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The impact of augmented reality for brand activation on consumer brand engagement: The role of gamification on entertainment events

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Master in Marketing

Supervisor:

PhD Márcia Herter, Marketing,
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Acknowledgements

I am truly grateful to have reached this final step in my academic journey. It could never be possible without the constant support, guidance and motivation of several people, besides my own determination and strength to keep going.

Firstly, I would like to express my deepest gratitude and appreciation to my supervisor, Dr Márcia Herter, to whom I am indebted. Her expertise, enormous patience, exceptional guidance and commitment to my academic growth, was crucial to successfully finish this dissertation. Professor Márcia was more than a supervisor, a mentor who not only encouraged but believed in me and my capabilities.

Besides my supervisor, my sincere gratitude goes to ISCTE institution, a place that felt like home for the past years and allowed me to grow, personally and academically.

Additionally, I would like to thank Immersiv, more concretely Maria Inês Rei Vilar. Her vote of confidence, commitment, constant guidance and quick feedback ensure my motivation to conclude this project. Besides, none of this dissertation would be possible without her remarkable experiences, used in the methodology of this project. With her knowledge of gamification and augmented reality, I was able to proceed with this study and rigorously evaluate each manipulation individually.

Moreover, I would like to thank professor Andreia Neves for her guidance, for all her last-minute calls and tutorings. For believing on this project even when several obstacles appeared. My deepest gratitude for her guidance and for never giving up on me and on this dissertation.

Finally, I would like to thank my parents and my brother, for constantly motivating me and never letting me give up, even when times became difficult. And to my best friends, specially: Carolina Simão, Carolina Coelho, Inês Barbosa, Inês Monteiro, Laura Videira, Margarida Frango and Vasco Carvalho. For celebrating my achievements, for sticking with me for long hours on coffees and libraries and for fulfilling the questionnaire of this project.

Resumo

Nas últimas décadas, a tecnologia tem evoluído cada vez mais, sendo responsável pela redefinição de diversas indústrias. Devido às inovações tecnológicas, surgiu uma nova era de experiências imersivas, alterando a forma como os consumidores se relacionam com as marcas. Desta forma, tornou-se necessário que as empresas consigam não só acompanhar como incorporar inovações tecnológicas nos seus negócios, como é o caso do mercado de eventos. A realidade aumentada tornou-se famosa por proporcionar experiências únicas e inovadoras. Para além da realidade aumentada, outra estratégia que tem influenciado os hábitos e atitudes do consumidor é a *gamification*. Assim, este estudo investiga um tema pouco explorado anteriormente, focando-se na exploração da relação entre os efeitos da aplicação de realidade aumentada numa ativação de marca e o *consumer brand engagement*.

De seguida, foi analisado se a *brand experience* pode ajudar a explicar a relação entre os efeitos da aplicação de realidade aumentada numa ativação de marca e o *consumer brand engagement*. Para além disso, foi estudado se a *gamification* de alguma forma poderia alterar a influência dos efeitos da aplicação de realidade aumentada numa ativação de marca e o *consumer brand engagement*.

Para a elaboração deste estudo, foi realizada uma experiência que consistia na exposição de 4 cenários distintos que incluíam ou não AR e/ou *gamification*. Foram objeto de investigação as respostas de cerca de 290 consumidores. Os resultados demonstraram que a adoção de realidade aumentada não tem um impacto significativo no *consumer brand engagement*. Quando os participantes foram expostos a elementos de *gamification*, foi notório que este também não alterou a influência entre uma ativação de marca e o *consumer brand engagement*. Para além disso, observou-se que a *brand experience* também não desempenhou um papel influenciador nesta relação. Ainda que os resultados tenham sido distintos da literatura, sugere-se que gestores de marcas e organizadores de eventos invistam na aprendizagem destes temas, visando uma possível mudança na relação *consumer brand engagement*.

Palavras-chave: realidade aumentada, ativação de marca, *gamification*, *brand experience*; *consumer brand engagement*.

Abstract

In recent decades, technology has evolved even more, being responsible for the redefinition of several industries. Due to technological innovations, a new era of immersive experiences has emerged, changing the way consumers interact with brands. In this way, it has become necessary for companies to be able not only to keep up but also to incorporate technological innovations into their business, as is the case of the events market. Augmented reality has become famous for providing unique and innovative experiences. Besides augmented reality, another strategy that has influenced consumer habits and attitudes is gamification. Thus, this study investigates a topic that has been little explored before, focusing on the exploration of the relationship between the effects of the application of augmented reality on brand activation and consumer brand engagement.

Afterwards, it was analysed whether brand experience can help explain the relationship between the effects of the application of augmented reality on a brand activation and consumer brand engagement. In addition, it was studied whether gamification could somehow change the influence of the effects of the application of augmented reality on brand activation and consumer brand engagement.

For the elaboration of this study, an experiment was carried out that consisted of the exposure of 4 different scenarios that included or not AR and/or gamification. The responses of about 290 consumers were investigated. The results showed that the adoption of augmented reality does not have a significant impact on consumer brand engagement.

When participants were exposed to gamification elements, it was noticeable that it also did not change the influence between brand activation and consumer brand engagement. In addition, it was observed that brand experience also did not play an influencing role in this relationship. Although the results were different from the literature, it is suggested that brand managers and event organizers invest in learning about these topics, aiming at a possible change in the consumer brand engagement relationship

Keywords: augmented reality, brand activation, gamification, brand experience; consumer-brand engagement

Table of Content

Acknowledgements	iii
Abstract	ii
Table of Content	iii
1. Introduction	1
1.1 Relevance of the topic	1
1.3 Research question	2
1.5 Research outline.....	3
2. Literature Review	4
2.1 Events and Brand Activations	4
2.1.1 Entertainment Events.....	8
2.1.2 Brand Activation.....	8
2.2 Augmented Reality	9
2.3 Consumer Brand Engagement.....	12
2.4 Brand Experience	14
2.5 Gamification.....	15
3. Methodology	18
3.1 Method and research approach	18
3.2 Study and data collection technique	19
3.3 Questionnaire and measurements	23
3.4 Sample and sampling.....	26
4. Results and Discussion.....	28
4.1 Demographic and analysis	28
4.2 Reliability tests	31
4.3 Manipulation check analysis	33
4.4 Hypothesis testing	34
4.4.1 Dependent variable analysis.....	34

4.4.2 Mediator variable analysis	35
4.4.3 Moderator variable analysis	36
5.1 Conclusion	37
5.2 Research contribution	38
5.3 Limitations and further research	39
References	41
Appendix A – Online final questionnaire.....	49
Appendix B.....	53
Appendix B1 - Constructs and items for the consumer brand engagement variable.....	53
Appendix B2 - Constructs and items for Brand Experience variable.....	55
Appendix B3 - Constructs and items for Gamification variable	56
Appendix B4 - Constructs and items for Augmented Reality variable.....	57
Appendix B5 - Constructs and items for gaming frequency in general variable	58
Appendix B6 - Constructs and items for augmented reality familiarity variable.....	59

