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Influence of digital effects on consumer attitudes towards the advertisement and the brand

Influencia de los efectos digitales en la actitud del consumidor hacia el anuncio y la marca

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Abstract

Digital effects, incorporated during post-production in audiovisual advertising, are crucial in enhancing the image of products and brands. This study focused on evaluating the impact of digital effects on consumer attitudes, specifically on attitudes towards the advertisement (AA) and attitudes towards the brand (AB). Using a quasi-experimental design, two initially identical advertising spots were created; one was modified with the addition of digital effects while the other was left unchanged as a control element. These spots were presented to a total of 346 people via an online medium and a survey was subsequently applied to measure their reactions. Confirmatory factor analysis was used; the Wilcoxon test was applied to compare the responses between the groups. The results indicate that emotional reactions tend to be more positive in ads with digital effects, in both attitude towards the ad and attitude towards the brand. Accordingly, it can be posited that digital effects play a moderating role in the development of attitudes towards the advertisement and the brand. However, the influence of digital effects is more pronounced in the attitude towards the ad.

Keywords

Digital effects; attitude towards the advertisement; attitude towards the brand; advertising spot.

Resumen

Los efectos digitales, incorporados durante la postproducción en publicidad audiovisual, son cruciales para potenciar la imagen de productos y marcas. Este estudio se enfocó en evaluar el impacto de los efectos digitales en las actitudes del consumidor, específicamente en la actitud hacia el anuncio (AA) y la actitud hacia la marca (AM). Utilizando un diseño cuasi experimental, se crearon dos spots publicitarios inicialmente idénticos; uno se modificó con la adición de efectos digitales, mientras que el otro se mantuvo sin cambios como elemento de control. Estos anuncios fueron presentados a un total de 346 personas a través de un medio en línea y posteriormente se aplicó una encuesta para medir sus reacciones. Se empleó análisis factorial confirmatorio, se aplicó prueba de Wilcoxon para comparar las respuestas entre los grupos. Los resultados muestran que las reacciones emocionales tienden a ser más positivas en los anuncios con efectos digitales, tanto para la actitud hacia el anuncio como para la actitud hacia la marca. Por lo tanto, se puede concluir que los efectos digitales cumplen un rol moderador en el desarrollo de actitudes hacia el anuncio y la marca. Sin embargo, la influencia de los efectos digitales es más pronunciada en la actitud hacia el anuncio.

Palabras clave

Efectos digitales; actitud hacia el anuncio; actitud hacia la marca; spot publicitario.

1. Introduction

Specialists in audiovisual advertising are constantly searching for new effective strategies to promote brands on the market. Notable among the techniques they use in audiovisual advertising production are digital effects (DFX), which involve creating, composing or manipulating images using digital technology in order to construct scenery, backgrounds and other elements that would be difficult, costly or impossible to film in real life (Martínez, 2018).

DFX form part of recent advances in visual effects technology (VFX), a field associated primarily with film production, although today this technology is often used in audiovisual advertising. According to Martínez (2018), in the digital age every advertising product needs to be developed in a way that will make it adaptable to both traditional and new media. This explains the increasing interest that advertisers are taking in the advanced technologies offered by specialists in this field. In fact, the global market for VFX is expected to grow by 5.12% per year between 2020 and 2028 (VMR, 2021).

Studies of advertising have traditionally been characterised by a tendency to evaluate advertisements with parameters such as creativity, entertainment, attitudes towards the brand, perceived value or irritation (Cahyani & Artanti, 2020), without any in-depth exploration of the technologies used in audiovisual advertising. However, the significant expressive capacity of DFX is now being recognised. For this reason, this study gives primordial attention to the effects of DFX on consumer attitudes, as a narrative resource of audiovisual advertising. Specifically, it evaluates the influence of audiovisual advertisements containing digital effects on the viewer's attitude towards the ad (AA) and attitude towards the brand (AB).

AA is defined here as "a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion" (Lutz, 1985: 46). In this way, the viewer's evaluation may represent the step prior to a behaviour or action that translates into a purchase intention (Belanche, Cenjor & Pérez-Rueda, 2019). AB is defined as a relatively enduring evaluation of the brand that has the potential to trigger purchasing behaviours in the consumer (Spears & Singh, 2004).

