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Advertising platformization in virtual reality immersive environments: metaverses, brands and believability

Plataformização da publicidade em ambientes imersivos da realidade virtual: metaversos, marcas e acreditabilidade

Zilles Borba[1]

Resumo: *O artigo aborda a comunicação publicitária em plataformas imersivas da Realidade Virtual (RV). Numa pesquisa teórica e empírica são tensionadas e articuladas reflexões sobre as marcas se apropriarem das características do meio RV – a partir do fenômeno da acreditabilidade – para produzir experiências de comunicação com potenciais consumidores. Além da revisão teórica sobre publicidade e indústrias promocionais, da RV e do conceito de acreditabilidade em ambientes imersivos (metaversos, simuladores e videogames), o artigo faz exercício prático de exploração a uma peça publicitária. Assim, a partir de dados qualitativos, discute-se a plataformização da publicidade em ambientes imersivos, bem como o papel de dimensões da acreditabilidade para estudar a comunicação das marcas em RV.*

Palavras-chaves: *Realidade virtual; metaverso; publicidade; indústrias promocionais; comunicação das marcas.*

Abstract: *This article approaches the advertising communication in immersive Virtual Reality (VR). In a theoretical and empirical research, reflections are tensioned and articulated on brands appropriation of VR medium characteristics – based on the phenomenon of believability – to produce communication experiences with potential consumers. In addition to theoretical review on advertising*

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and promotional industries, VR and the concept of believability in immersive environments (metaverses, simulators, videogames), the article does a practical exercise to explore an advertising case. Based on qualitative data, the plataformisation in immersive environments is discussed, as well the role of believability dimensions to study brand communication in VR.

Keyword: *Virtual reality; metaverse; advertising; promotional industry; brand communication.*

Introduction

When considering that digital platforms indicate any infrastructure in which people interact, exchange, and coexist based on a combination of norms and communication protocols linked to the mode (and possibilities) of functioning of the interfaces and devices that mediate these relationships, it becomes understandable the existence of a transforming power intrinsic to their *modus operandi*, especially for formatting new modes of production, consumption, relationships, work, and communication experiences (POELL et al., 2019).

Promotional industries, advertising, marketing, public relations, and branding (DU GAY, 1997), like other sectors, are not immune to the impact of platforming logic. Abilio et al. (2021), for example, present reflections on these changes in transportation and delivery services based on work models influenced by digital applications. Interested in the nuances of this theme, which also permeates promotional industries, the paper suggests an approach to the advertising (and brand communication) field in immersive Virtual Reality (VR) platforms. At the intersection between production and consumption, the paper focuses on the promotional field as a representational activity, pointing toward new approaches supported by these emerging digital environments (DAVIS, 2013). This focus also starts from understanding a possible future of advertising through immersive and multisensory devices that, in turn, help to raise clues for a future configuration of advertising in metaverses in VR (QIN; LEI, 2019; GAUQUIER et al., 2019).

In the market sphere, VR is on the rise, especially after the company Meta announced its intention to develop the social media hitherto known as Facebook according to the logic of a metaverse supported by VR interfaces (SAKER; FRITH, 2022). That is, if neither the idea of the metaverse nor the applications of VR are new, one can think that the integration of both will bring something different to the social, cultural, and market experiences in digital spaces. After all, head-mounted display (HMD) devices, popularly known as virtual reality glasses, motion sensors, tactile and haptic feedback gloves, olfactory masks, and

other avant-garde devices in human-computer interaction stimulate experimentation in the production and consumption of content in these digital environments[2] (ISCHER et al. 2014; SHIN, 2018; KATAOKA et al., 2019; JUNG et al., 2020).

