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# Step right up and take a whiff! Does incorporating scents in film projection increase viewer enjoyment?

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**ABSTRACT**

Cinema has always sought to be an art of synthesis, not only by wedding art and science and integrating the aesthetic beauty of the other art forms, but also through attempting to involve all of the viewer's senses, not just the dominant ones of sight and hearing, in the artistic experience of motion pictures. Bearing witness to this are the previous century's myriad initiatives to transform the movies into a multisensory experience. Nonetheless, none of these proposals has managed to take hold and, for now, film is an art form enjoyed strictly in audiovisual terms. That said, given the context of ever-dwindling movie theater audiences, could the incorporation of the olfactory attract spectators once again? In this paper we employ an empathy and identification with characters (EIC) scale to analyze whether the incorporation of smells increases enjoyment in the viewing of an audiovisual production – in this case, the multisensory short film *Xmile* – by an experimental group (with scents) and a control group (without scents). The results indicate that with the incorporation of scents viewers' identify much more with the fictional characters and further enjoy the experience.

## Introduction: sensory art

Cinema faces several threats today. The greatest of all is the unstoppable success of streaming services such as Netflix, HBO or Amazon's Prime Video, which has grown alongside an increase in the quality of TV resolution, in many cases considerably superior to that found in a conventional movie theater. Lastly, declining attendance has been accompanied by unyielding increases in ticket prices (Augros 2018; Srour 2018).

All these factors are causing a situation that we could qualify as a true audience crisis in movie theaters. It is well-documented that theater attendance has held steady following the last five decades' decline. In the United States and Canada, since a record 1.5 billion tickets sold in 2003, sales have rarely topped 1.4 billion, and movies have seen a steady decrease in interest among younger viewers (Augros 2018). In India, the attendance rate has dropped from 3.79 in 2005 to 1.7 in 2015. In Spain, according to the country's General Media Study (*Estudio General de Medios* in Spanish), cinema penetration rates

have fallen from 11% in 2000 to 4.2% at the beginning of 2010. Since they have held steady but failed to climb above 4%, the level confirmed by this paper at the beginning of 2019.

In this context, perhaps, proposals to improve the quality of enjoyment of the experience in movie theaters through greater involvement of the viewer and a greater participation of all their senses, they could be an option to enhance added value to that experience and differentiate sufficiently that experience from consumption at home to once again attract audiences that have been leaving theaters in recent years. In fact, these multisensory experiences could be an incentive in three ways: first, they could bring back the old public; second, they could incorporate people with sensory disabilities into movie theaters, people who, until now, have been relegated from enjoying the cinema under normal conditions; and, finally, they could expand the aesthetic and creative possibilities of films, which would favor their competitiveness against other entertainment products such as YouTube or other social networks.

Cinema, in fact, has always wanted to be a sensory, multisensory art. In his 1911 *Manifesto of the Seven Arts*, Ricciotto Canudo proclaimed cinema to be the representation of 'our new modern spirit' and 'one of the fine arts' (Romaguera, Thevenet, and Ramiro 1989, 15–18). To Canudo, cinema was the 'art of synthesis,' because it was born of the fusion of machine and feeling. Moreover, the author confers upon cinema the title of 'the Seventh Art' as it fuses in its aesthetic essence the other six. Indeed, the idea has been revisited of late from the epistemological perspective known as the 'sensory turn,' which arose at the dawn of the 21st Century and now orients research in the theoretical field within the Arts and Humanities, in addition to the creation and exhibition of art itself.