This study aims to contribute to research on advertising with DFX and provide empirical evidence through the analysis of the responses of a sample of subjects. The intention is that advertisers may be able to make use of this analysis to evaluate the effectiveness of these technologies in audiovisual advertising. The originality of the research lies in its analysis of advertising spots that use advanced digital technology (VFX), specifically 3D modelling technology, with reference to variables often used in scientific marketing (AA and AB). The association between digital expressiveness and marketing is a constant of contemporary advertising production, yet there is very little research on it. Although new digital editing technologies are often identified as a means of achieving greater expressiveness, the impact they have on viewers has rarely received attention. However, a few recent studies do offer assessments of the effect of digital technologies in advertising spots and music videos (Martínez, 2018; Segura, 2017; Crego & García, 2014). Other studies emphasise the inclusion of audiovisual advertising on digital media, focusing on the effectiveness of the message when it is manipulated with digital technology (Qiao, Song & Wang, 2021; Berko, 2019; Wu, et al., 2015). Such studies generally reveal a tendency among viewers to display positive attitudes towards advertising that includes digital visual effects. However, acceptance of the digital aesthetic is not universal, as research has also identified negative reactions to advertising saturated with DFX.

2. State of the question

2.1 Digital effects in advertising spots

Advertising spots constitute an expression of audiovisual language used in marketing to elicit cognitive and emotional responses aimed at encouraging consumer activity (Segura, 2017). In recent years, there has been an increase in research on the narrative strategies used in advertising spots with the aim of enhancing the effectiveness of such strategies (Gupta, Singh & Sinha, 2017). Such research focuses on the identification of the relationships that can be discerned in the emotions or attitudes expressed by viewers in response to the presence of visual effects, sound effects, and other post-production elements. Studies in this area apply a wide range of methods, mostly involving neuromarketing, focus groups and self-report surveys.

DFX are used in advertising with the intention of eliciting a positive attitude from consumers (Qiao, Song & Wang, 2021) by engaging a wide variety of expressive strategies that grab the viewer's attention with visual illusions (Lehmuskallio, Häkkinen & Seppänen, 2018). They also support the audiovisual narrative, enhancing the characters and story in the ad (Felschow, 2015). DFX thus serve as tools that contribute to the effectiveness of an advertisement (Wu et al., 2015). In this way, they can have an impact on the viewer's purchase decisions, and consequently influence consumer choices (Montemayor & Ortiz, 2016).

DFX are based on VFX creation techniques, which can be categorised as either special effects or digital effects (Armenteros et al., 2015). Three specific techniques are currently identifiable in DFX: matte painting, motion capture, and digital modelling (Pardeshi & Karbhari, 2019). Matte painting involves the use of a background plate that simulates the scenery; the actors perform in front of this background, creating the illusion that it is a real setting. In motion capture, digital images are generated by recreating movements of real actors who have been transformed into digital images with realistic expressions (Lehmuskallio, Häkkinen & Seppänen, 2018); this is also referred to as rendering. Digital modelling consists of the creation of virtual images that are inserted into the video in the post-production process, as well as techniques such as transitions between shots, colour correction, and the insertion of 3D animation and captions (Pardeshi & Karbhari, 2019). Modelling technology is based on traditional sculpture techniques adapted to computer graphics. It is the most basic process in computer generated image design and represents the foundation of nearly all the elements appearing on the screen (Martínez, 2020).

DFX allow digital creatives to enhance the expressive capacity of advertising spots, facilitating the reconstruction of imaginary objects and/or actions that are made to look real (Qiao, Song & Wang, 2021). In this way, DFX can be used to highlight the qualities of both the product and the brand presented in an ad (Crego & García, 2014) with the aim of influencing the viewer's affective responses to it.