List of Figures

Figure 1 The Sword of Damocles	10
Figure 2 Conceptual model.....	17
Figure 3 Data Triangulation	18
Figure 4 Brand Flyer: scenario of brand activation without AR and gamification absence	21
Figure 5 -Brand Quiz: scenario of brand activation without AR and gamification presence	21
Figure 6 - Brand Instagram filter: scenario of brand activation with AR and gamification absence	22
Figure 7- AR game on Instagram: scenario of brand activation with AR and gamification absence	22

List of tables

Table 1 Different Silvers'Event Management genre adapted by the author.....	5
Table 2 - Questionnaire variables	25
Table 3 - Gender demographics	28
Table 4 - Academic qualifications demographics	29
Table 5 - Occupation demographics	29
Table 6 - Nationality demographics	30
Table 7 - Sample characteristics.....	30

List of abbreviations and acronyms

AR – Augmented Reality

1. Introduction

1.1 Relevance of the topic

In the last few years, virtual reality (VR) and augmented reality (AR) have been attracting more attention due to their infinite applications across various industries (Handa, Aul, & Bajaj, 2012). Immersive technologies are changing the way people see and interact with the world, having a significant impact in several areas, from healthcare to movies and even brand activations (Lee, 2012). While VR offers a higher level of immersion and is thus used when full immersion is required, such as in gaming, simulations and virtual training (Floridi, 2009) AR are softwares that have been gaining more and more attention, especially in the fields of technology and marketing (Philipp A. Rauschnabela, Felix, & Hinsch, 2019). Augmented reality, particularly, has the ability to incorporate virtual elements in a real environment, through the usage of small devices like mobile phones or more expensive devices such as headsets ((Handa, Aul, & Bajaj, 2012)).

Recently, AR has appeared in the field of events and brand activations, not only as a means of entertaining but as a way of impacting and engaging with the audience. This technology enables brands to capture consumers' attention and offer meaningful experiences, generating a better relationship for both parties: consumers and brands (Linaza, Cobos, Mentxaka, Campos, & Peñalba, 2007). By incorporating this technology in a brand activation, companies can make a positive impression on their target market, develop an emotional connection, and differentiate themselves in a market environment that is becoming more competitive. They are offering people a technological experience that is not common nor easy to reach in people's daily lives (Kumar, Tuli, Singh, Arya, & Srivastava, 2023).

Furthermore, gamification plays a crucial role at events given it is a tool that is proven to increase user involvement with event content and increase user engagement (Sisson & Whalen, 2021). Even though there is little research that allows to understand how gamification and a brand experience affect entertainment events that resort to AR (Krath, Schürmann, & Korflesch, 2021) the combination of these tools would revolutionize the marketing strategies developed by companies (Krath, Schürmann, & Korflesch, 2021). This strategy would highlight the importance of creativity and innovation in building lasting relationships between brands and consumers.

1.2 Research purpose and problem statement

Everyday brands are trying to take a more active part when it comes to generating a connection and reaching their target audience (Altschwager, 2015). An effective approach to attain this is to deliver meaningful experiences, with the help of experiential marketing (Campillo-Alhama & Herrero-Ruiz, 2015). Consumers need experiences to establish connections with businesses and experiential marketing is one way to do this (Campillo-Alhama & Herrero-Ruiz, 2015).

Events have become an interesting tool when it comes to generating such connections, given that through the brand experience, they enable a close connection between both parties – brands and its consumers (Altschwager, 2015). Brands are continuously investing in events, since managers understand that in-person events are a powerful tool for spreading awareness and convincing consumers to buy products and services (Ekici & Toksoz, 2021). Existing literature reflects the constant growth and investment of events market, expecting to reach \$123.9 billion by 2030 (Dinesh & Roshan, 2022). On the other hand, gamification, which regards the incorporation of gaming elements to non-gaming contexts (Caponetto, Earp, & Ott, 2014) has proven to elicit positive feelings and engaging the audience, translating into increasing the value of events (Sokhanych, 2018).

Literature exploring AR for brand activations is limited, while it has not explored the incorporation of gamification (Krath, Schürmann, & Korflesch, 2021). Thus, its impact on consumer brand engagement has not yet been fully investigated, reflecting an existing research gap. The purpose of this research is to quantitatively analyse how brand activation that uses augmented reality and gamification can modify consumer brand engagement. This study aims to provide insights to marketers, business directors, and event managers on how to leverage these strategies effectively, contributing to impactful marketing experiences.

1.3 Research question

In accordance with the context mentioned above, the following research question has been formulated:

RQ: Can Augmented Reality be used in a brand activation on entertainment events to influence consumer brand engagement?

1.4 Research objectives

The main goal of this dissertation is to study the impact of a brand activation that resorts to augmented reality on consumer brand engagement, in a context of entertainment events. Moreover, the following specific objectives have been developed:

- 1) Examine if brand experience can explain the influence of a brand activation that uses augmented reality on consumer brand engagement;
- 2) Verify how incorporating gamification on a brand activation that resorts to augmented reality on entertainment events can affect the consumer brand engagement.

1.5 Research outline

Regarding the structure of this dissertation, it includes five chapters. The first chapter introduces the impact of augmented reality for brand activations on consumer brand engagement, incorporating gamification in a context of entertainment events. It refers to the research problem and relevance of the study, includes the research purpose, objectives, and overall structure. The second chapter concerns the literature review which is organized into six sections. Each section describes relevant frameworks, theories and knowledge in regard to topics such as events, brand activations, augmented reality, gamification, brand experience and consumer brand engagement. The third chapter presents in detail the methodology used in this study, as well as information on the data collection, measurements and scales, and data analysis. The fourth chapter provides the presentation, analysis, and discussion of results by testing the proposed hypothesis. Finally, in the fifth chapter, the final conclusions are developed, highlighting its findings, as well the limitations and recommendations for future development.

2. Literature Review

2.1 Events and Brand Activations

Throughout the years, the concept of an event has changed, in order to adapt to the needs and preferences of organizers. The Chambers Dictionary (1998, p.560) defines an event as: “anything that occurs; consequence; any incident or occurrence, especially one that is noteworthy; potential or probability of occurring”. Armstrong and Kotler (2003, p.373) define events as: “occurrences that are planned and transmit messages to their target audience, distinguishing between non personal and personal communication channels. As such, events can be considered non personal communication channels since they directly affect the buyers, such as shows, exhibitions, excursions, etc”. For this study, let us consider that an event can be described as a group of people that gets together with a specific purpose. In terms of communication, an event main objective is to share a message in favourable conditions, in the right moment. As so, an event can be said to be a language and a tool for communication (Marist, Yuliati, & Najib, 2014)

Due to the development of visual technology and quick communication, there have been some important developments in event management during the past few decades (Getz, 2007). Governments are funding and publicizing events more frequently as part of their strategies for boosting tourism, the economy, and nation-building. Events are crucial components of marketing strategies and campaigns aimed at enhancing a company's reputation for businesses and corporations (Gupta, 2003).