The starting point for structuring the article considers that VR is an advanced human-computer interaction interface (TORI et al., 2018). VR is advanced because it is an interface configured by transparency mechanisms that operate to cancel the subject's perception that devices are mediating their experience with spaces, objects, and people in the digital scenario (ZAGALO, 2010). Consequently, that causes an illusion of being inside the digital environment without the mediation of equipment (BOLTER; GRUSIN, 1999). On the topic of the feeling of immersion and presence in the context of VR, Bolter and Grusin (1999), Pereira (2008), Thom (2008), Calleja (2011), Fragoso (2015), Longhi (2016), and Castro Alves (2022) debate the notion of being involved in a 360° scenario, where the person sees, hears, and interacts with digital content based on natural sensations, as a communicational process different from the one produced on flat screens.

In the methodological conduction, the researcher carried out an empirical exercise, putting himself in the position of a VR user to experience the promotional experience of a brand. I observe aspects of the experience based on three axes of believability: realism, interactivity, and involvement (PAUSCH et al., 1996; SLATER; WILBUR, 1997; SLATER, 1999; 2009). Intersecting empirical and theoretical data, the qualitative analysis reflects on advertising configurations on immersive VR platforms, such as the materiality of devices, user appropriations, perception of products/services, immersive narratives and storytelling, brand communication strategies, and paths for constructing advertising in metaverses.

2 Authors such as Cook et al. (2020) and Austin (2021) suggest that based on the interactional dynamics of VR interfaces, a new way of producing and consuming content on the internet tends to take shape, which is what they call user experiences of Web 3.0.

Advertising in promotional industries

Before detailing the properties of VR and, thus, developing the concept of believability in immersive digital environments, it is crucial to establish an understanding of advertising in the promotional industries from the perspective of this article. Some views assume that advertising activity is transforming in contemporary times, going beyond its traditional boundaries (ads, logos) to play a central role in the broad promotional industry (marketing, public relations, design, etc.) (DU GAY, 1997).

Currently, advertising merges with other disciplines to cohabit in media spaces (information, entertainment) and multi-platforms (social media, video games, metaverses) in a transmutation that expands it to the production of content, creative and promotional products as well as other communication representations that generate brand relationships with society (RODRIGUES; BORBA, 2022). That is clear when advertising shifts to digital platforms as the dynamics of telematic networks in cyber advertising (ATEM et al., 2014) encourage participation, engagement, protagonism, cooperation, co-creation, and a sense of belonging among communities interested in the brands (KOTLER et al., 2017; 2021).

At this point of intersection between the production and consumption of advertising, it is relevant to add Davis' (2013) ideas about advertising practice as a fundamental part of the promotional industry, not only for publicizing products and services but also for communicating purposes with which brands, organizations, or celebrities want to be associated with. That establishes a role for the advertising field that goes beyond a mere mechanism for commercial purposes to the level of a social and cultural agent of communication with contemporary society.

By transporting such ideas of advertising to the phenomenon of platformization of communication in immersive VR environments (SAKER; FRITH, 2022; KIM, 2021), we can see clues of potential for generating experiences of (and with) brands on platforms that encourage user involvement and protagonism on the media stage (QIN; LEI, 2019; GAUQUIER et al., 2019). This power is justified beyond the immersion technique promoted by the media arrangements of interactional devices

(the medium) (PEREIRA, 2008), as brand messages on these platforms have an opportunity to extrapolate the commercial disposition, favoring social conversations and cultural transformations in a more engaging way than other means of communication mediated by flat screens (gender diversity, racial equality, female empowerment, etc.) (TRINDADE, 2017; HANSEN, 2016; RODRIGUES; BORBA, 2021).

Believability on virtual reality platforms

zilles Borba (2022) presents an example of a video on the internet in which the person becomes a meme by experiencing a comical situation when trying virtual reality glasses for the first time. In the scene, that person faces a series of imbalances that culminate in their falling to the ground. More than a piece of entertainment, this video reveals the potential to problematize the use of VR as a means of communication, such as the role of the audience in media consumption from the perspective of the first person in immersive scenarios (participatory culture, promotional field, embodiment in representation of the self in an avatar) or the remediation of digital experience with emerging devices (immediacy, immersion, sense of presence, etc.).