DFX have acquired a critical role in sectors such as the advertising industry, as they can be used to add or eliminate specific elements that may or may not be present in a particular setting (Cueva, 2021). These elements are inserted or deleted in the post-production process. Crego & García (2014) suggest that all audiovisual advertisements today are retouched in the post-production process so that they can be used in both traditional media and digital media. Viewers are thus offered a more creative advertising experience thanks to DFX, which play a role in the process of persuasion inherent in marketing. In fact, DFX can be used to redesign an advertising spot and create a bigger impact by enhancing its quality. DFX can also improve the consumer experience through new creative expressions aimed at boosting sales (Berko, 2019).

2.2 Attitude towards the advertisement (AA)

AA is defined as a predisposition to respond to a particular advertising stimulus on a particular occasion (Lutz, 1985), which may be expressed in affective or cognitive terms (Belanche, Cenfor & Pérez-Rueda, 2019). AA is characterised by two essential features: (1) it is related to a specific stimulus (the ad); and (2) it expresses the viewer's reaction to that stimulus at a particular moment, i.e., it is a transitory reaction (Bigné & Sánchez, 2001). This means that AA can be identified as the most effective variable for evaluating the impact of advertising on viewers, as it constitutes the first impression that the advertisement has on them. AA also has direct effects on variables such as AB, and indirect effects on subsequent attitudes such as purchase intention (Spears & Singh, 2004). The essential objective of this study is to analyse these effects for the purpose of evaluating the influence of the use of DFX in audiovisual advertising.

AA can be conceptualised from two perspectives: (1) the view that it manifests itself in the viewer's emotional responses; and (2) the notion that emotional responses occur in combination with rational responses (Bigné & Sánchez, 2001). The first perspective has generally informed most advertising research, as most studies point to the affective dimension as the main factor influencing consumer decisions (Küster, Mafé & Claudio, 2017). Taking a different perspective, some studies posit that the consumer's reactions are associated with a rational process (Shaouf, Lü & Li, 2016). The affective approach focuses on emotional reactions, expressed in adjectives such as enjoyable, good, interesting, or happy (Antoniadis, Saprikis & Karteraki, 2019; Gil, 2016), while the rational approach is expressed in adjectives like informative, convincing, instructive, credible, or useful (Antoniadis, Saprikis & Karteraki, 2019; Küster, Mafé & Claudio, 2017).

For this study, the emotional dimension of AA was chosen as the primary factor behind the impact of advertising on viewers, following the line of argument established by Lutz (1985). Affective responses are the subject of this analysis because contemporary advertising focuses mainly on the emotions (Ponce, 2019). Consequently, this research draws on areas of knowledge that apply psychological studies to marketing and advertising. One example is the field of colour psychology, which analyses how colours influence attitudes and elicit emotions (Vera, 2010). In this sense, the reactions that individuals have to particular colours can be used to sell a product. Digital technology makes it possible to edit colours in multimedia images in order to capture these psychological associations, thereby facilitating the task of audiovisual production (Suárez, Martín & Galindo, 2020). Advertising producers are thus able to digitally create a particular colour that could be identified as a distinctive feature of a brand or product (Crego & García, 2014). Digital manipulation of colours (colour correction) can therefore have an impact on whether a viewer considers an advertisement good, enjoyable or interesting. DFX can give an ad's imagery a more spectacular quality by enhancing aspects such as colour and movement (Laroche et al., 2022). Although colour is also present in formats that do not use DFX, analogue technology does not allow for the level of precise manipulation of chromatic nuances, which means it cannot offer audiovisual producers the same degree of creative freedom.

Similarly, other elements such as framing, pacing, cinematography and most other visual techniques used in the production of advertising spots can be manipulated with DFX. For example, DFX can transform an image by reframing it at any moment, combining different angles, speeds and other elements. In contrast, a traditional audiovisual production is constrained by what the camera operator was able to do at the time the image was captured. DFX can even make corrections to an image when analogue production falls short. Such limitations in traditional audiovisual production make the use of DFX helpful for the introduction of improvements or changes with greater flexibility and creativity. Advertising creators can thus use this technology to influence viewer responses to their ads. All this forms the basis for the first hypothesis proposed for this study:

H1: Advertising spots with digital effects (DFX) have a more positive influence on attitudes towards the advertisement than advertising spots without DFX.