Consequently, as a commercial spectacle, cinema, long with color and sound, cinema also tried to incorporate smell. From the very beginning, motion pictures have been imbued with aromas to simulate greater realism and lead viewers to identify more intensely with the story narrated during the screening. No filmmaker has conceived of cinema as a multisensory art of synthesis quite as much as Spanish director José Val del Omar: inventor, thinker and film director, rare and innovative both in terms of technique and creativity (González Manrique 2008: Barea and Del Carmen 2018; Sáenz de Buruaga and Val Del Omar 1992; Val Del Omar 2010). But unlike with sound, directors and major studios did not show the same aesthetic and narrative interest in the sense of smell, probably because technology was not advanced enough to create a system that allowed for the simultaneous incorporation during projection of the senses of smell, taste and touch in a realistic, effective and aesthetic way. Perhaps 21st century digital technology will finally invent and adapt the devices and systems that turn cinema into a multisensory spectacle and art, whether in movie theaters or home entertainment systems (Velasco, Tu, and Obrist 2018), something already being achieved in VR video games and audio-visual works (Olofsson et al. 2017)

In addition, recently, initiatives in research, as well as the production and politics of culture, art and media, have been guided by the ideas of the so-called 'sensory turn', which holds postmodern and other tenets pertaining to the creative spheres which gave rise to today's multisensory audiovisual and artistic culture and to social policies that aim to integrate people with disabilities or functional diversity.

Postmodern thought questions, deconstructs and breaks down the hegemonic standards of auditory and visual contemplation of artistic experiences as the sole path to aesthetic knowledge. It also shows the complexity and diversity in perception, cognition, technique, and creation inherent to artistic reality as a means to advocate for and integrate the issues and presence of the voices of minority groups and others who have been excluded from the social contract due to the ideological tenets of modernity.

The sensory turn, on one hand, allows for the creation of artistic pieces – sculpture, painting, etc. – and audiovisual works – stories told through film, video-art, etc. – in which the artist aims to integrate the five senses, thereby allowing the audience to experience the art and reality through multiple sensory channels. This multisensory art moves the audience's conscience, revealing to whoever beholds it that the experience takes shape through the fusion of all the senses. Moreover, it encourages reflection on the limits faced by people with functional diversity when experiencing art. This reflection, in turn, has led to social and cultural policies when it comes to creating, projecting, and exhibiting artistic works, fomenting greater awareness in artists, cinema managers and museum and art gallery directors.

Currently, then, it seems that the technological and social circumstances are conducive to making multisensoriality a viable option. Now, would these applications produce more enjoyment for the recipients? In other words, will the incorporation of multisensoriality provoke greater satisfaction in viewers? If this were the case, the multisensory pathway would be an option that producers should carefully explore.

To answer this question, in this article we will analyze whether the incorporation of multisensory resources provides greater media enjoyment through greater identification with the characters. We will do so by analyzing the results of a consumer experience of a short film that incorporated multisensory options, although we will focus especially on the incorporation of smells into the projection. As a theoretical framework, we will use the theories of media enjoyment and identification with the characters. For the practical application of the analyzed experience, we will start from the theories of taste and the domestication of technology. We believe that this research may be of interest to producers, creatives, social services, equality policies, etc., and that it has ethical, aesthetic, and economic implications that justify its conduct.

## Media enjoyment

Various studies have concluded that media enjoyment is a pleasurable response to media use (Raney 2003; Vorderer, Klimmt, and Ritterfeld 2004). Other researchers have considered it an emotional sensation (Vorderer, Klimmt, and Ritterfeld 2004), an attitude (Nabi and Krcmar 2004) and lastly, a combination of cognition and affect (Raney and Bryant 2002). More general studies consider it a non-specific, positive reaction to media content (Miron 2003). Media enjoyment has been analyzed and studied as a key process in experiencing media entertainment, despite the fact that its conceptualization and operationalization have been inconsistent (Igartua and Muñiz 2008; Vorderer, Klimmt, and Ritterfeld 2004).

Media enjoyment is measured as the satisfaction of three intrinsic needs related to psychological well-being, to wit, autonomy, competence, and affinity, and thus provides a convincing logic for proposing a link between psychological well-being and the

enjoyment of entertainment media (Deci and Ryan 2000). From this perspective, enjoyment is understood functionally as the satisfaction of intrinsic needs and is not specifically linked to pleasure-seeking (Tamborini et al. 2010).

