolutely essential.

Media coverage of political news has been the object of scholarly research since the 1970s. For example, in their analysis of election campaigns in the United Kingdom, France, and Belgium, Blumler et al. (1978) found that television played a crucial role as the preferred source

of political information. Martínez-Pandiani (2006) would corroborate this finding decades later with the identification of a clear public inclination to turn to the mass media for information of this kind. For viewers, television "constitutes a vital source of information when looking for answers to questions that they, as citizens, are asking" (Martínez-Pandiani, 2006, p. 70). And it is precisely during elections that the media "play an essential role in the functioning of the democratic system" (Holgado, 2003, p. 471).

In research directly connected to the object of this study, Navarro and Olmo (2018) carried out an analysis of TVE's news coverage of the Spanish general elections in 2015, covering the whole campaign period from the moment the elections were called right up to election day itself. Their objective was to determine whether the network offered a pluralistic and independent perspective on the election. As a mass medium, television is effectively a creator of its own system of power, setting the tone of political debate (Martínez-Pandiani, 2006, p. 88).

In this context, augmented reality is the latest feature adopted by television broadcasters to facilitate audience comprehension of the political information it provides (Eguskiza-Sesumaga et al., 2021). Although general elections constitute a news event of great importance to public opinion and therefore to the media agenda, there are very few academic studies analyzing election coverage. The first is the study by Eguskiza-Sesumaga et al. (2021), which compares the AR images used on the election nights of April 29 and November 10, 2019, on the Spanish networks Antena 3 and La Sexta. On the other hand, Triguero-Oliveiros and Sánchez-Calero (2021) offer a more general analysis of Spain's biggest national and regional broadcasters (Antena 3, TVE, Telemadrid, La Sexta, TV3) during the November 10 elections. These two studies provide a general picture of the new context developing in news reporting today, particularly in relation to political communication.

6 Methodology

This study examines augmented reality on news programs broadcast by Televisión Española (TVE), a public broadcaster recognized as a pioneer in the introduction of innovation labs, and for playing a "crucial role in the democratic ritual" as a public corporation (Navarro & Olmo, 2018, p. 1.477). The examination offered here combines a quantitative and qualitative analysis of the object of study. The methodology adopted is based on the extensive analysis conducted

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on the private network Antena 3 (Azkunaga et al., 2019), another of the Spanish broadcasters that regularly use this technology.

The specific objective is to explore how TVE made use of AR in its election specials on April 28 (28-A) and November 10 (10-N), 2019. This was a key moment in Spanish political history, as it was the first time in 40 years of democracy that two general elections were held in the same year. A corpus of 42 AR images has been identified, which were studied in depth through an analytical model that was developed and adapted *ad hoc*. A total of 33 AR images come from the April news special, while the remaining nine are from the November program. These images have been cataloged with the label AR news items, a term coined during the development of the project. They were viewed on the public broadcaster's digital platform RTVE.es a la carta.

The 16 categories of the model are divided into three main areas: identification, location in the news program, and use of AR. The first area involves the identification of the AR news item (file number, media type, and date). The second area takes into account the topic (debate, results, candidates, agreements, viewer orientation, or others), duration, and location in the program. The third area is more extensive, including subcategories related to the nature of the AR and the other components of the set (Burdea & Coiffet, 1996; Azuma, 1997; Meneses-Fernández & Martín-Gutiérrez, 2013).

In this way, the analysis considers the type of AR image (static, moving, or immersive), the presence of the reporter, and the use made of the screen on the studio set. The study also examines whether presenters were immersed in the AR and whether they interacted with it in any way. Similarly, it considers whether data was included, as well as the purpose (informational or aesthetic), functions (expansion on data, audience orientation, transition between news stories, aesthetic element), and form of these AR news items. Finally, the content accompanying the AR images was identified, i.e., whether they were followed by a live report, a video, on-screen data, or a contribution by the presenter on the set (see the analytical model in Appendix).