2.3 Attitude towards the brand (AB)

According to Spears and Singh, AB can be defined as "a relatively enduring unidimensional summary evaluation of the brand that presumably energizes [consumer purchasing] behavior" (2004: 55). AB involves the reaction to an abstract or symbolic concept, i.e., a brand, and it is a more enduring reaction than AA (Bigné & Sánchez, 2001). A primordial objective of advertising spots is to draw the viewer's attention to the brand, which is usually represented with symbols, designs, signs or a combination of these elements. As Berko suggests (2019), DFX can make ads more convincing, creative and dynamic, helping them to achieve their aim of conveying the qualities of the brand through the visual enhancement of its distinctive features. In this sense, AB may be affected by the capacity of DFX to directly influence viewer responses when they are used as a way of highlighting the qualities of the brand. Just as DFX have the potential to influence responses to the ad itself, their effects can also be transferred to the brand. Moreover, foregrounding the product-brand relationship is a basic objective of all advertising.

It is vitally important for brands to be positioned in the market with an image in consonance with the digital age (Suárez, Galindo & Martín, 2018). Digital branding involves the transformation of all the communicative and operational elements of a brand into platforms of technological innovation. In this process, advertising producers fulfil the role of designing a brand image in keeping with the aesthetics of the digital world (Suárez, Galindo & Martín, 2018). They focus mainly on symbolic elements, which are adapted to create the impression that the brand itself is innovative (Suárez, Galindo & Martín, 2018). For example, popular international brands such as Coca-Cola, Nike and Disney have replaced their traditional logos with compositions designed using vector graphics (Pérez & Canavase, 2019; Suárez, Galindo & Martín, 2018). This procedure is referred to by Suárez, Martín & Galindo (2020) as adaptive design of graphic brands, and it is one of the most prominent practices in the field of digital strategies to construct a visual corporate identity. The aim of this practice is to give the brand an innovative image adapted to the aesthetic of digital environments (Suárez, Galindo & Martín, 2018).

This integration of an innovative dynamic effectively adapts the brand image to the contemporary era and to the tastes of digital consumers. From this it could be inferred that the prestige of a brand can also be measured by its level of digitalisation and by the way its symbolic elements are presented in its advertising (Pérez & Canavase, 2019). The recognition of a brand as prestigious involves a psychological response that can be elicited through the use of DFX in its ads (Crego & García, 2014). This idea underpins the second hypothesis of this research:

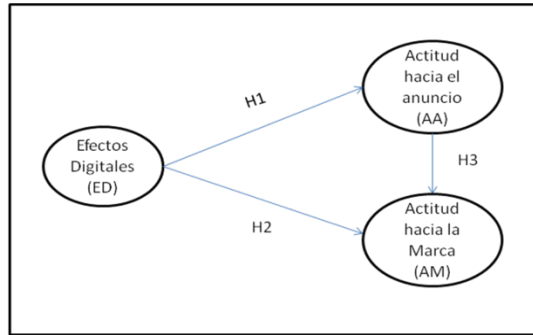
H2: Advertising spots with digital effects (DFX) have a more positive influence on attitudes towards the brand than advertising spots without DFX.

Numerous authors assert that AA has a positive influence on AB based on the affect transfer model first proposed by Mitchell and Olson (1981). This model is founded on the theory that the emotional responses that an ad elicits from consumers are transferred to the brand (Spears & Singh, 2004; Bigné & Sánchez, 2001; Lutz, MacKenzie & Belch, 1983). This study analyses advertising spots with the aim of identifying whether the AB elicited by DFX is independent of the AA, or conversely, whether the aforementioned transfer relationship does in fact exist. An additional aim is to identify the effect that DFX may have on attitudes towards a brand that is unfamiliar to the audience. To this end, a third hypothesis is proposed for this study:

H3: Attitudes towards an advertisement with DFX have a positive influence on attitudes towards the brand promoted in that advertisement.

Figure 1 presents the model of relationships between variables posited according to the three research hypotheses.

Figure 1. Model of relationships between variables



Source: created by author.