As Tamborini et al. put it in 2010:

> *The notion of enjoyment as need satisfaction is not novel. Indeed, research on mood management (Zillmann & Bryant, 1996), disposition theory (Zillmann and Cantor 1996), uses and gratifications (U&G: Katz, Blumler, and Gurevitch 1974), and sensitivity theory (Reiss and Wiltz 2004) has either implicitly or explicitly defined enjoyment as such. In general, these approaches define enjoyment as a pleasurable response to entertainment media, but they do not offer a clear definition of the construct. Words such as enjoyment, appeal (Oliver and Sanders 2004), liking (Zillmann & Bryant, 1985), joy (Reiss and Wiltz 2004), and pleasure are all used to infer the same phenomenon. Although these concepts seem clearly distinguished as preference for and response to media exposure, scholars use the terms interchangeably.*

The term's complexity makes it difficult to theorize on the role of enjoyment in uses, as seen in studies on negatively valenced media (Tamborini et al. 2010) such as tragedy, suspense, mystery and horror (De Wied, Zillmann, and Ordman 1995; Zillmann and Bryant 1996). Viewers of such films found it pleasing to watch characters suffer and enjoyed the seemingly abhorrent content in a phenomenon described by many researchers as 'the tragedy paradox,' (Igartua and Muñiz 2008).

Nearly all the scientific literature on media entertainment views reception processes such as identification with characters, personal resonance, and cultural proximity as decisive and fundamental in explaining enjoyment of fictional stories (Cohen, 2006; De Wied, Zillmann, and Ordman 1995; Igartua and Páez; Larsen and László 1990).

## Personal resonance and identification with fictional characters

Personal resonance is one of the major intersections between fictional texts and their audiences, that is, personal memories about the reader's or viewer's life that arise as the story advances (Larsen and László 1990; Igartua and Muñiz 2008). Personal resonance is referenced in the scientific literature under various terms: *personal resonance* (Larsen and László 1990), *emotion memories* (Oatley 1995) and *referential reflection* (Liebes and Katz 1986). Personal resonance is not a generalized process, rather it depends on one's level of involvement with the story told (Igartua and Muñiz 2008). Researchers consider there to be two ways of receiving audiovisual fiction: an analytical, distant way and an affective-cognitive way with levels of involvement. The analytical way embraces a certain distance from the audiovisual discourse, in which the viewer feels involved neither with the characters nor with the plot but reflects upon the story told. In high-involvement reception, however, memory emotions or personal resonance emotions are activated (Oatley 1995), thereby bringing emotions and memories from the viewer's own life to surface. Moreover, resonance not only triggers specific memories in the viewer, rather it can also lead him or her to follow trails of thoughts that would not have arisen otherwise (Igartua and Muñiz 2008).

Personal resonance is positively associated with cultural proximity, as the viewer makes the audiovisual story his own and perceives it from his/her own point of view. Moreover, the story will feel closer to the viewer the closer it is to his/her culture.

Consequently, research has found crosscultural differences in reception and empathy in viewers of the same audiovisual fictional production (Sánchez Castillo and Fabbro de Nazábal 2014; Igartua and Páez 1997).

Identification with fictional characters is a common experience that narrative texts (whether written or audiovisual) are very likely to produce (Igartua and Muñiz 2008). Furthermore, the concept is cemented in psychoanalysis as a means of understanding how reception of literature or art comes about. Based on this psychoanalytical perspective, Zunzunegui in 1989 and Zillmann in 1995 identified a distinction between primary and secondary identification. Primary identification takes places in front of the camera. That is, the subject identifies himself as soon as he/she is on camera (Igartua and Muñiz, 2008). Secondary identification, meanwhile, happens *to* the characters in the viewed fictional work and can be transferred between characters by 'rotating in and out different *découpage* techniques (gradual selection of points of view), playing with scale sizes, angles and above all, the actors' line of sight,' (Zunzunegui 1989).

Defined as the affinity that viewers feel towards media personae, which in turns leads to an empathetic understanding of the feelings, motives or challenges experienced by the latter (Cohen, 2006), this identification can arise 'from several perspectives,' (Soto-Sanfiel, Aymerich-Franch, and Xavier Ribes 2010, 823), including that of a shared resemblance with the persona or because of the persona's physical appearance (Turner 1993), the gender- or class-based relationship between viewer and persona (Eyal and Rubin 2003), and from the persona's psychological characteristics (Hoffner and Cantor 1991).