7 Research results

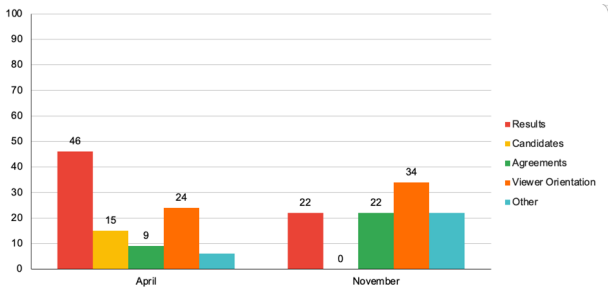
AR news items were fully integrated into the election night specials on TVE. As noted above, the April 2019 elections marked a turning point in the (re-)organization of the set design, and this

commitment to a more enriching presentation of political information is reflected in the 42 AR news items identified in this study. Their distribution, however, reveals notable differences that reflect a more intensive use during the first elections of the year. Specifically, close to 80% (33 items) appeared in the April special, while only around 20% (9) appeared in November. This marked decrease may be due, among other factors, to the repetition of national elections after such a short interval and in a political scenario with few changes since the previous ones.

Another question that this study seeks to answer relates to the most common topics dealt with using these animations. In general, the electoral district results, vote percentages, and recreations of the lower house of the Spanish parliament (the Congress of Deputies) appear to have been the issues of greatest importance (figure 2).

Figure 2

Main topics of AR news items



In this regard, once again two differentiated tendencies can be identified between the April and November broadcasts. As would be expected, the presentation of the election results was the most common topic in the first elections, accounting for close to half of the items (46%). In a distant second place were animations of inside and outside the Congress building as an orientation for viewers (24%), and items presenting the candidates of the different parties (15%). At the bottom of the list were elements related to possible party agreements to form the government (9%) and other topics.

In the November elections, however, a wider variety of topics was evident. Contextualizing information was the most common (34%), followed by election results, possible party agreements, and other headlines specific to the election night, each of which accounted for 22%. In these elections, no AR items presenting the candidates were identified, possibly because they were the same as in the previous

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elections and therefore would be easy for viewers to identify. News on agreements to form the government was more than 10% higher in November than in April, perhaps because of the need for the different political parties, none of which had won a majority of seats, to negotiate with each other after the repetition of the elections.

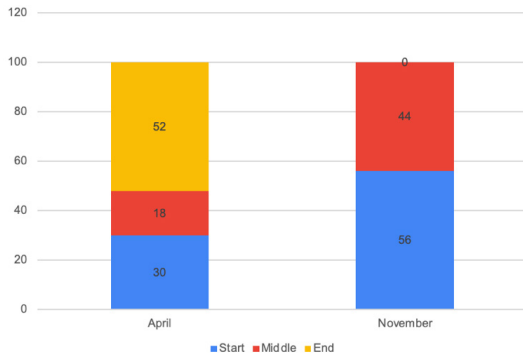
These political events are characterized by a large volume of data that needs to be updated in real-time. This may explain the longer average duration of AR items, at 34 seconds compared to the 15 seconds typical of this type of content on other networks (Azkunaga et al., 2019). The difference in duration between the two elections is not significant, although they were slightly longer in April (37 seconds) than in November (31 seconds).

Along with the analysis of the duration of the AR news items, reflecting their heightened importance, it is also enlightening to identify when they appeared in the program (figure 3). Once again, differences are detectable in the work processes of the two specials. In the case of the first, more than half of the AR items (52%) were included in the final part of the program, possibly to offer constant updates on the results, as reflected in the analysis of the topic. Thirty percent of AR items appeared in the first part of the special and only 20% in the middle block.

In the November special, on the other hand, all appear either in the first part of the special (56%) or in the middle (44%). This may reflect greater preparation in the creation of this content, which requires extensive planning and development. The nature of the animations themselves, including simulations of the Congress building, may also explain why so many were included at the beginning of the broadcast.