3. Methodology

3.1 Sample

The study was conducted online, with participation made open to respondents worldwide via social media. The participant recruitment strategy was essentially what is known as snowball or network sampling, which is a type of non-probability convenience sampling (Fontes de Gracia et al., 2010). The Google Forms template allowed the use of multimedia applications (advertising spots and survey instrument), facilitating the task from beginning to end. Out of the total number of responses received (n=356), 346 respondents were selected. Respondents were excluded if they did not meet the control criteria. These included respondents who were already familiar with the brand (4), who did not complete the whole questionnaire (5), and who were underage (1). A total of 24 respondents chose not to respond to the question about their age. However, this sub-group was included in the sample because they met other selection criteria, such as income level and educational level.

3.2 Advertising stimulus

Two initially identical 31-second advertising spots were designed for the study. The spots advertise car boot organisers made by a Spanish brand that is new on the market. Ad 1 did not include any DFX, while Ad 2 was edited to include digital modelling. Figure 2 shows some examples of the DFX included in Ad 2, demonstrating the contrast between the two ads. In the figure, Image 2A shows a still frame of a boot organiser being folded up from the ad with no digital enhancement, while Image 2B shows the moving lettering (text title effect) together with a digital "stretch" transition between shots. This same transition is also applied to the caption to make it disappear. Image 2C shows the static logo of the brand being advertised, created using a digital vector inserted into the ad. Beside it, Image 2D shows the logo with dynamic lettering (morphing effect on the static PMK Grupo logo) along with 3D modelling (design of the vehicle, headlights, shadow cast by the car, lettering with the logo rising and reconstruction of electricity on the logo). This 3D modelling is animated through the configuration of a skeleton, an internal structure that helps define how the objects move and change shape. Key still frames are then established to define the movements, adjust the interpolation curves and render the animation with 3D modelling and animation software. Image 2E shows a static image of several boot organiser models through the insertion of a digital photograph into the ad, while 2F shows a banner with moving lettering accompanied by a 3D reconstruction of lights. This blue digital lighting is created by means of a selection mask for the areas where the flashes of blue light are applied. At the same time, a colour correction was applied to the light treatment to achieve a particular tonal quality. Finally, the shot was reframed by means of an optic zoom-in effect.

Figure 2. Examples of digital effects (DFX) inserted into the advertising stimulus



Source: created by author.

3.3 Data collection procedure

The field work was performed from 2 July to 11 July 2022. A questionnaire created in Google Forms was disseminated on the social media platforms Instagram, Facebook, LinkedIn, Twitter, TikTok and WhatsApp. The survey was initially disseminated to contacts in my social media accounts and phone directory. All these contacts were sent individual requests to participate; this was a way of initiating the recruitment of study subjects by leveraging an immediately available database. The questionnaire was also promoted in a poster disseminated several times by means of posting on each of the chosen social media platforms. The aim of this strategy was to increase potential participation by reaching out to social media users in Spain, throughout Europe, and around the world.

One of the reasons for choosing social media as the channel for disseminating the survey was the large number of contacts to which I had access on these platforms (more than 10,000 people). Another was the diversity of their profiles in terms of age, gender, geographic location, education level and other identifying categories that social media accounts provide.

3.4 Scales

The scales used to assess AA and AB were taken from the model proposed by Bigné & Sánchez (2001) (see Table 2). For the first of the variables (AA), adjectives were used that define feelings or attitudes towards the ad. In the case of AB, the adjectives used referred to the subject's responses to the brand. The validity of these scales has been previously confirmed in studies exploring the impact of audiovisual advertising on consumer attitudes (Ponce & Garay, 2022; Sepúlveda, Hernández & Ponce, 2020; Ponce, 2019; Sandoval, Ávila & Barreto, 2018).

TABLE 2. Scales for measuring variables

Variables	Items	Reference
Attitude toward the advertisement (AA)	The ad for ____ is very good. I really liked the advertisement for ____ The ad for _____ is not irritating at all. The ad for ____ is very interesting. I have a positive opinion about the ad for____. The ad for _____is very enjoyable.	(Bigné & Sánchez, 2001)
Attitude towards the brand (AB)	The brand _____ is very good. I really like the brand _____. I have a positive opinion about the brand_____. The brand ____ is very likeable. I think that the brand ____ has a lot of prestige.	(Bigné & Sánchez, 2001)

Source: created by author.