Tori et al. (2018, p. 480) propose understanding VR as an "advanced interface for computational applications, where the user can navigate and interact in real-time, in a three-dimensional computer-generated environment, using multisensory devices." Jerald (2015 *apud* TORI et al., 2018) indicates that the aesthetics (sound and visual) and functionalities (interactivity) of this digital environment provide a sense of immersion of the subject in the virtual context, creating the illusion that one is in a space that mimics physical reality.

Steuer (1992) pioneered understanding immersion in VR, emphasizing that the liveliness of images projected on VR glasses and the interactivity to manipulate virtual objects would be crucial factors in stimulating the illusion of immersion in the virtual. According to the author, the more natural the person's movements and three-dimensional visualization of objects, the more immersive the experience. With a

more technical view, Burdea (2003) added that the graphic processing capacity of computers that support VR would also play a fundamental role in building the user's illusion of immersion in the digital context. He focused on two factors to understand the liveliness and interactivity of Steuer (1992): the image resolution, since the graphic quality of everything that the subject sees in the computational image would generate more or less immersion, and the latency of the computer system, since the response time for virtual images to manifest themselves in the scene after the user's interactive commands would increase the realism of the experience.

It is worth noting the two authors complement each other to create the idea that vividness and interactivity are relevant aspects in producing the immersive effect in VR. However, later studies by Communication researchers (PEREIRA, 2008; FRAGOSO, 2015; LONGHI, 2016; ZILLES BORBA, 2020; CASTRO ALVES, 2022) moved away from the pure technique of electronic engineers to approach sociotechnical factors related to the composition of the 360° environment (around the user), which differs from 3D content presented on a flat screen (in front of the user). Their approach understands a first-person point of view on media content (scales, proportions, and shapes) encourages subjects to perceive themselves as surrounded by the content, as if the screen had become a large sphere that projects media content across its surface and viewers were right in the center, inside it, to absorb the contents on all sides (up, down, left, right, diagonally, etc.) (LONGHI, 2016; ZILLES BORBA, 2020).

At this point, it is imperative to reflect that all aspects mentioned so far indicate some relationship with realism (image vividness) or interactivity (interaction with the image) as dimensions that deserve attention. On the other hand, not satisfied with these two dimensions, Pausch et al. (1996) published a seminal article suggesting the existence of a specific one for storytelling. In other words, the quality of the plot in the VR article would be, for Pausch et al. (1996), the most significant factor in producing user immersion in the digital context. They called

this phenomenon believability in VR, as involvement with the plot would awaken emotions capable of attracting the subject's attention to the narrative and, consequently, to the notion of being in a VR.

From the perspective of this article on the platformization of advertising in immersive VR environments, the theory put forth by Pausch et al. (1996) is valuable, as it encourages researchers interested in immersive narratives to look at psychological aspects produced both by the user's objective experience and by their subjective experience with the stories told on these platforms (THOM, 2008; CALLEJA, 2011). At first, the ideas of Pausch et al. (1996), when combined with those of Steuer (1992), Burdea (2003), or Longhi (2016) – and not isolated or substituting them –, allow the addition of narrative elements to stimulate the social, cultural, technical, and semiotic problematization intrinsic to the relationship between user, devices, and VR environment. At first, the ideas of Pausch et al. (1996), when combined with those of Steuer (1992), Burdea (2003), or Longhi (2016) – and not isolated or substituting them –, allow the addition of narrative elements to stimulate the social, cultural, technical, and semiotic problematization intrinsic to the relationship between user, devices, and VR environment. For example, De Gauquier et al. (2019) and Qin and Lei (2019) agreed with Kotler et al. (2017) that brands strengthen by offering experiences with potential consumers, which the VR immersion enhances by showing, trying, manipulating, or even assessing products and services.