As mentioned by Isidoro et al. (2013) and Vieira (2015), there have been an increasing number of events in Portugal (Visualsynk, 2022). Portugal has attracted attention from throughout the world as a result of its enterprises inventing and creating events, from entertainment to corporate events (Visualsynk, 2022). In addition, the country has the capacity to produce one-of-a-kind events and have a huge impact on enterprises, industries, and people, making their industry more appealing and competitive (Visualsynk, 2022).

Events can have magnificent impacts on people's lives, whether we talk from consumers or business perspectives. Firstly, events provide a sense of community and are a platform that enables the development of social bonding and fosters brand consumer relationships/engagement (Mair & Smith, 2021). They provide unique moments for confraternization, and research demonstrates that in comparison to their less successful counterparts, successful

managers invest 70% more time in networking and networking of people within the same industry (Collude, 2019). Secondly, events are powerful platforms that offer innovative and creative knowledge in different fields, being it workshops, ted talks, industry experts sharing insights, etc (Mair & Smith, 2021). Furthermore, events are an excellent means for brands and companies to showcase their products, demonstrate their services or simply invest on brand exposure. By doing so, companies will be improving their brand engagement, brand recognition and customer acquisition which hopefully translates into sales (Mair & Smith, 2021). On the other hand, events face some challenges. The main issue would be the demanding expectations and the budget constraints set by clients that make it difficult for event planners to be able to combine these variables and put it into practice (Gordon-Bennett, 2022) Besides, with the constant evolution of technology, data privacy and law regulation plays a big role. Event planners need to ensure they are updated and work according to all the rules to ensure attendees' privacy (Gordon-Bennett, 2022).

Given the diversity of experiences event planners may be able to offer to participants, events differ in nature according to several criteria. (Getz, 1997;Duarte, Folgado-Fernández, & Hernández-Mogollón, 2018), reflects that events can be defined taking into account the number of tourists attracted as well as economic benefits. Local events are stated as “Which make up the pyramid's foundation and stand out by being unique or recurring events of little value and minimal tourist demand (Getz & Page, 2015); “They might be recurring or one- time, and their economic worth and visitor demand are average (Getz & Page, 2015) refers to regional events; periodicals hallmark events ``are distinguished by a strong tourist demand and are valued highly (Getz & Page, 2015) and mega events occasionally “have the potential to gather a larger audience and, as a result, to provide more economic benefits. They are distinguished by a high demand from tourists (Getz,2008) Additionally, (Getz, Event tourism: Definition, evolution, and research, 2008) has a different perspective of analysing and grouping the types of events, according to their nature. Cultural events regard carnivals, festivals, commemorations, religious events; Educational/Scientific events are conferences, seminars, formation sessions; Private events are weddings, parties, meetings; political events are summits, special occasions, VIP’s visits; business events are meetings, conventions, fairs, exhibitions; artistic and entertainment events are concerts, awards ceremonies, sports competitions, recreative activities. (Silvers, 2004) categorize the events business into a list of ten genres (please see Table 1).

Table 1 Different Silvers’Event Management genre adapted by the author

Genre	Description
Business & Corporate events	Any event that supports business objectives, including management functions, corporate communications, training, marketing, incentives, employee relations and customer relations, scheduled alone or in conjunction with other events.
Cause-Related & Fundraising Events	An event created by or for a charitable or cause-related group for the purpose of attracting revenue, support, and/or awareness, scheduled alone or in conjunction with other events.
Exhibitions, Expositions & Fairs	An event bringing buyers and sellers and interested persons together to view and/or sell products, services, and other resources to a specific industry or the general public, scheduled alone or in conjunction with other events.
Entertainment & Leisure Events	A one-time or periodic, free or ticketed performance or exhibition event created for entertainment purposes, scheduled alone or in conjunction with other events.
Festivals	A cultural celebration, either secular or religious, created by and/or for the public, scheduled alone or in conjunction with other events. (Many festivals include bringing buyer and seller together in a festive atmosphere.)
Governement & Civic Events	An event comprised of or created by or for political parties, communities, or municipal or national government entities, scheduled alone or in conjunction with other events.
Marketing Events	A commerce-oriented event to facilitate bringing buyer and seller together or to create awareness of a commercial product or service, scheduled alone or in conjunction with other events.

Meeting & Convention Events	The assembly of people for the purpose of exchanging information, debate or discussion, consensus or decisions, education, and relationship building, scheduled alone or in conjunction with other events.
Social/Life-Cycle Events	A private event, by invitation only, celebrating or commemorating a cultural, religious, communal, societal, or life-cycle occasion, scheduled alone or in conjunction with other events.
Sports Events	A spectator or participatory event involving recreational or competitive sport activities, scheduled alone or in conjunction with other events.

As to what considers the typology of events, given its extensive citation by numerous authors, the distribution proposed by Getz (2008) appears to be the one that garners the most support (Barradas, 2021). Getz and Page (2016) have reviewed this typology and presented the following four main types of planned events: business, cultural, sports, and entertainment. Business events include meetings, political and governmental gatherings, conventions, fairs and exhibitions, among others (Getz & Page, 2016). For instance, hotels, resorts, and convention centers host them. Cultural events and festivals refer to celebrations, parades, religious gatherings, art exhibitions, and installations are included (Getz and Page, 2016). Encompass areas intended for celebrations, art centers, museums, and galleries. Sports events: include professional sporting league events as well as tournaments and recreational events (Getz and Page, 2016). Finally, entertainment events consist of street acts, concerts, and ecstatic displays. These events take place in areas designated for concerts, theaters, parks, streets, and other locations specifically open to the open air (Getz and Page, 2016). The focus of this dissertation is entertainment events.

2.1.1 Entertainment Events

It might be challenging to describe entertainment events since there are several definitions. However, this dissertation considers Getz and Page's (2016) definition and classification. Getz (2008, as cited in Pesch, 2008) stated that entertainment and leisure events are focused on creating entertainment moments that might happen alone or may be included/scheduled in concordance with other events. Affective-based attitudes are elicited from participants in entertainment events once they foster emotional connections, whereas cognitive attitude development is elicited from participants in educational events because they convey significant amounts of information (Gonçalves, 2014). This is why entertainment events are generally given such importance (Gonçalves, 2014).

Events that are emotionally impactful, such as entertainment events, satisfy the experience need for sensory stimulation. At a marketing event, guests are more receptive to the information, messages, or images provided (Scheinbaum, Finney, Lacey, & Sneath, 2006). Recently, the number of entertainment events has increased dramatically, since the pandemic is over, counting with music events receiving the most attention (Alda, 2023). The fact that, up to 2021, the biggest segment of events were music and festivals, is indicative of this increase (The Insight partners, 2023). Festivals deserve special attention because they are now the most widely used type of entertainment, with music festivals acting as evidence as their popularity has lately increased (Leenders, Telgen, Gemser, & Wurff, 2011)

2.1.2 Brand Activation

The American Marketing Association (AMA) defines a brand as “name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers”. Kapferer (2008) argues that a brand influences buyers and only becomes a brand when it touches mental associations and emotional connections with the customer. One way of doing so is resorting to brand activation.