4. Results

4.1 Reliability analysis

A confirmatory factor analysis (CFA) was conducted on the 11 items comprising the possible responses to the viewing of each ad (with and without digital effects). It was thus confirmed that the latent variables are the two proposed for the study (attitude towards the advertisement [AA] and attitude towards the brand [AB]), and that the values for each one can be obtained by adding up the items in each case (six for AA, five for AB). The model fit (Bartholomew & Knott, 1999) and the structure of the variables analysed (Hair et al., 2010) were evaluated. and the values of the CFA results were found to be satisfactory (see Table 3).

For the CFA, the goodness of fit of the data was verified, obtaining an RMSEA value of 0.08, which is just within the limit of acceptability (Hair et al., 2010), while other indicators such as the CFI of 0.95 confirmed a good fit (Bagozzi & Yi, 2012) (see Table 3).

Internal consistency was evaluated using Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) (Fornell & Larcker, 1981). Both the CA and CR had values greater than 0.70, while the average variances extracted (AVE) had values greater than 0.50, thereby confirming that the instrument is reliable (see Table 3).

TABLE 3. Reliability, CFA

Variables	No. of items	CA	Assessment ⁰	CR	AVE
Attitude towards the ad w/o DFX	6	.923	Excellent	0.93	0.69
Attitude towards the brand w/o DFX	5	.955	Excellent	0.96	0.82
Attitude towards the ad w/DFX	6	.958	Excellent	0.96	0.81
Attitude towards the brand w/DFX	5	.969	Excellent	0.97	0.87

Notes: N = 346; χ^2 (203df) = 651.80; NFI = 0.93; NNFI = 0.95; CFI = 0.95; IFI = 0.95;

RMSEA = 0.08. : CR = composite reliability;
AVE = average variance extracted.

Source: compiled by author.

For discriminant validity, the criteria established by Fornell and Larcker (1981) were met, as the square roots of the AVEs were found to be greater than the relationships between the constructs located below the diagonal (see Table 4). It was thus determined that the instrument meets the requirements of discriminant validity.

TABLE 4. Discriminant validity

	MaxR(H)	AB_with_DFX	AA_without_DFX	AB_without_DFX	AA_with_DFX
AB_with_DFX	0.973	0.930			
AA_without_DFX	0.947	0.567	0.832		
AB_without_DFX	0.965	0.736	0.747	0.905	
AA_with_DFX	0.969	0.723	0.617	0.436	0.898

Source: created by author.

The CFA confirmed that the psychometric conditions of the scale used in this study are adequate. The criteria of reliability, convergent validity and discriminant validity have been met. All of the items were found to be suitable for measuring consumer attitudes (AA and AB) towards the advertising spots presented.

4.2 Hypothesis testing

To test H1 and H2, the Wilcoxon non-parametric test for related samples was used. The purpose of this test is to compare the difference between ranges of a group to which two measurements of a single variable are applied before and after a treatment (García, Gil & Rodríguez, 2000). This test is performed in cases of measurements before and after the insertion of a variable with a potential moderating effect, which can thus be tested. Under these conditions, the DFX variable was applied in two measurements of the AA and AB expressed by respondents.

TABLE 5. Wilcoxon non-parametric test

		N	Z	p	r [*]
	Negative ranges	80 ^(a)			
Attitude towards ad with DFX - Attitude towards ad without DFX	Positive ranges	205 ^(b)	-8.019	<.001	0.31
	Ties	61 ^(c)			
	Total	346			
	Negative ranges	48 ^(d)			
Attitude towards brand with DFX - Attitude towards brand without DFX	Positive ranges	150 ^(e)	-8.300	<.001	0.32
	Ties	148 ^(f)			
	Total	346			

^(a) Attitude towards ad with DFX < Attitude towards ad without DFX.

^(b) Attitude towards ad with DFX > Attitude towards ad without DFX.