With regard to the valorization of quality storytelling in VR, it is imperative to note that when Pausch et al. (1996) published Disney's Aladdin: first steps to storytelling in virtual reality, the British researcher Mel Slater also carried out experiments with users in an attempt to theorize aspects of the perception of reality of those who explore immersive scenarios (SLATER; WILBUR, 1997; SLATER, 1999). From these experiments, significant collaborations emerged for constructing the concept of believability in VR. For instance, Slater and Wilbur (1997) begin the important theorization of the phenomena of immersion and

presence in VR, concluding that, even though they are different things, the two act concomitantly to form the user's perception of reality.

As a result of the research from the late 1990s, still welcome and applied to VR, it is worth highlighting that, for Slater and Wilbur (1997), immersion is exclusively linked to the properties of the user's sensory experience (the body) as a process mediated by interactional devices, for example, stereoscopic vision mediated by VR glasses or haptic feedbacks when touching virtual objects with haptic gloves (SLATER, 2009; ISCHER et al., 2014; SHIN, 2018; KATAOKA et al., 2019; JUNG et al., 2020). In turn, the feeling of presence is linked to the properties of the psychological experience (the mind) as a process of transferring attention between the person and the plot with variations in intensity due to their subjectivity (preferences, fears, memories) (THOM, 2008).

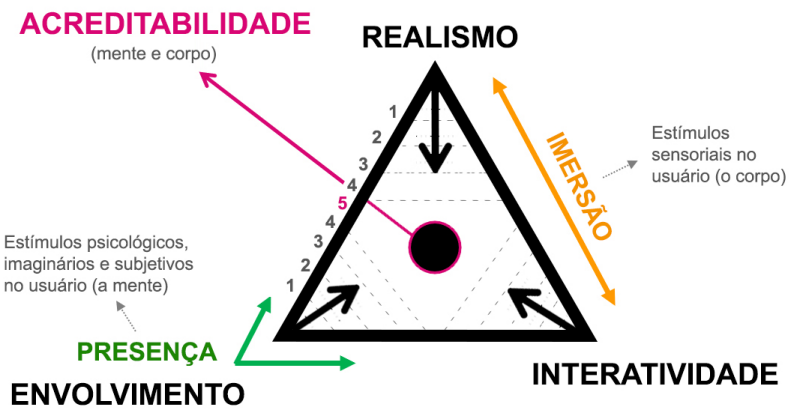
These ideas gave continuity to Randy Pausch's reflections, which establish that presence and immersion in VR are different but coexist and, when well developed, generate a complex perception of reality in the user. To explain this complexity, Slater (2009) sought the concept of believability from Pausch et al. (1996), changing the idea that storytelling would be more important than realism or interactivity. The author puts the dimensions of realism, interactivity, and storytelling on the same level, coining this plausibility relationship of inhabiting new realities (SLATER, 2009).

Regardless of the term used, Pausch et al. (1996) and Slater (2009) referred to the same thing – the illusion of immersing yourself in the context of VR. This paper maintains the term believability to indicate all the complexity of the phenomena of immersion and the sensation of presence when they act concomitantly in users' experience of immersion in the digital context. It is the case to say that, nowadays, believability is understood as the sum of the phenomena of immersion (sensorium) and feeling of presence (subjectivity) since they act in a coalescent way.

To understand this updating in the concept of believability, Zilles Borba (2020) carries out a theoretical-practical exercise that culminates in the suggestion of a communication structure for believability in VR

based on three dimensions (realism, interactivity, and involvement), considering everything observable in the relationship between user, device, and environment (Figure 1).

Figure 1 – The three dimensions of believability in VR



Source: Zilles Borba (2020) based on Pausch et al. (1996), Slater and Wilbur (1997), and Slater (1999)

Methodology

Besides the bibliographic review, the methodological conduction makes an empirical approach by exploring an advertising piece in VR. This practical approach to the object of study is justified to observe, collect, and analyze qualitative data that help answer the research problem: if platformization is a phenomenon that impacts promotional industries, how does it manifest itself in advertising on immersive VR platforms? And can the concept of believability guide reflections about production and consumption in these environments?