A brand activation can be considered a marketing relationship that was developed with consumers, having its main purpose to offer a better understanding of the brand as well as attempting to incorporate brand values in people's lives (Saeed, Zameer, Tufail, & Ahmad, 2015, p.4). Interaction and customer experience are key components of brand activation that

were improved by the emergence of the internet (McKay et al., 2016; Rosen & Minsky, 2016).

Creative marketing strategies are developed through brand activation, promoting unique and niche ideas to provide value to consumers' daily lives and strengthen consumer engagement with the brand (Pratas & Brito, 2019). Normally, brand activations are often related to events, since they offer memorable brand experiences to customers (Dutra, 2021). Creativity is key to the activation of a brand, using various communication techniques and channels to ensure the consumer becomes aware of the brand (Dutra, 2021). According to Cordeiro (2015), a successful brand activation is achieved when a few of the following are noted: Generating engagement with the public; Getting the audience to interact with the brand, and leaving a lasting impression on the consumer so they remember the experience; Increasing proximity to the brand and the customer; Transforming a brand into something the consumer can connect with; Offering a unique experience that changes the consumer's life; and Transmitting the brand's values.

Brand activation promotes consumer interaction and relationship building, which will lead to an increase of brand value and awareness, resulting in boosting sales and loyalty (Gendron, 2017). Public relations, digital advertising, product sampling, experiential marketing, and shopper marketing are a few examples of successful brand activation strategies (Gendron, 2017). Gralheiro (2015) studied the importance and advantages of incorporating brand activations in events. Most of the surveyed of his study agreed on events becoming increasingly important in brand communication. In addition, many of the query's feedback made it clear that one of the best ways to activate a brand is through incorporating technology in events (Gralheiro, 2015).

2.2 Augmented Reality

Over the last decade, virtual and augmented reality have been receiving more attention from the perspective of the common public and investors (Cipresso, Giglioli, Raya, & Riva, 2018). On top of this, a lot of misunderstanding to the concepts of virtual and augmented reality arose (Gigante, 1993). Until the 70s, both terms were very identic, even though virtual reality appeared first when Ivan Sutherland tried to define it as "a window through which a user perceives the virtual world as if looked, felt, sounded real and in which the user could act realistically" (Cipresso, Giglioli, Raya, & Riva, 2018). Besides, a cinematographer Morton Heilig

also referred to this technology when attempting to describe cinema, adding it was a form of entertainment that effectively engaged all five senses to draw the audience into the action, taking place on screen (Carmigniani & Furht, 2011). So, it can be said Heilig and Sutherland were considered pioneers in the immersive reality fields. Thanks to their efforts on the creations of Sensorama (a prototype of the first immersive and multisensorial technology) and the Sword of Damocles, the first augmented reality system using a head-mounted display (Carmigniani & Furht, 2011), nowadays, people are able to have access to these technologies without leaving their houses. At the present time, accessing augmented reality is as easy as putting on an Instagram filter, in contrast of needing to put on a specific device on your head (FIGURE 1).

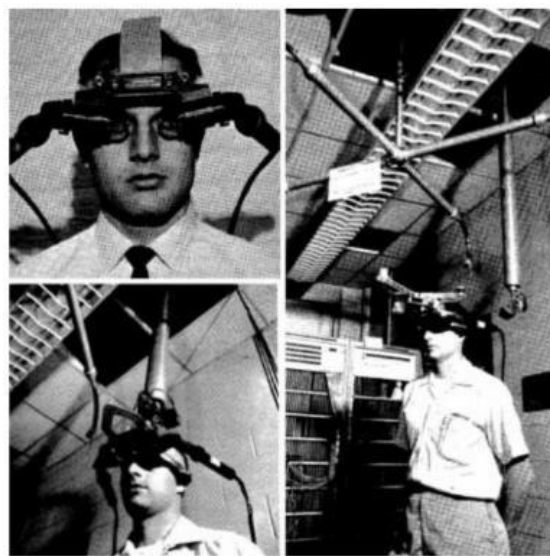


Figure 1 The Sword of Damocles

Note: elaborated by the author, 2023

In order to have a clear understanding on what augmented reality is, it's necessary to analyse the differences and similarities between both topics. Virtual reality refers to a computer generated simulation of images or environment with which a person can interact, through the usage of adequate and specialized equipment, such as a helmet that contains a screen or some sensory gloves (Freina & Ott, 2015). In contrast, augmented reality consists of an interactive experience in which there are objects and other (virtual) information that are overlaid/augmented in a real environment. A person can interact in real time with the virtual information (Al-Imamy, 2018).

The scope of augmented reality encompasses several categories. The two main types can be distinguished between marker based and marker less augmented reality (Edwards-Stewart, Reger, & Hoyt, 2016). For augmented reality to present correct information of the real world, the system needs to know the exact position of its user and where the user is looking at (Edwards-Stewart, Reger, & Hoyt, 2016). In marker-based systems, there is a marker, which are images or signs that the computer system can recognize. After recognizing these signs, it can clearly define the adequate scale and position of the camera, being able to perform the augmentation (Siltanen, 2012). Commonly, there are situations when it is impossible to resort to markers, which implies the need for another kind of augmented reality, the marker less (Brito & Stoyanova, 2018). This system does not require any marker, being able to recognize the images on the application in real time. It can simply detect the image and augment it, there is no need for pre-knowledge in regard to the user or the environment (Brito & Stoyanova, 2018). Markerless systems can furthermore subdivide into Super Imposition AR, Location Based AR, Projection Based AR and Outlining AR (Esther, 2015).

Now, more than ever, augmented reality applications are responsible for most of the growth in the virtual reality market, being used in several fields such as: tourism, entertainment, education, real estate, transportation, museums, and automotive (Mekni & Lemieux, 2014). This growth in part is due to Unity, a low code platform that empowers several independent coders to create and develop 3D objects on the web (Haas, 2014). Among several successful industries, one of the most impactful is the entertainment market. A great example of a successful entertainment augmented reality application is Pokemon Go, a game that stimulates the senses of a person by allowing the user to visualize a virtual avatar in the real world by scanning with an electronic device whatever is around you (Marques, 2021). Besides the application offering engaging content and high-quality graphics, it combined with music (sound), which promotes game immersion, stimulating some of the senses. If all entertainment applications offered this to consumers, brands would be able to give users a realistic experience (Marques, 2021). On another hand, a great example of AR in retail is the IKEA Place mobile app, where users can place 3D models of various virtual objects, including couches, candelabras, and other furniture, in their own homes (Marques, 2021). Thus, consumers can learn about and/or experiment with a product before purchasing it, then use it in their own home. Due to the company's ability to display a variety of products with accurate dimensions, this marketing and sales strategy was successful. As a result, this technology attracts more clients, which improves their capacity for online sales (Marques, 2021).