^(c) Attitude towards ad with DFX = Attitude towards ad without DFX.

^(d) Attitude towards brand with DFX < Attitude towards brand without DFX.

^(e) Attitude towards brand with DFX > Attitude towards brand without DFX.

^(f) Attitude towards brand with DFX = Attitude towards brand without DFX.

^(*) Rosenthal correlation coefficient for effect size for ordinal data.

Source: compiled by author.

The differences between the first viewing (without DFX) and the second viewing (with DFX) were first calculated for AA. The results for the three categories of possible ranges were 80 negative (23%), 205 positive (59%) and 61 neutral (18%). Ranges with positive differences were significant, with 59% of cases

in which AA improved in the second measurement. This confirmed that attitudes towards the ad tended to be more positive with the presence of DFX. The Wilcoxon test result for AA was significant ($Z=-8.019$, $p<0.05$, $r=0.31$), where the value r represents the effect size using Rosenthal's formula (1991), which in this case is considered moderate according to Cohen's guidelines (1992). This means that affective responses to the ad with DFX tend to be greater than responses to the ad without DFX, with a significant difference between the two. Therefore, there is a greater probability that people will express more positive affective responses to the ad with DFX. This finding confirms H1, that AA is more positive towards ads with DFX than it is towards ads without DFX.

The differences between the first viewing (ad without DFX) and the second viewing (ad with DFX) were also calculated for the AB variable. The results in this case for the three categories of possible ranges were 48 negative (14%), 150 positive (43.3%) and 148 neutral (42.7%). The percentages for neutral and positive ranges were almost the same, suggesting a lower change in attitudes towards the brand compared to AA. The Wilcoxon test result for AB was significant ($Z=-8.300$, $p<0.05$, $r=0.32$), where the value r represents the effect size of the relationship, which is considered moderate according to Cohen's guidelines (1992). This means that affective responses to the brand with DFX tend to be greater than responses to the ad without DFX, and that the difference between the two is significant. Therefore, there is a greater probability that people will express more positive affective responses to the brand when the ad contains DFX. This finding confirms H2, that AB is more positive when ads contain DFX than when they do not.

To test H3, structural equation modelling (SEM) with EQS (6.1) was used, the results of which are shown in Table 6. The chi-square value and the CFI and RMSEA measurements were located within acceptable limits, confirming a satisfactory goodness of fit.

TABLE 6. Hypothesis Testing

Hypothesis			Standardised β	t value
H3a	AA W/O DFX	AB W/O DFX	0.747**	14.795
H3b	AA W/DFX	AB W/DFX	0.728**	16.113

Notes: χ^2 (206df) = 868.733, RMSEA (90% CI) = 0.097 (0.090, 0.103), CFI=.931, NNFI=.923. ** $p<.01$

Source: compiled by author.

It is important to note that the relationship between AA and AB was evaluated in both scenarios, i.e., when there were no DFX present in the ad and when such effects were present in the ad. In this way, it was possible to verify the validity of the theoretical model of affect transfer (Mitchell & Olson, 1981) with the confirmation of both hypothetical propositions, as AA was found to have a direct positive influence on AB irrespective of the presence of DFX. However, a slightly stronger relationship was observed when DFX were present. The causal relationship in the ad without effects ($t=14.795$, $\beta=0.747$) was slightly weaker than in the ad with effects ($t=16.113$, $t=0.728$), suggesting a stronger influence of AA on AB in the case of ads that contain DFX.

5. Discussion

The results of this research confirm that the inclusion of DFX in advertising spots can help elicit positive attitudes from consumers towards the products and brands being advertised. This corroborates the arguments of other authors in the field of audiovisual studies suggesting that DFX may have a positive influence on consumer attitudes (Qiao, Song & Wang, 2021; Berko, 2019; Martínez, 2018; Segura, 2017). These findings thus confirm the existence of a connection between consumer attitudes and the use of post-production digital technologies (Crego & García, 2014).