Other researchers have established a relationship between identification with personae and the viewer's innate characteristics, such as age and personality (Turner 1993), the recipient's parasocial interaction (idem), enjoyment of fictional works (Igartua and Páez 1998; Igartua and Muñiz 2008), moral values (Sánchez Castillo 2012), impact on affect, and mood (Sánchez Castillo and Fabbro 2013; Sánchez Castillo 2015).

While reading a novel or watching a TV show or film, people often become so absorbed in the story that it seems they are experiencing intense altered states. From this it becomes clear that the empathetic reception that identification with main characters entails is one of the major ways of explaining the effects of media entertainment (Bryant and Zillmann 1991; Cohen, 2006; De Wied, Zillmann, and Ordman 1995; Hoffner 1996; Hoffner and Buchanan 2005; Igartua and Páez 1997, 1998, ; Igartua and Muñiz 2008; Oatley 1995; Zillmann 1991; Zillmann and Cantor 1977). Other authors consider identification with fictional characters a multidimensional construct that involves psychological processes such as emotional empathy (the ability to feel what the characters feel), cognitive empathy (putting oneself in the characters' shoes), the experience of becoming the character or losing one's self-awareness and individual attraction, that is, in what esteem viewers hold characters and how attractive the recipient considers them (Cohen, 2006; Hoffner and Cantor 1991; Igartua and Páez 1998; Konijn and Hoorn 2005; Oatley 1995).

Although this paper focuses mainly on identification with fictional characters, as a communication research process the subject lacks a trajectory long enough to provide clear data on behavior during fictional audiovisual entertainment (Cohen, 2006). Nonetheless, some ideas set forth by Igartua and Páez (1998) and Igartua and Muñiz (2008) have been somewhat conclusive. Studies on audiovisual reception have established

relationships among data so as to confirm that audiences are capable of developing admiration, fear, imitation, etc. of fictional characters, which in turn causes changes in their attitudes, values, aspirations or beliefs (Hoffner and Buchanan 2005).

## Theories of taste and the domestication of technology

The main theoretical basis on which we base our research in this case is that offered by the theories of taste and the domestication of technology (Thornton 2020), and especially the idea that the consumption and enjoyment of cultural products has starting from consumer satisfaction and that this satisfaction, in turn, has to do with the capacity that the products and technologies have to adapt the product itself to the sensory, cultural and sentimental conditions of said consumer. In particular, and for our case, these theories are complemented by the concept of 'design for all' or 'universal design'. And, more specifically, this idea of the domestication of technology, of adapting technology to the needs, possibilities and expectations of the consumer, in this specific case, we will also base ourselves on research on the incorporation of odors or aromas to artistic production in general and cinema in particular (Berker, Hartmann, and Punie 2005; Pett 2021; Shiner 2020; Sobitan and Vlachos 2020; Thornton 2020).

This paper's primary objective is to evaluate to what extent, if any, the incorporation of scents in movie theaters can increase enjoyment of a pastime (watching movies in traditional movie theaters) that, according to all available data, is threatened by new forms of cinematographic consumption. To that end, we analyze to what extent viewing a film that releases narration-related scents during screening leads to greater identification with the fictional characters and, therefore, greater media enjoyment among said film's potential viewers. To conduct our research, we propose the following research question and hypothesis:

$RQ_1$: Will the incorporation of scents influence enjoyment of audiovisual productions?

$H_1$: The incorporation of smells in an audiovisual production will produce greater viewer identification with the story's characters.

## Method

### *Procedure*

Our study is based on a survey of people who viewed the film *Xmile*, a short produced, directed and scripted by Miguel Ángel Font, a young director from Valencia. The short film incorporated subtitles so that deaf people could perfectly follow the dialogues, an audio description so that blind people knew what was happening at each moment, a fragrance setting that accompanied each sequence (by Olorama Technology, which allows any scent in liquid state to be synchronized with the film via Wi-Fi) and a taste and tactile experience (attendees could taste some of the cocktails that appeared in the projection and touch the dresses and some of the objects of the short film) so that the spectators could feel some of the sensations that experienced the characters in the film.