To collect data, the researcher put himself in the position of a user and experienced the promotion of a brand (Audi) wearing VR devices: an Oculus Rift S (HMD), two Oculus Sensors, two Oculus Touch, and an MSI SteelSeries notebook with GTX 1060 graphics card. The

researcher selected the promotional piece according to convenience as part of a sample of 60 VR advertising experiences mapped in an ongoing research project at the Federal University of Rio Grande do Sul.[3]

Data collection involved observation (exploratory) and note taking (descriptive) of aspects experienced in the VR immersion based on believability dimensions: realism, interactivity, and involvement. Table 1 highlights the attributes observed in each dimension (ZILLES BORBA, 2020; 2022). From the understanding of the operation of the dimensions of believability in the advertising piece, the study compares and articulates the empirical data with the previously presented theoretical discussion to deepen the reflection on the platformization of advertising in immersive VR environments and, thus, verify the workings of believability as a guide to think/analyze the production and consumption of promotional industries in these innovative environments (DU GAY, 1997; DAVIS, 2013; KOTLER et al., 2017; GAUQUIER et al., 2019 and others).

Table 1 – Attributes that configure the dimensions of believability.

Dimension	**Observed attributes**
Realism 	These include audiovisual aesthetic aspects, including image attributes related to content and design (shapes, scales, proportions, perspectives, textures, colors, shadows), technical ones of the digital image (resolution, latency), and space/object sonorities (timbres, intensities, frequencies).

3 Besides the author of this paper, who coordinates the research project "Techno-experiences in virtual and augmented reality: a view from the perspective of advertising communication," the activity includes the participation of four undergraduate research students and a Ph.D. student.

Interactivity 	These are aspects of navigation through scenarios, user commands, orientation in space, and manipulation of 3D/2D objects. They include the materiality of the interaction devices that, in some way, transpose the intentions of the subject's movements in the physical world to the digital space. It is also worth observing the behavior of objects within the media stage when manipulated by the user's representation (the avatar), for example, the waiting time between action and reaction (real-time rendering).
Involvement 	Storytelling, plot, and narrative aspects of the experience as the user explores the VR environment. These involve the story told but also the details that constitute some kind of orientation for the experience, like the mission the user must carry out, the goal they must fulfill, elements in the scenario that create meanings, awaken memories, emotions, and other subjectivities (fear, pleasure, joy, desire, curiosity).

Source: adapted from Zilles Borba (2020; 2022)

During the qualitative analysis, in addition to collecting data on the attributes that constitute believability, the researcher gives a score on the Likert scale to each dimension – in which 1 point indicates it had a low impact on the user experience, and 5 points means a high impact (ZILLES BORBA, 2022) (see Figure 1).

Data presentation and analysis

The researcher explored the VR advertising piece selected for the empirical stage, using VR devices, which allowed for taking notes and recording images. These materials helped to develop a qualitative analysis that reflects on believability – realism, interactivity, and involvement – as a property to investigate the platformization of the advertising experience in VR. The analyzed piece, "Audi A4 Experience," offers an exclusive experience of the A4 model of the brand's automotive product series (Figure 2).

Figure 2 – Immersive environment to explore the vehicle.

Source: researcher's screenshot

During the experience in the brand's immersive environment, the intention is to provide the first contact between the consumer and a car model that is not yet available in the market. The proposal is to place the consumer inside the vehicle to get to know the product before the official launch. In other words, it is a promotional action that offers a privileged situation for consumers who are fans of the brand or are simply curious to see the car before it is on the streets. Regarding this novelty appeal linked to the brand's promotional action, it is relevant to stress that the VR application was only released online for the general public after the VR campaign. Initially, the immersive experience ran at Audi dealerships in the Netherlands.