As it can be seen, the use of augmented reality systems is affecting how people perceive the world (Bonsor, 2011 as cited in Ribeiro, 2012), given that the barrier dividing the real and the virtual is getting thinner. As such, it is important to engage and stimulate the audience in a distinctive, realistic experience that adds something new to reality such as the senses of smell, touch, sight, and hearing (Ribeiro, 2012). The level of presence felt by a consumer is directly influenced by the engagement of the senses and the amount of control the user has over the experience (Ahn et al., 2016; Hilken et al., 2017; Steuer, 1992). Given augmented reality systems can stimulate and empower sensory and cognitive engagement, consumers and viewers will be elicited with strong positive feelings towards this experience (Kim & Biocca, 1997; Lombard & Ditton, 1997; Mollen & Wilson, 2010; Schubert, 2009). Consequently, marketers can take advantage of these technologies in order to increase engagement and click through, elicit positive brand attitudes, and stimulate purchase intentions (Grudzewski, Awdziej, Mazurek, & Piotrowska, 2018; Van Kerrebroeck, Brengman, & Willems, 2017). Given that the events industry is still a relatively new reality, it is becoming increasingly important to take advantage of its potential influence on participants' experiences and overall event success.

2.3 Consumer Brand Engagement

The term engagement has been extensively studied in social sciences over the past 20 years, including the philosophy, psychology, sociology, and political field (Brodie et al., 2011; Hollebeek, 2011a; One of the primary characteristics of engagement, distinguishing it from involvement or participation, is the emphasis on interaction (Altschwager et al., 2013). Moreover, satisfaction, trust, affective commitment, loyalty, and other relationship constructs are all directly and favourably correlated with engagement (Gummerus et al., 2012). Each of these factors has been linked and proven an increase in the level of engagement of consumers, leading to an enhancement of brand loyalty and/or purchase intention (Altschwager et al., 2013). The idea of engagement has been stated by Hollebeek et al. (2014, p. 150) as offering “improved predictive and explanatory power of focal consumer behavior outcomes, including brand loyalty”.

Consumer brand engagement is a multidimensional construct that focuses on how certain levels of cognitive, emotional, and behavioural activities can lead to beneficial business outcomes, such as purchase intention, brand loyalty, and brand commitment (Cheung et al.,

2021). Plé, Lecocq & Angot (2010) and Van Doorn, Lemon, Mittal, Nass, Pick, Pirner & Verhoef (2010) studied two important factors that influence consumer brand engagement: consumer motivation and company's efforts to involve consumers. While the first one is mainly an external factor, characterized by personal traits, being difficult for a brand to manipulate it, company's efforts to involve consumers is highly connected to the delivery of brand experiences among several touchpoints (Kuvykaitea & Piligrimiene, 2014).

By providing a highly interactive and meaningful experience on a store, on the website of the brand or even at a presential event, consumer engagement will be generated. Consequently, the brand will elicit emotional, functional, and social values, creating positive associations to them leading to an improvement of the consumer brand relationship (Kuvykaitea & Piligrimiene, 2014)

In an overcrowded world, full of brands and companies continuously attempting to differentiate themselves and retain the best and most consumers, it is common to arise some challenges in regard to the consumer engagement. Lack of creativity, poor personalization and disconnected customer journeys are three factors responsible for this issue (Theorem, 2021). In an era where experiences and stimuli play a crucial role, leaving a "footprint" on people's minds, experiential marketing arises as a means of substituting traditional marketing (Scmitt & Zarantonello, 2013). Traditional marketing was important and has provided several strategies and methodologies for industrial ages. However, experiential marketing has proven to create brand awareness, as more than 50% of respondents believe that presential events improves their understanding of a brand's products and services (Major, 2022). Besides, it connects brands more deeply with consumers and cultivates a positive brand image. As such, experiential marketing is something that can be used to foster consumer brand engagement, fulfilling this gap.

Once Augmented reality provides an engaging experience for participants and increases their level of engagement, whether it is an app or a physical event, it is presented the first hypothesis:

H1: Brand activations that resort to AR (versus non-AR brand activations) in entertainment events will increase consumer brand engagement.

2.4 Brand Experience

According to Brakus, Schmitt, & Zarantonello (2009), sensations, emotions, thoughts and behavioural responses generated by brand-related stimuli, that are a component of brand design and identity, packaging, communications, and environments are what is meant by the term brand experience. Brakus et al (2009) proposed that brand experience is derived into four dimensions: sensory, emotional, physical, and intellectual. The sensory (as in multisensory) dimension refers to the sensory component of brand experience includes consumer encounters that engage or stimulate all five senses of the human body—smell, touch, vision, taste, and hearing); The emotional (passion) dimension comprehends the affective component of brand experience focuses on the feelings and emotions that the brand evokes within consumers; The physical (action) dimension relates to changing a customer's way of life through creative experiences is a behavioural experience; and, finally, the intellectual (cognitive) dimension considers invoking customers' creativity and process through various brand experiences constitutes intellectual experience. Brakus et al. (2009, as cited in Merrilees, 2016) uses well-known brands that represent a dominant factor to illustrate their dimensions, including Victoria's Secret as Sensory; Disney as Emotional; LEGO as intellectual; and Puma as physical.

Moreover, in the events industry, some marketing initiatives that aim to improve brand experience include event marketing, consumer incentive programs, product launches, open days, conferences, competitions, exhibitions, corporate entertainment, charity fundraisers, trade shows, and product visitor attractions (Zarantonello & Schmitt, 2013; Wood, 2009). Thanks to these initiatives, the perceived company's image and brand attitude may be enhanced by offering behavioural experiences, which promotes customers' willingness to deepen their connection to the brand (Xie et al., 2017; Ahn & Back, 2018; Zarantonello & Schmitt, 2010).

Consumers prefer sensory and emotional experiences over functional benefits or attributes (Hirschmann & Holbrook, 1992). In order to stick to consumers' minds, these moments need to be enjoyable and memorable (Beig & Nika, 2021). For instance, consumers' sensory experiences influence their cognitive, affective, and activation reactions to brands, which results in increased brand engagement (Hepola et al., 2017). In addition, positive brand experiences increase consumers' psychological states, such as consumers' identification and emotional attachment with the brands, which leads to consumers' engagement on different brand channels (Paramita et al., 2021).

Given that sensory brand experiences can create brand associations (Hepola et al., 2017), several marketing research reflect that consumers are now investing and purchasing experiences rather than actual goods and services (Morrison & Crane, 2007). Augmented reality, by stimulating participants' senses, elicits positive feelings on consumers, increasing their level of involvement with the brand (Mittal, Minto, & Gupta, 2021). Being part of such a unique and memorable brand experience, (facilitated by augmented reality) contributes for an enhancement of consumer brand relationship and engagement. Consequently, it is possible to propose:

H2: Brand experience mediates the relationship between a brand activation that resorts to AR (versus non AR brand activation) in entertainment events and consumer brand engagement.