These screenings were organized by the director of the short film to publicize his aesthetic and creative proposal. The screenings were agreed with some cinemas, which held a 'special screening' of the short film or included this screening at some local film festivals. To the screenings, the director invited people from the local artistic world, who could invite other people, he contacted cultural associations and associations of people with disabilities of the Valencian Community, who could invite the people they wanted, and he also contacted people from the academic field of Valencian audiovisual communication.

The people who attended the screenings had general information about the multi-sensory proposal of the short film and they came with the expectation of living an original and interesting experience. People with a sensory disability came with the expectation of attending a screening prepared especially for them and with the predisposition to comment with the director about his feelings once the film was seen. But the viewers were not informed before or during the film that they would be asked to participate in a survey thereafter. We consider that these qualitative elements – a positive predisposition – did not affect each group in a distinctive way (people who attended screenings with and without smells; people with or without any sensory disability), so we do not think they are relevant for the results of the experiment.

The aforementioned survey was given to viewers as they exited theaters where the short was screened with scents (experimental group) and without (control group). The questionnaire was distributed to viewers of nine screenings of the film between December 2016 and October 2017, two of which included the use of Olorama technology. Researchers obtained a convenience sample consisting of 248 surveys, 130 of which had been completed by the experimental group (with scents) and 118 by the control (without scents). The average age of participants was 37.01 years (SD = 12.834, ranging from 13 to 88). The male to female ratio was 50:50. The modal age was 36 (21 men and 30 women).

### Instruments and variables

First, the questionnaire asked for sociodemographic (age and sex) and personal information. Then, the questionnaire measured the following variables:

1. *Identification with main characters*. This variable was evaluated using an EIC scale composed of 17 items to be answered on a Likert scale from 1 (not at all) to 5 (a great deal), offering a general indicator of identification with the leads in the fictional short. The scale takes the shape of a multidimensional concept built upon the following empathetic and psychological processes: a) cognitive empathy, defined as the ability to 'understand, comprehend or put oneself in the place of the main characters' (cognitive empathy here is related to the ability to adopt the character's point of view and follow the story from his or her perspective); b) emotional empathy, defined as 'feeling what the main characters feel, becoming emotionally involved through the characters or feeling worried about their problems,' (emotional empathy here is related to experiencing emotions stemming from what is happening to the characters); c) the ability to fantasize or imagine, defined as the subject's ability to 'anticipate the situations the fictional stories' characters would face and infer the consequences of their actions' and; d) becoming the character, defined as 'the sensation of feeling as if one were one of the characters

during the screening of the show or film,' (Igartua and Páez 1998, 424; Eron and Huesmann 1986; Hoffner and Cantor 1991; Huesmann, Lagerspetz, and Eron 1984; Tannenbaum and Gaer 1965; Zillmann and Cantor 1977). The scale items are listed in Table 1. As a measure of internal consistency, the 17 items had a Cronbach's alpha of 0.88.

2. *Personal resonance.* To determine the affinity viewers feel towards media personae and the potential activation of autobiographical memories (personal resonance), we measured two items on a one (not at all) to five (a great deal) Likert scale, to wit: a) 'While watching the movie I had images or visual sensations that made me remember past situations'; and b) 'While watching the movie I relived personal experiences from my past'. The internal consistency of these two items was 0.77.

3. *Cultural proximity.* We used two items on a one (not at all) to five (a great deal) Likert scale to measure subjects' appraisal of the film *Xmile* ('The film reflected culturally similar lifestyles or ways of life' and 'The film dealt with situations very close or similar to those I may come across in my daily life'.) The internal consistency of these two items was 0.79.