At the beginning of the experience, the researcher noticed that, unlike most VR pieces that start inside the cockpit of a vehicle, Audi proposes an introduction outside of it (Figure 3-A). One cannot select the car's point of view as the camera's journey remains on a predefined course. Nevertheless, the piece presents different perspectives – side views, front view, rear view, aerial view, etc., and users are free to move their heads and turn 360°, which allows a satisfactory contemplation of the product.

In this same introductory scene, a male voice constantly accompanies the user. During the journey, the narrator's voice explains the car's technical details as if a salesperson were always at the user's disposal. Although there is no avatar of this narrator (embodiment), his presence emerges from the sound narrative that supports the storytelling. That moves away from the dimension of realism but meets the one of involvement in a maneuver that seeks to capture the subject's attention for specific moments of explanation of the product (focus) (THOM, 2008).

Figure 3 – Selection of frames of the brand experience in VR

Figure 3-A

Figure 3-B

Figure 3-C

Figure 3-D

Figure 3-E

Figure 3-F

Source: researcher's screenshots

Mostly, a 360° high-definition video makes the spatial composition of the media environment in the introduction, which generates a high degree of realism (BURDEA, 2003). Special effects, superimposed on the video, appear on the carcass of the vehicle, imitating holograms and mapped projections (CASTRO ALVES, 2022). This media arrangement simulates an augmented reality within VR, awakening the user's feelings of futurism and technological innovation associated with the product (PEREIRA, 2008).

A second moment transports the user inside the vehicle in a space composed of a 360° photograph in high resolution (Figure 3-B). The car is on a mountain top with a panoramic night view of the city. The narrator invites the user to contemplate the very realistic details around them (leather seats, multimedia panel, etc.), encouraging them to turn 360° (STEUER, 1992; LONGHI, 2016) to the point of formatting within the user the perception that they are indeed inside the car.

The dimension of realism – visual and sound – stands out in the experience. This audiovisual sophistication guarantees a high sense of immersion, especially for understanding the vehicle's internal space since the subject views the scenario with similar aesthetics to the physical world from a first-person perspective, sitting in the driver's seat. Such stimuli, especially visual ones, guarantee the existence of moments of immersion due to the similarity of virtual things with their original versions (TORI et al., 2018). Although brief, like frequencies that come and go, these moments generate conflicting understandings in the user that there is no mediating interface as if, for an instant, they were really inside the vehicle (BOLTER; GRUSIN, 1999).

Even though there are three types of images (360° photography, 360° video, and 3D design), they are accurate in imitating situations the user would experience inside the original car or in a city landscape through the windows. Nevertheless, to encourage the subject's immersion in VR, the high point of the realism dimension is in the internal scene where one can visualize the vehicle's structure, finishings, and accessories. This approximate realism of the original version of the product suggests

a consumer understanding of the quality, innovation, and technology associated with the brand (KOTLER et al., 2017; GAUQUIER et al., 2019).

The advertising piece does little work on the interactivity dimension. In some situations, the user makes hand movements to click on the icons scattered throughout the scenario (Figure 3-C). These work through two joysticks tracked by movement sensors, transposing commands from the subject's physical body into the virtual context. The icons act as access buttons to new videos in a portal that leads users to other content. These scenarios communicate product attributes in a different way, like a live show to demonstrate the quality of the audio system.

As a user, it is frustrating not being able to interact with greater freedom on a VR platform. The brand ignores possibilities to offer protagonism and active participation of the individual, distancing itself from the understanding that, in the promotional industries, the audience mixes and confuses itself with the production of brand content (DAVIS, 2013; HANSEN, 2016; KOTLER et al., 2017). Even if the user fits into a position of privileged spectator because they are "inside" a car that is not yet available in the market, they are in a passive condition, in which they do not drive or manipulate objects.