Figure 3

Time blocks when AR news items were featured in each election special

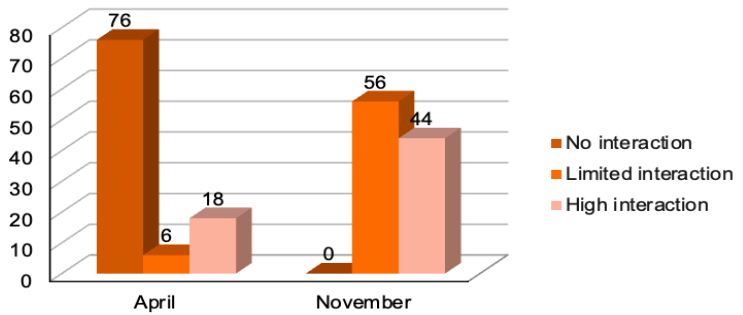


In terms of the type of AR content, 61% of the items featured in April were static, compared to 39% that were moving images. However, in the November elections, this situation was reversed, with 33% static and 67% moving images. This suggests that between the two elections, the network shifted toward the use of more complex virtual elements in the interest of enhancing comprehension of the data presented to the audience.

Moreover, the inclusion of the presenter's image together with the AR is an essential feature of both election campaigns, used in 90% of AR items in April and 100% in November. However, the presenter rarely engaged with the AR in the first elections, as only 6% of the items had limited interaction and 18% had high interaction. These figures changed dramatically in November when in all cases the presenter engaged actively with the AR items: 56% with limited interaction and 44% with high interaction (figure 4). Finally, the relationship between the AR items and the circular screen was extremely limited both in April (10%) and in November (0%), revealing the need to make better use of the possibilities offered by the updated set design.

Figure 4

Interaction between presenter and AR news elements



In addition to the lack of interaction between augmented reality and the other elements of the set (such as the circular screen mentioned above), the presenter was never immersed in any of the AR news items. While it is true that the general layout of the TVE1 set gives the audience the sensation of immersion, the many possibilities this offers the network are not yet being exploited to the fullest (figure 5).

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Figure 5

Screenshots of the set for the TVE election specials

Source: Televisión Española.

The AR news items reflected a similar pattern in both elections concerning the inclusion of data. More than half of the April items (58%) contained them, and the figure was somewhat higher in November when 67% included items of this kind. It could be argued that in this way additional information was provided beyond that conveyed by the presenters. In this sense, AR served as an essential support to present information about voter intentions (earlier in the evening) and voting results (later on).

Along with data, these animations were often accompanied by other elements. In most cases, they were followed by contributions by the presenters on the set (91% in April and 67% in November). Live reports were also common in November (33%), while they occupied a much more distant second place in April (6%). Finally, the analysis identified the presentation of on-screen data, although only rarely (3%) in April. It is worth noting on this point that some AR news items were displayed continuously on the set regardless of whether the presenters made any direct reference to them. For example, through the use of a split screen (figure 6), they were included as one of the various visual elements of the overall set design.

Figure 6

Augmented reality as a visual feature in the TVE election specials

Source: Televisión Española.

Of the functions served by augmented reality, expansion on data was the most common both in April (70%) and in November (78%), while viewer orientation was second (12% in April and 22% in November). It is worth highlighting that in the November elections, these were the only two functions identified. Conversely, in April, the functions of aesthetics and transitions between news stories were also present in equal proportions (9%). It was also in this first election special that some of the AR animations were used solely to make the election reporting more visually appealing.

Nevertheless, the data presented so far suggest that the vast majority of AR items served a predominantly informational purpose. In April, 88% of the items served this function, compared to only 12% whose role was more aesthetic. Although in November the number of AR news items was significantly lower, 100% of them were informational, mainly for clarifying or expanding on content. As suggested above, the short span of time since the previous elections may have prompted the network to reduce the use of this technology, only incorporating more complex images that were essential to support the information provided by the presenter.

The informational nature of the AR items is also reflected in the form they took, which was limited to three categories: settings, captions, and figures. All associated with orienting the audience in relation to the location(s) of the action, whether through the recreation of the settings (the Congress of Deputies building), the presentation of the main topics/headlines of the night (captions), or the clarification of the election results (with figures such as maps or the seats in parliament themselves).

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As in the case of other categories, the most common forms were significantly different in the two election specials. In April, the predominant form was figures (76%) showing updates of the results, followed by settings (15%), and captions (6%). Conversely, in November, the order was altered, with the recreation of settings being the preferred option (67%), with captions in a distant second place (33%), while figures were absent altogether.