**Table 1.** EIC results by group. (Prepared by authors).

| EIC Scale | Group | Mean | SD | Z | p |
|---|---|---|---|---|---|
| I liked the main characters' way of being or acting | Exp. | 3.92 | 1.233 | −4.561 | 0.001 |
| | Control | 3.06 | 1.543 | | |
| I felt emotionally involved with the main characters' feelings | Exp | 3.89 | 1.253 | −4.838 | 0.001 |
| | Control | 3.00 | 1.502 | | |
| I felt like I was one of the main characters | Exp. | 3.90 | 1.244 | −3.776 | 0.001 |
| | Control | 3.23 | 1.476 | | |
| I imagined how I would act if I found myself in the same situation as one of the main characters | Exp. | 3.92 | 1.233 | −4.797 | 0.001 |
| | Control | 3.07 | 1.443 | | |
| I tried to carefully observe each of the main characters' actions | Exp. | 3.89 | 1.240 | −4.215 | 0.001 |
| | Control | 3.17 | 1.416 | | |
| It occurred to me that I looked like or resembled one of the main characters | Exp. | 3.89 | 1.240 | −4.725 | 0.001 |
| | Control | 3.08 | 1.397 | | |
| I felt worried because of what was happening to the main characters | Exp. | 3.88 | 1.251 | −6.249 | 0.001 |
| | Control | 2.73 | 1.430 | | |
| I understood the way the characters acted, thought or felt | Exp. | 3.92 | 1.233 | −3.761 | 0.001 |
| | Control | 3.40 | 2.239 | | |
| I myself experienced the main characters' emotional responses | Exp. | 3.87 | 1.266 | −3.549 | 0.001 |
| | Control | 3.23 | 1.510 | | |
| It occurred to me that I would like to resemble or act like the main characters | Exp. | 3.88 | 1.255 | −4.396 | 0.001 |
| | Control | 3.15 | 1.363 | | |
| I tried to imagine the feelings, thoughts and reactions of the main characters | Exp. | 3.89 | 1.240 | −4.229 | 0.001 |
| | Control | 3.14 | 1.434 | | |
| I felt like I was really living the main characters' story | Exp. | 3.87 | 1.248 | −3.797 | 0.001 |
| | Control | 3.22 | 1.409 | | |
| I understood the main characters' feelings and emotions | Exp. | 3.91 | 1.242 | −2.399 | 0.001 |
| | Control | 3.58 | 1.243 | | |
| I felt like I became part of the story | Exp. | 3.88 | 1.251 | −1.563 | 0.118 |
| | Control | 3.66 | 1.289 | | |
| I was able to anticipate what was going to happen to the main characters | Exp. | 3.89 | 1.240 | −2.825 | 0.001 |
| | Control | 3.44 | 1.368 | | |
| I tried to see things from the main characters' points of view | Exp. | 3.87 | 1.266 | −3.093 | 0.001 |
| | Control | 3.36 | 1.405 | | |
| I identified with the main characters | Exp. | 3.82 | 1.279 | −2.173 | 0.001 |
| | Control | 3.47 | 1.400 | | |
| Total mean | Exp. | 3.88 | | | |
| | Control | 3.32 | | | |

Experimental group (n= 130); Control group (n= 118)
Z= Kolomogorov-Smirnov Z

4. *Rating the movie*. Lastly, to test our hypothesis, we asked viewers their general opinion of the film. We asked users to what extent they agreed with the following statement, 'I liked the movie a great deal', on a Likert scale of one (not at all) to ten (a great deal).

## Results

First of all, we have detected that whether the film *Xmile* was screened with or without scents (dependent variables) had an impact on the scores viewers gave in terms of identification with the characters, the autobiographical memories that arose when seeing the characters on screen, cultural proximity and their overall ranking of the film (see Table 1).

Our variance and means analysis showed significant differences on the EIC scale between the experimental group (with scents) (M = 3.88; SD = 25.654) and the control group (without scents) (M = 3.32; SD = 18.655). The same came can be said for personal resonance (M = 8.99; SD = 1.378) and (M = 4.39; SD = 1.849), respectively. Cultural proximity received higher marks from the experimental group (M = 8.68; SD = 1.452) than from the control group (M = 5.42; SD = 1.614). Lastly, viewers in the experimental group gave the film a higher rating (M = 4.46; SD = . .978) than those in the control group (M = 3.08; SD = 1.051).