2.5 Gamification

Consumers are frequently targeted by various brand communications, advertisements, and sponsored promotions in the modern world in an effort to capture their attention and win their allegiance (Muravskaia, 2020). Consequently, businesses must work harder to stand out, grab customers' attention, and engage them. Gamification has swiftly become a successful strategy because of its favourable behavioural shifting effect and growing interest in the game business from people of all demographics (Forbes, 2019).

Although there are many definitions of gamification, most of them have similar ideas. It is important to reflect on a few gamification concepts to have a deeper understanding of the topic. Gamification, according to (Gartner, 2023) is the use of game mechanics and experience design to inspire and engage users online. Huotari & Hamari(2012) referred to gamification as the process of incorporating game elements into a service to make it more engaging and increase client retention. As mentioned by Zichermann and Linder (2010), gamification is a strategy of incorporating gaming elements that results in captivating people and offering solutions. Even though there are several ideas, opinions and ways of defining a single concept, it can be understood that gamification is a strategy that involves participants interacting with computers, smartphones, wearable monitors, or other digital devices rather than with real-world objects (Andreev, 2023).

The purpose of gamification is to incentivize people to modify behaviours and improve abilities, or to stimulate creativity (Welbers, et al., 2019). According to Berger, Schlager,

Sprott, & Herrmann (2018) gamified interactions need to be both interactive and challenging to be successful.

Gamification strategies can be used in several fields and in any stage of the consumer behaviour process (Guittard, Burger-Helmchen, & Schenk, 2015). Many firms resort to gamification as a marketing practice by implementing it on their websites or e-commerce applications with the aim of encouraging consumers to buy their products/services (Högberg et al., 2019). Tourism companies, like Lufthansa, have created online games that enable participants to view and experience some destinations (Kiryakova, Angelova, & Lina, 2014). In hospitality, “advergames” are also used for creating awareness and publicity of hotels and destinations around the world, creating the desire on tourists minds, incentivizing them to travel (Kiryakova, Angelova, & Lina, 2014). In education, gamification has been applied to Moodle (one of the most well-known platforms for teachers to share notes and documents of the classes), including achievement tools, user’s pictures/avatars, reflection of levels and display of quiz results (Andreev, 2023).

Events industry has witnessed a shift in the way of interacting and capturing attendees’ attention and participation, converting inactive spectators into active participants (Sisson and Whalen, 2021). As such, event organizers should consider designing and enacting gamified elements during events, as well as communicating the availability of the game elements and the benefits of participation (Sisson and Whalen, 2021). Mobile applications have made interactive gaming more accessible, providing attendees with more opportunities to interact with the game, the event, and the brand (Benford et al., 2004; Seering et al., 2017). Playing the game may help the participant accomplish the main objectives of the event, which ultimately raises the event’s perceived value (do Valle et al., 2012), leading to a stronger brand connection and memory recall among consumers (Lu & Ho, 2020). Event managers can capture attendees’ interest, encourage engagement, and create experiences that attendees will remember long after the event has ended by implementing gamification strategies (Conaway & Garay, 2014).

In a study developed by Jang et al. (2018) it is demonstrated that the benefits of gamification improved consumer engagement and Leclercq et al. (2018) discovered that gamification, in the form of rivalry and cooperation, improved consumer engagement by fostering gratifying user experiences. (Berger et al, 2017; Xi & Hamari, 2019) demonstrated that the emotional and cognitive facets of brand engagement are positively related to gamified

interactions that are highly interactive and optimally challenging. By making users feel connected to the brand and sharing their understanding to other members, such as online brand communities, brands can foster norms of reciprocity and trust and thereby create opportunities for engagement (Xi & Hamari, 2019). As a result, the company can cultivate and encourage more extensive engagement between the consumer and brand thanks to the increased consumer interactions sparked by gamification features (Xi & Hamari, 2019). Therefore, it is proposed the following hypothesis:

H3: Gamification moderates the influence of brand activation that resorts to AR (versus non AR brand activation) in an entertainment event on consumer brand engagement.

H3a: Under gamification presence, the impact of brand activations that resort to AR (versus non-AR brand activations) in entertainment events on consumer brand engagement will be strength.

H3b: Under gamification absence, the impact of brand activations that resort to AR (versus non-AR brand activations) in entertainment events on consumer brand engagement will be the same.

The conceptual framework (FIGURE 2) reflects the relationship between each of the constructs and how they can predict consumer brand engagement in the context of entertainment events.

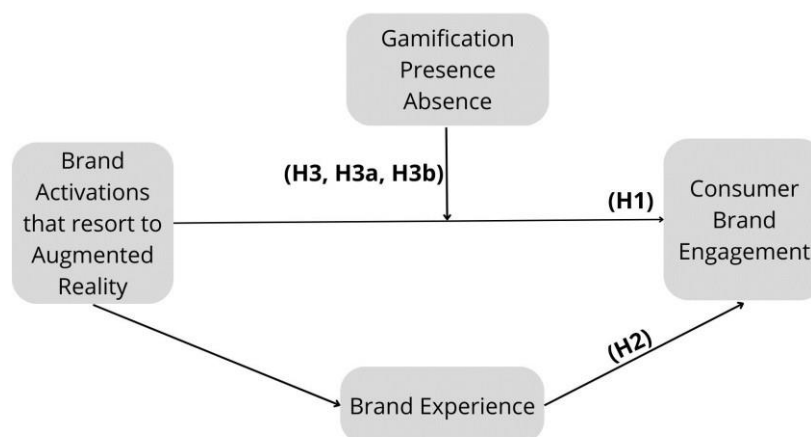


Figure 2 Conceptual model

Note: elaborated by the author, 2023

3. Methodology

3.1 Method and research approach

There are two research methods that can be considered for a research problem: qualitative and quantitative. The quantitative method is mainly focused on collecting and analysing data in numerical format, aiming to “count and measure social life aspects” by means of reason and of logic (Blaikie, 2009). As stated by Malhotra (2001), the quantitative approach makes use of statistical analysis to quantify the data. Following the research objectives proposed, it is necessary to develop quantitative research that will provide insights and reveal consumers’ level of engagement towards brand activations that resort to augmented reality through gamification.

For this study, it will be conducted a deductive approach. The deductive approach is a research design that by analysing the relationships between variables, aims to test theories and hypothesis (Maarouf, 2019). This approach produces quantitatively precise results and is relatively quicker in terms of collecting data (Maarouf, 2019) which then makes it easier to measure the data, generalize findings, densify patterns and develop an analysis (Malhotra & Birks, 2007).

The theoretical structure of this study will be accomplished resorting to primary and secondary research, using the concept of triangulation, as demonstrated in the figure below.