8 Conclusions

The recurrent use of AR on TVE to inform viewers about political events established an expectation that the same approach would be adopted for the general elections in 2019. And indeed, this technology has become a constant in television coverage of these political events. Moreover, the network's commitment to this new technology has been supported by the adaptation of the set design to a new interactive environment. The space occupied by the audience and by a curved LED screen marks out two halves of a large circle that frames the set. Inside this first ring is a second one with desks for experts and contributors. And finally, in the central core, the AR emerges as a key feature. All of this underscores the huge qualitative importance that TVE has given to this technology. About its use, the change between elections is striking, as markedly less AR is used in the second period of the study (November). This might be explained by the similarity of the situation in the two elections, as well as the relatively short period between them. All of this partly confirms the first hypothesis.

The specific political context thus appears to influence how AR is used. In this case, for the April elections, it was deemed necessary to present the audience with essential content such as the candidates for each party, their campaign promises, etc., while in November, this information was already familiar to viewers and the focus instead appeared to be on issues such as potential agreements between parties to form a stable government. The lower number of AR news items in November does not in any way imply that TVE had decided to move away from the use of this technology. Although fewer AR items were used, those included were notable for their exceptional aesthetic quality, a higher degree of immersion, interaction with the presenter, longer duration, and information optimization. This confirms the second hypothesis of the study.

In any case, the informational function predominated over the aesthetic, as TVE prioritized the minute-by-minute coverage of election day. In fact, most of the AR news items included information additional to that provided by the reporters, who interacted actively with these virtual features. This informational objective was expressed mainly in two functions: to expand on the data provided by other resources such as live reports or split screens (explanatory AR), and to display the scene of the action (contextualizing AR). This confirms the third hypothesis.

The general elections were identified as the ideal news event for the implementation of this technology by Spain's major television networks, including the national broadcasters TVE, Antena 3, and La Sexta, as well as the regional networks. Just as Burdea and Coiffet (1996) identify the three Is (immersion, interaction, and imagination) that characterize AR, this technology fulfills a clear purpose in elections coverage that can be summed up in three Ss: situating the viewer in the sociopolitical context, summarizing complex information, and seducing an increasingly fragmented audience.

The three-dimensional elements projected on the set of the television studio have required the creation of a virtual set design and a new narrative model for news reporting. AR has become a visual complement to support the news coverage, and all signs indicate that a model similar to the one introduced by the television networks in 2019 will be used at the end of 2023 (the expected date for Spain's next general elections), but with an even bigger monetary and technological investment.

However, the findings outlined in this article reveal notable differences between the two election specials analyzed, suggesting an evolution in the network's use of AR. In this respect, the creation of common patterns of AR use constitutes an interesting future challenge. Nevertheless, it is important to highlight recent notable advances made by TVE in the transformation of its news coverage (and of its set design) through the effective incorporation of regular AR use into its daily programming. In this way, the network has made clear its intention to take the first steps toward a new way of covering news – and not only political events – to exploit the possibilities of this increasingly popular technology to the fullest.

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REFERENCES

Abril, D. (2012). *Realidad Aumentada*. Universidad Carlos III.

Arrojo, M. (2015). Los contenidos transmedia y la renovación de formatos periodísticos: la creatividad en el diseño de nuevas propuestas informativas. *Palabra Clave, 18*(3), 746-787. DOI: 10.5294/pacla.2015.18.3.6

AIMC – Asociación para la Investigación de Medios de Comunicación. (2019). *Audiencia General de Medios*. Retrieved from https://reporting.aimc.es/index.html#/main/cockpit

Azkunaga, L., Gaztaka, I., & Eguskiza, 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, R. T. (1997). A survey of augmented reality. *Presence: Teleoperators & Virtual Environments*, *6*(4), 355-385. DOI: 10.1162/pres.1997.6.4.355

Barabas, J. (2014). *Holographic television: measuring visual performance with holographic and other 3D television technologies*. MIT.