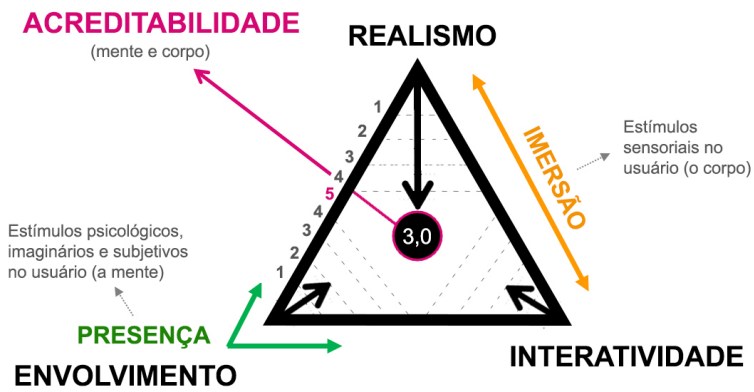
The involvement dimension bases itself on storytelling directly linked to the opportunity to explore a vehicle that is not out in the market yet, reinforcing the idea of exclusivity relevant to the Audi consumer. However, one cannot drive the car, feel its engine, the softness of the seats, or other materialities (participatory exploration of the product), much less capture any cultural message or social transformation purpose of the brand. The construction of the involvement dimension of this piece is much more dependent on the understanding that visual realism is enough to satisfy the consumer who wants to know the car. However, the excessive focus on realism without a plot makes the consumer journey monotonous after a few minutes of the experience.

Scenarios that have nothing to do with the car's interior environment break the monotony when opening with the user's clicks on hotspots (see Figure 3-C). Such a maneuver causes product attributes to be associated

with semiotic elements (ATEM et al., 2014), such as the sound in front of the stage of a rock concert compared with the sound quality of the vehicle (Figure 3-D), skiing with friends as if the car takes you to places where there is happiness (Figure 3-E), or, even, an explanation of the performance of the headlights through a night scene (Figure 3-F).

In short, the platformization of advertising in VR by the Audi brand values the user's immersion in a media environment that simulates the vehicle's interior. The realism of the 360° image (photography, video, and 3D) builds the immersive experience. In this sense, the score for the realism dimension is high, reaching five points on the believability scale (Figure 4). However, only the 360° view and clicking on icons/hotspots were constituent agents of the interactivity dimension, which gave it a score of only 2 points. The involvement dimension received a 2-points grade as well. Although the plot does not allow the test drive, the brand seeks to create subjective connections between the product and the user when opening 360° videos with ludic content. Basically, in the analyzed case, believability occurs when the subject is interested in visualizing car accessories and, after that, in fragments of stories that, in turn, activate the symbolic construction of technical things in the consumer's mind.

Figure 4 – Dimensions of believability in the VR piece for Audi



Source: developed by the researcher

Final considerations

The paper addressed the platformization of advertising in immersive virtual reality environments. The theoretical and practical work analyzed qualitative data on a brand. The case study enabled a discussion on appropriations in/from immersive platforms to communicate with potential consumers. The reflection drew on dimensions of believability in VR (realism, interactivity, and involvement), connecting its attributes to fundamental aspects of advertising in contemporary promotional industries.

The paper concludes that the studied brand appropriates some of the medium's peculiar features. That occurs more intensely in the construction of the 360° scenario with realistic and convincing images in its technique (resolution, latency) and aesthetics (shape, color, scale, texture). However, it was also evident that the brand did not take advantage of several characteristics of the VR medium, ignoring its interactive and immersive power, such as manipulations of 3D objects.

Based on the analyzed advertising experience, the paper concludes believability can be a tool for studying brand communication in VR and guiding content creation on these platforms. In the case of Audi, there was limited storytelling construction (involvement dimension), as the piece focused on the visual construction of the product (Audi A4), which made the experience monotonous after a few minutes.

In short, studying platformization of advertising in immersive VR environments based on believability is an interesting way for Communication researchers to reflect on the effects of advertising in metaverses, simulators, and video games. This approach allows for organizing the structuring logic of the existing communication process in the relationship between users, devices, and VR environments. As a future work, the intention is to expand the research to a larger sample of advertising pieces.

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