Figure 3 Data Triangulation

Note: elaborated by the author, 2023

The secondary research was used for the development of the first part of this investigation, as a means of supporting the literature review and explore relevant content for the topic that comprised the review of academic texts such as books, journals and other trustworthy online sources. The secondary research was collected through Google Scholar, Web of Science, RCAA and by the search of keywords such as “events”, “augmented reality”, “gamification”, “brand experience” and “consumer brand engagement”. The primary research will use a methodological approach that includes gathering quantitative data, allowing to gather more detailed information that would not be possible resorting to secondary research.

3.2 Study and data collection technique

In this study, it was conducted an experimental research. Experiments occur when there is the manipulation of one or more independent variables and the control of external variables is made through several strategies such as participants being randomly assigned to the experimental conditions. Once the manipulation of one or several independent variables is made, taking into account all the necessary controls are aligned, it is possible to draw some conclusions on the observed effects of the dependent variable(s) (Malhotra & Birks, 2007). In an experiment, the researcher starts by manipulating the independent variable(s) and then observes the impact on the dependent variable(s), while controlling the effect of other variables such as mediator, moderator that can in a way influence the results, contributing with alternative conclusions. (Malhotra, Nunan, & Birks, *Marketing Research: An Applied Approach*, 2017)

This research is considered a causal research, since one of the main objectives of this dissertation is the establishment of causal relationships between several variables, mainly between brand activations that resort to AR and consumer brand engagement. In order to infer a causality relationship, there are 4 requirements that need to be met: the temporal sequence, a concomitant variation, the non-spurious association and the theoretical support (Hunt, 2010). The phrase "time sequence" suggests that the independent variable (which causes the effect) must happen before the dependent variable (which reacts to the effect). In another words, behavioural changes typically precede attitude changes (Ajzen & Fishbein, 1972). The second condition, concomitant variation, presumes that the statistical correlation between two variables is thought to show that there is substantial evidence supporting causation; however, the simple lack of correlation typically is enough to invalidate out the causation hypothesis (Hunt, 2010).

In the case of non-spurious association, there can not be a variable that, when added as an explanatory variable, eliminates the established relationship between the cause and effect variables (Hunt, 2010). Lastly, technical support is based on the idea that there is sufficient theory in marketing to account for any cause-and-effect relationship, that is, the theory itself can be utilized to deduce the suggested causal relationship (Hunt, 2010)

Over the years, the concepts of experience and causal inquiry have become virtually inseparable. These four conditions support the scientific value of experimental research. (Moreira, 2002) evidence is that there are two fundamental types of empirical inquiry: non-experimental and experimental. In this dissertation an experimental design was used, where the independent variables (or causal variables) need to be manipulated in a controlled environment. Afterwards, the effect of the manipulation on the dependent variable will be measured to draw causal-effect relationships (Pinto, 2021).

The purpose of the experimental research is to show that various levels of the independent variable result in variable responses in the dependent variable. The independent variable (Augmented reality) was manipulated according to two levels: AR brand activation that used gamification and AR brand activation that do not use gamification. Moreover, gamification presence (versus absence) was analysed as a moderation variable. Therefore, in this research there are 4 experimental conditions due to a 2 (AR: Brand activation with AR vs Brand activation without AR) x 2 (Gamification: presence vs absence) experimental design. This is a between subject experimental study, it means that participants were exposed to only one experimental condition: Brand activation without AR and gamification absence (people were asked to read a brand flyer), brand activation without AR and gamification presence (people were asked to play a Quiz about a specific brand), brand activation with AR and gamification absence (people were asked to try a brand Instagram filter), and brand activation with AR and gamification presence (people were asked to play an augmented reality game on Instagram).



Figure 4 Brand Flyer: scenario of brand activation without AR and gamification absence
Note: elaborated by the author, 2023



Figure 5 -Brand Quiz: scenario of brand activation without AR and gamification presence
Note: elaborated by the author, 2023



Figure 6 - Brand Instagram filter: scenario of brand activation with AR and gamification absence

Note: elaborated by the author, 2023



Figure 7- AR game on Instagram: scenario of brand activation with AR and gamification absence

Note: elaborated by the author, 2023

The experimental studies require a random assignment of the participants to the manipulation observed. This way, these studies minimize the potential for alternative interpretations of the findings since randomization eliminates subject assignment biases to experimental conditions, a feature lacking in pre- or quasi-experimental studies. In this case, participants were randomly assigned in the four conditions and the type of experiment was between subjects, since each person participated only on one experimental condition (Hernandez, Basso, & Brandão, 2014).

3.3 Questionnaire and measurements

For the data collection it was used the questionnaire, once it allows to obtain faster and more precise answers, gives more freedom on the answers collected and reaches a bigger number of audience (Gerhardt & Silveira, 2009). A questionnaire is a popular research instrument that is completed by respondents, in a written format (Marshall, 2004). For this research, it was used an online questionnaire to individuals, regardless of being familiar or not to the concepts of augmented reality or gamification. In order to follow the objectives proposed in this study, Qualtrics was the chosen tool used to design the questionnaire.

The online questionnaire was divided in six parts. The first one is dedicated to a brief introduction explaining to the respondents the name and information of the researcher as well as the purpose of the investigation. It was added on the introduction the average duration of the questionnaire - 8 minutes and that all answers would be anonymous and confidential. There are no right or wrong answers and people were able to give up, in case they did not mean to continue participating on the questionnaire. There were two filter questions on this questionnaire: the first one “Do you have a cellphone” and the second one “Do you have instagram?”. Whoever answered no, was not able to participate. This filter was included so that only the desired profile of the participant would answer the questionnaire.

Following, participants were presented with a scenario, where they had to imagine themselves in an entertainment event. They were informed that they were approached by a brand promotor to enter the stand of a brand (Resinscape) and they were asked to perform one of four activities: some people were asked to read a flyer of the brand; others were asked to play an AR game; others were asked to play a game (which was a Quiz about the brand); and oth-

ers were asked to try an AR filter with products of the brand. Each participant was exposed to only one from the four different stimuli. Consumers were impacted by these activities that have been simulated using a real brand called Resinscape, that produces handmade products based on resin like jewellery and decor pieces.

After being asked to perform one of the four activities, in the third block, the consumer brand engagement and brand experience were measured. Consumer brand engagement was assessed by 3 dimensions, totalizing 24 items adapted from Keller (2003) in a 7-point Likert scale. Brand experience was measured using 4 dimensions and 12 items adapted from Brakus et al. (2009) in a 7-point Likert scale.

In the fourth block, the manipulations checks and control variables were measured. To check the gamification manipulation, participants evaluated 4 items in a 7-point Likert scale. Regarding augmented reality, another 4 items were used to check the AR manipulation by a 7-point Likert scale. Lastly, gaming frequency was assessed across 1 item adapted from Manero et al. (2016) and augmented reality familiarity was measured by 1 item adapted from Simonin and Ruth (1989), both in a 7-point Likert scale. These two scales were included to measure control variables. Table 2 summarizes the variables and scales used in the questionnaire.