Barlovento Comunicación. (2019a). *Audiencias domingo 28 de abril de 2019.* Retrieved from https://barloventocomunicacion.es/audiencias-diarias/audiencias-28-de-abril-2023/

Barlovento Comunicación (2019b, n.d.). *Histórico de audiencias*. Retrieved from https://barloventocomunicacion.es/audiencias-diarias/

Blumler, J. G., Thoveron, G., & Cayrol, R. (1978). *La télévision fait-elle l'élection?: Une analyse comparative, France, Grande-Bretagne, Belgique*. Les Presses de Sciences Po.

Bove, V. M. (2010). What is holographic television, and will it ever be in my living room? *Proceedings of the International Conference on Stereoscopic 3D for Media and Entertainment*. Society of Motion Picture and Television Engineer. Retrieved from https://bit.ly/3SkAvbP

Brainstorm Multimedia (2018, April 2). *TVE: TeleTransporter for Elections*. Retrieved from https://brainstorm764.rssing.com/chan-53362547/article8.html

Bunz, M. (2010, January 7). *How journalists can use Augmented Reality*. The Guardian. Retrieved from www.theguardian.com/media/pda/2010/jan/06/journalism-augmented-reality

Burdea, G., & Coiffet, P. (1996). *Tecnologías de la realidad virtual*. Paidós.

Casero-Ripollés, A. (2018). Investigación sobre información política y redes sociales: puntos clave y retos de futuro. *El profesional de la información*, *27*(5), 964-974. DOI: 10.3145/epi.2018.sep.01

Digital Magazine. (2011, February 18). *Los 'Telediarios' de Televisión Española renuevan su imagen con las pantallas LED de Alfalite*. Retrieved from www.digitalavmagazine.com/2021/02/18/los-telediarios-de-television-espanola-renuevan-su-imagen-con-las-pantallas-led-de-alfalite/

Eguskiza-Sesumaga, L., Azkunaga-García, L. & Gaztaka-Eguskiza, I. (2021). La Realidad Aumentada para la cobertura informativa de las Elecciones Generales en España (2019). El caso del Grupo Atresmedia. *Estudios sobre el mensaje periodístico, 27*(2), 481-495. DOI: 10.5209/esmp.68294

Fundación Telefónica. (2011). *Realidad Aumentada. Una nueva lente para ver el mundo*. Fundación Telefónica/Ariel.

Galán-Cubillo, E. (2008). Escenografía virtual en TV. Análisis del uso de escenografía virtual en la realización de un programa de televisión. *Revista latina de comunicación social*, (63), 31-42. DOI: 10.4185/RLCS-63-2008-752-031-042

Holgado, M. (2003). El papel de los medios de comunicación en la campaña electoral. Ámbitos. Revista Internacional de Comunicación, *46*(9-10), 471-484. Retrieved from www.redalyc.org/articulo.oa?id=16801025

Kerawalla, L., Luckin, R., Seljeflot, S., & Woolard, A. (2006). 'Making it real': exploring the potential of augmented reality for teaching primary school science. *Virtual reality*, *10*(3-4), 163-174. DOI: 10.1007/s10055-006-0036-4

Martínez-Pandiani, G. (2006). El impacto de la televisión en la comunicación política moderna. *Signos Universitarios: Revista de la Universidad del Salvador*, *25*(1), 67-88. Retrieved from https://p3.usal.edu.ar/index.php/signos/article/view/2955/3582

Meneses-Fernández, M. D., & Martín-Gutiérrez, J. (2013). Realidad aumentada e innovación tecnológica en prensa. La experiencia de ver y escuchar un periódico impreso. *Estudios sobre el mensaje periodístico*, *19*(1), 207-222. DOI: 10.5209/rev_ESMP.2013.V19.N1.42517

Milgram, P., & Kishino, F. (1994). Taxonomy of mixed reality visual displays. *IEICE: Transactions on Information Systems*, *77*(12), 1321-1329. Retrieved from https://search.ieice.org/bin/summary.php?id=e77-d_12_1321

doi: 10.25200/bjr.v19n2.2023.1554

Navarro, J. A., & Olmo, A. (2018). Presencia política en Televisión Española en los últimos procesos electorales. *Estudios sobre el Mensaje Periodístico*, *24*(2), 1473-1489. DOI: 10.5209/ESMP.62229