In answering $RQ_1$ with the data obtained, we can affirm that viewer enjoyment of *Xmile* largely depends on the use of certain scents that appear in the short and are released in the movie theater.

Using Student's T *t*-test for independent samples and Levene's *f*-test, we confirm that the variables *personal resonance, cultural proximity* and *overall ranking of the film* are not significant, which indicates that their variances are equivalent. These results allow us to conclude that these variables increase when scents are released during the film, with [t (246) = 10.710, p < 0.001] in personal resonance, [t (246) = 22.354, p < 0.001] in the film's overall rating and [t (246) = 16.747, p < 0.001] in cultural proximity. Nonetheless, Student's *t*-test returned a significant EIC, which indicates unequal variances and, therefore, a lack of homoscedasticity. Consequently, it was necessary to perform the nonparametric Mann-Whitney *U*-test and the Kolmogorov-Smirnov *Z*-test for two independent samples. These tests also confirmed that the EIC variable *identification with characters* showed a significant dependence on the *scents* variable (Graph 1). In other words, viewers who watched *Xmile* with scents showed greater empathy and felt the main characters' feelings more intensely [t (235.108) = 4.706, p < 0.001].

Although the EIC scale showed a high correlation for all the items in both the experimental and control groups, item 14 ('I felt like I became part of the story') yielded a non-significant result p < 0.118 (see Table 1).

In answering $H_1$, releasing smells during the screening of *Xmile* increased viewer identification with the fictional short's characters, allowing viewers to better understand and put themselves in the place of the main characters, as well as feel what the main characters feel, become emotionally involved and feel worried about the characters' problems.
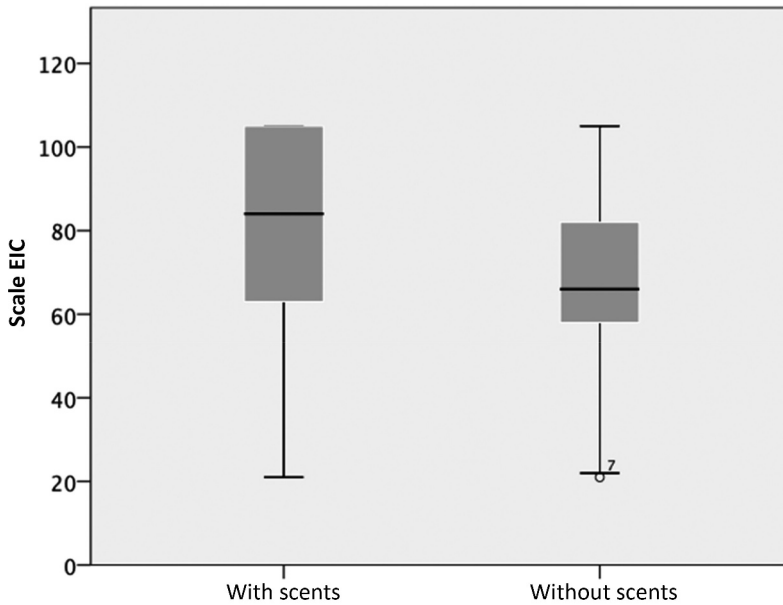
**Graph 1.** Box and whisker plot of EIC scale with and without scents.

## Discussion

Cinema, as an art, has always striven for aesthetic totality. No matter how crude its means of achieving this goal, it has always attempted to develop as a synthesis of all other art forms and sought to reach the viewer through each and every one of his or her senses. Not just through sight and sound, like the great audiovisual art of the modern age, but also through touch, taste and smell, in hopes of creating an enveloping haptic experience, whole in terms of aesthetics and life experiences.

This aspiration has had economic, aesthetic, and political causes or motives throughout the 20th and 21st centuries, on one hand because this multisensory integration has been considered an advantage in the search for audiences, and on the other because there have always been artistic, aesthetic attempts to transform cinema into a quasi-mystical experience. On top of that, democratic societies have largely taken up the challenge of including people with disabilities that limit them from fully experiencing the movies and, indeed, every other art form or cultural experience.