Under the conditions of this research, DFX have a significant moderating influence on consumers' AA and AB. It can therefore be concluded that DFX have a positive influence on both attitudes. Based on this finding, it is recommended that audiovisual producers give greater attention to the use of DFX as a strategy to meet their marketing objectives. Both audiovisual advertising producers and advertisers can benefit from the advantages offered by DFX to boost brand image and influence more easily quantifiable variables such as purchase intentions and sales.

The causal relationship analysis confirms the affect transfer from AA to AB. The relationship between these variables is evident regardless of the presence of DFX, although it is stronger when DFX are present. This proves that DFX have a moderating effect on the relationship between AA and AB, a finding in

consonance with previous studies that have demonstrated this relationship (Ugalde, 2014; Spears & Singh, 2004; Bigné & Sánchez, 2001; Lutz, MacKenzie & Belch, 1983; Mitchell & Olson, 1981).

6. Limitations and future lines of research

This research has been subject to certain limitations that bear similarities to those affecting other studies. As the sample used for the study was a convenience sample made up mainly of Spanish-speaking respondents, the information cannot be extrapolated to non-Spanish-speaking countries. It is therefore recommended that future studies take full advantage of the potential for worldwide coverage offered by online survey technology. Moreover, the product chosen for this experiment may have conditioned the results due to respondents' familiarity with it. Additional experiments comparing the effects of DFX in other ads for different products and services are therefore recommended.

The fact that the two ads were presented to respondents consecutively (without DFX, with DFX) might have resulted in the presence of a certain number of cumulative effects in their second evaluation, potentially skewing the accuracy and objectivity of their evaluation of the attitude elicited by the ad and brand, especially given that it is the same ad with the sole difference of the addition of DFX. To compensate for this limitation, future studies making similar presentations could include a balancing effect (between presenting an ad without DFX first and presenting an ad with DFX first).

As the experiment conducted lacked the neutrality offered by a control group, an effort was made to compensate for this by beginning with an ad without DFX to serve the role of neutral stimulus, i.e., that does not elicit any particular reaction in the viewer other than the logical evaluation of the item advertised, which has not been the object of study of this research. On the other hand, it is possible that the item in question (car boot organisers) was not so unfamiliar to the general public, and thus the relative familiarity that some participants had with the product may have conditioned their evaluative responses. Future research could include the development of similar studies while taking into account the participant's prior knowledge about the items advertised, segmenting the samples on this basis.

The relationship of DFX with consumer attitudes is currently being studied with greater precision using neuromarketing techniques. The application of these techniques requires the use of technologies like eye tracking devices and brainwave measurement equipment (EEG), which would also be useful for future studies.

Future research could also explore other elements that can be modified in advertising spots using digital technology, such as sound effects. Sound elements inserted into advertising are of special importance to the persuasion process, and digital editing tools include important functions for designing and modifying effects of this kind.

The main contribution of this study for business management is its confirmation of the power of DFX to enhance the communicative capacities of brands. Indeed, DFX constitute an efficient tool for influencing attitudes towards advertisements. Audiovisual producers can optimise the short space of time offered by advertising spots to explore the expressive capacity of each image, in an effort to influence viewers and turn them into consumers.

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9. Declaration of conflict of interests

The author declares that this research is not affected by any conflict of interests.

10. Responsible declaration of use of artificial intelligence

The author declares that no type of artificial intelligence has been used in this text. The only element recreated with AI is the image accompanying the dissemination of the text on social media. This image was created using Canva Premium.

11. Additional materials

The permanent URL for the database is:

https://docs.google.com/spreadsheets/d/1Avvb8RXU-2-hcivE9othRwF-Sw4MHHIX/edit?usp=drive_link&oid=110992306387672301601&rtpof=true&sd=true

The permanent URL for the questionnaire used is:

https://docs.google.com/spreadsheets/d/1GBHonSnAtBJTBVGU0MA4quhoCVSuf4jB1EJfsW0I6TI/edit?usp=drive_link

Additional URLs containing the audiovisual material used in this study:

- Ad without digital effects: <https://www.youtube.com/watch?v=wzCSd8leuBg>

- Ad with digital effects: <https://www.youtube.com/watch?v=NC5hxL0Zs4U>

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