Paíno-Ambrosio, A., & Rodríguez-Fidalgo, M. I. (2016). Renovarse o morir. Los *docugames*, una nueva estrategia transmedia que reinventa las formas de transmitir la realidad. *Revista ICONO14 Revista científica de Comunicación y Tecnologías emergentes*, *14*(1), 155-180. DOI: 10.7195/ri14.v14i1.908

Parra, D., C Edo, C., & Marcos, J. C. (2017). Analysis of the application of augmented reality technologies in Spanish mass media productive processes. *Revista Latina de Comunicación Social*, 72, 1.670-1.688. Retrieved from https://nuevaepoca.revistalatinacs.org/index.php/revista/article/view/624/837

Pavlik, J. V. (2001). *Journalism and new media*. Columbia University Press.

Pavlik, J. V., & Bridges, F. (2013). The emergence of Augmented Reality (AR) as a storytelling medium in journalism. *Journalism & Communication Monographs*, *15*(1), 4-59. DOI: 10.1177/1522637912470819

Pérez-Seijo, S., Melle Goyanes, M., & Paniagua Rojano, F. J. (2018). Innovation in European public broadcasters: immersive narratives and the organisation of 360-degree content on digital platforms. *Revista Latina de Comunicacion Social*, (73), 1115-1136. DOI: 10.4185/RLCS-2018-1299

Sánchez-García, E. M. (2019). *Integración dinámica de objetos sintéticos en escenas reales*. Universidad Politécnica de València.

Sirkkunen, E., Väätäjä, H., Uskali, T., & Rezaei, P. P. (2016). Journalism in virtual reality: opportunities and future research challenges. *Proceedings of the 20th International Academic Mindtrek Conference*. Association for Computing Machinery. DOI: 10.1145/2994310.2994353

Spector, J. M., Merrill, M. D., Elen, J., & Bishop, M. J. (2014). *Handbook of research on educational communications and technology*. Springer.

Terán, B. (2019, April 29). *Así ha revolucionado RTVE su tradicional noche electoral con una novedad pionera en España*. La Información. Retrieved from www.lainformacion.com/opinion/borja-teran/asi-ha-revolucionado-rtve-su-tradicional-noche-electoral-publico-en-plato-y-realidad-aumentada/6498605/

Triguero-Oliveros, B., & Sánchez-Calero, M. L. (2021). Uso y competencias de la Realidad Aumentada en la información del escrutinio de las elecciones generales del 10-N en las cadenas de televisión españolas. *Revista Prisma Social,* (32), 421-

445. Retrieved from https://revistaprismasocial.es/article/view/4054/4794

Väätäjä, H. K., Ahvenainen, M. J., Jaakola, M. S., & Olsson, T. D. (2013). Exploring augmented reality for user-generated hyperlocal news content. *Proceedings of the CHI: Conference on Human Factors in Computing Systems*. Association for Computing Machinery. DOI: 10.1145/2468356.2468529

Van-Aelst, P., Strömbäck, J., Aalberg, T., Esser, F., de Vreese, C., Matthes, J., Hopmann, D., Salgado, S., Hubé, N., Stępińska, A., Papathanassopoulos, S., Berganza, R., Legnante, G., Reinemann, C., Sheafer, T., & Stanyer, James. (2017). Political communication in a high-choice media environment: a challenge for democracy? *Proceedings of the International Communication Association*. International Communication Association. DOI: 10.1080/23808985.2017.1288551

Vargas-Alzate, D. (2012). *La realidad aumentada en la producción de mensajes periodísticos visuales*. Universidad Autónoma de Occidente.

Yilmaz, R. M., & Goktas, Y. (2017). Using augmented reality technology in storytelling activities: examining elementary students' narrative skill and creativity. *Virtual Reality*, *21*(2), 75-89. DOI: 10.1007/s10055-016-0300-1

Zaragoza-Fuster, T., & García-Avilés, J. A. (2018). Desarrollo de la innovación periodística en la televisión pública: El caso del RTVE Lab. *Hipertext. net: Revista Académica sobre Documentación Digital y Comunicación Interactiva*, (17), 11-21. DOI: 10.31009/hipertext.net.2018.i17.02

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