Nonetheless, this integrating ambition has always been studied in a piecemeal, sporadic fashion. As such, the integrating potential of each technical, aesthetic, or political initiative has been overlooked. Consequently, the few studies on these issues have borne little relationship among one another, to the extent that those studies focused on technical and economic aspects (Olofsson et al. 2017) and those focused strictly on aesthetic or political issues (González Manrique 2008; Barea and Del Carmen 2018; Sáenz de Buruaga and Val Del Omar 1992), have never addressed this question from a holistic, interdisciplinary perspective like that which we have tried to lay out in this paper.

Meanwhile, many studies have analyzed the elements and psychological and physiological process of the enjoyment of cultural products in general – and audiovisual products in particular – in addition to viewer identification with characters. Still, few

studies evaluate the potential of incorporating specific tools, for example, subtitles for deaf people, audio description for blind people or scents for the public, and their influence on the processes of enjoyment. This is despite the fact that these processes are fundamental in understanding these audiences' stagnant attendance rates, a phenomenon that has not only economic consequences, but also aesthetic and, of course, political ones, if we take art and culture to be a good which all people should have the right to access as members of a developed society.

Our analysis of the results allows us to conclude that the release of scents during the screening of *Xmile* is an important factor in explaining the aesthetic enjoyment thereof. The viewers identified more with the fictional characters when the film was accompanied by olfactory sensations. This use of the sense of smell enables the film to hit closer to home, as viewers internalize some of the fictional plot elements set forth in the short. There are also signs of an affective, cognitive mode of reception that is highly engaged by the olfactory sensations, triggering personal, emotional memories. We can also confirm a positive correlation between personal resonance and one's sense of cultural proximity with the film. These results are in keeping with those of other researchers (Cohen, 2006; De Wied, Zillmann, and Ordman 1995; Igartua and Páez ; Larsen and László 1990), who posit that personal resonance and cultural proximity may be decisive in explaining media enjoyment. This paper furthers that affirmation and includes olfactory initiatives as yet another component of the definition of media enjoyment.

Assuming this is only an exploratory study of smell as a potential trigger of emotion and an innovation that could change the cinematic experience in the contemporary context of film viewing, our results support the hypothesis that the incorporation of scents in film screenings can lead to greater movie theater attendance, but they also support the claim that cinema can achieve great enjoyment and aesthetics while exercising enormous potential to integrate people with disabilities. In this ambit, we have to accept that, in general, even in the most 'advanced' societies, the right of people with disability to the full enjoyment of culture is being met very slowly and even exceptionally. And that, of course, we are very far from the effective application of the idea of universal design, understood as defined by the Convention on the Rights of Persons with Disabilities: 'design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design' (UN (United Nations) 2006).

In other words, the projection with odors positively affects all audiences. This could justify the incorporation of these resources to audiovisual products to improve accessibility for people who have some degree of perceptual difficulty, being the great beneficiaries of this technology. However, our results indicate that, in any case, future film productions that are accompanied by smells in the theater during their projection can be considered useful and beneficial for the public, with or without disabilities. For this reason, this persuasive possibility should not be considered only from the point of view of social inclusion, but also in terms of the economic efficiency of audiovisual creation. In other words, it would be a good option for the so-called 'universal design': a form of production from which 'everyone', without exception, would benefit, without the need for alternative technologies that make people with disabilities 'special' or 'different' from the rest of the citizenry.

The local 'success' of *Xmile* as an innovative and inclusive proposal has convinced a Spanish production company, Digital Cine Media, to finance the first feature film by Miguel Ángel Font, entitled 'Swing, la vida de un secreto' ('Swing, the life of a secret'), which it has incorporated from the beginning of the production process subtitling for deaf people and audio description for blind people. And this, however modest it may seem, is already a great advance, because these accessibility options are usually incorporated later, once the film is finished. Surely, the incorporation of the smells will require a little more time and technological development. But the *Xmile* example shows that inclusive cinema is a real and potentially aesthetically and socially beneficial option.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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