Table 2 - Questionnaire variables

Note: elaborated by the author, 2023

Variable	Number of items	Dimensions	Source
Consumer brand engagement	6 (C1 to C6)	Collecting brand information	Adapted from Keller, K.L. (2013)
Consumer brand engagement	9 (C7 to C15)	Participating in brand marketing activities	Adapted from Keller, K.L. (2013)
Consumer brand engagement	9 (C16 to C24)	Interacting with other people	Adapted from Keller, K.L. (2013)
Brand experience	3 (B1 to B3)	Sensory	Adapted from Brakus et al (2009)
Brand experience	3 (B4 to B6)	Affective	Adapted from Brakus et al (2009)
Brand experience	3 (B7 to B9)	Behavioral	Adapted from Brakus et al (2009)
Brand experience	4 (B10 to B12)	Intellectual	Adapted from Brakus et al (2009)
Gamification	4 (G1 to G4)	Gamification	Own authorship
Augmented Reality	4 (A1 to A4)	Augmented Reality	Own authorship
Gaming frequency	1 (GF1)	Gaming frequency	Adapted from Manero et al. (2016)
Augmented reality familiarity	3 (ARF1 to ARF3)	Augmented reality familiarity	Adapted from Simonin and Ruth (1998)

Lastly, some general questions about participant's age, gender, academic qualifications, occupation and nationality were asked, to retrieve information on sample demographics, with the purpose of analyzing potential patterns within each group, that could explain the answers collected. The final survey and its questions can be found in appendix A.

3.4 Sample and sampling

Malhotra and Birks (2007) refer to a sample as a group of elements or objects that have specific information that the researcher is looking for, having an impact on the causal effect.

In order to define a sample, there are four dimensions to take into account: The components consist of individuals about whom or from whom one desires information; the sample frame, which contains the elements available for selection at some stage of the sampling process; geographical boundaries; and time, which represents the time period under consideration (Malhotra & Birks, 2007). Since it is intended to identify in which way brand activations that resort to AR using gamification can influence consumer brand engagement, the sample incorporated people who used cellphones and Instagram, which are two platforms/devices that strengthen the relationship between a consumer and a brand and are in contact with gamification and/or AR.

According to Hair, Black & Babin (2009), more than 30 participants per experimental condition should be included in the number of cases to be analysed in a study. In this particular case, there were 4 experimental conditions, which translates into at least 120 participants.

Participants were contacted through social media channels like Facebook, Whatsapp, Instagram, LinkedIn, and snowball sampling in order to reach such a large number of participants. A convenience sample was employed, which involves selecting a sample from the population that is accessible, meaning that individuals who respond to the questionnaire are chosen because they were readily available, rather than being selected based on statistical criteria (Hill & Hill, 2009). Data from the questionnaire were collected between 12 of September 2023 and 14 of October 2023.

3.5 Data analysis techniques

For statistical analysis and taking into account that this is a quantitative study, it was used the SPSS program for Windows (Statistical Package for Social Sciences, version 28.0), considering an error margin of 0,05 for all the analysis conducted. Univariate analyses were carried out, which are used when there is only one measurement for each element and involve parameters such as mean and standard deviation (Malhotra & Birks, 2007).

In order to conduct the analysis of the variables and test the hypothesis, One Way ANOVA tests were employed - a bivariate analysis. This is a statistical technique that studies differences between means in two or more populations, using a dependent metric variable that can be measured on an interval or ratio scale and one or more nominal independent variables (Malhotra & Birks, 2007). The Two Way ANOVA test was used for the moderator analysis and it was installed the Macro for SPSS from Hays to perform the mediator analysis. The Cronbach Alpha coefficient was also used to measure the level of reliability of items that are part of the same variable.

4. Results and Discussion

4.1 Demographic and analysis

The survey reached a total number of 357 respondents, however, given that 67 people were not able to finish the questionnaire, these answers were not considered valid and were removed for the final sample. The sample was composed of 142 male – representing 49% of the sample, 145 female – representing 50% of the sample and 3 people who preferred not to share their gender – corresponding to 1% of the sample. Most of the sample had a bachelors (60,9%) or masters (30,4%). Only 0,7% had studied until 9th grade and 4,5% had studies inferior to 9th grade. On this sample, 47,6% of the respondents are employed, 22,8% are studying, 11% are unemployed, 10% are working students and about 7,9% are self-employed. Lastly, 286 of the participants were from Portuguese nationality, 2 people were Spanish, 1 was French and 1 was German. The minimum age is 18 years and 90 years was the maximum. The average age was 32 years old and S.D was 12,69. The minimum number of times a week a person plays games was 0 and the maximum 20. The mean was 2.52 and the SD was 3.07.

Table 3 - Gender demographics

Note: elaborated by the author, 2023

Variables	Frequency	Percent
Gender		
Male	142	49%
Female	145	50%
Preferred not to say	3	1%

Table 4 - Academic qualifications demographics

Note: elaborated by the author, 2023

Variables	Percent
Academic Qualifications	
Inferior to 9th grade	4,5%
9th grade	0,7%
Bachelors	60,9%
Masters	30,4%

Table 5 - Occupation demographics

Note: elaborated by the author, 2023

Variables	Frequency	Percent
Occupation		
Employed	138	47,6%
Student	66	22,8%
Unemployed	32	11%
Working student	29	10%
Self employed	23	7,9%

Table 6 - Nationality demographics

Note: elaborated by the author, 2023

Variables	Frequency	Percent
Nationality		
Portuguese	286	98,6%
Spanish	2	0,7%
French	1	0,3%
German	1	0,3%

Table 7 - Sample characteristics

Note: elaborated by the author, 2023

Variable	Minimum	Maximum	Mean	Standard Error	Standard Deviation
Age	18	90	32	0.745	12.694
Number of times a person plays games during the week	0	20	2.52	0.181	3.069

4.2 Reliability tests

In order to evaluate the internal consistency of the items in each scale, the *Cronbach Alpha* was verified. Its values should range between “0” and “1”, never assuming negative values (Hill & Hill, 1998). Besides, it is a good indicator if the values are greater than 0.700, translating into a good internal consistency to measure the constructs (Bryman & Cramer, 2003).

In regard to the dependent variable, consumer brand engagement, it was measured through 24 items. In this study, the global variable (with all the 24 items) presents a high *Cronbach Alpha* value ($\alpha = 0.952$). Afterwards, it was measured the internal consistency of each dimension proposed by the authors. “Collecting brand information” that included items C1 to C6 presented a high value for the *Cronbach Alpha* ($\alpha = 0.910$). “Participating in brand marketing activities” including C7 to C15 also presented a high value for the *Cronbach Alpha* ($\alpha = 0.873$). Lastly, “interacting with people” which included C16 to C24 presented a high value for the *Cronbach Alpha* ($\alpha = 0.921$).

The mediator variable associated with brand experience, was measured through 12 items, containing 4 reverse affirmations. Globally, the variable presented a significantly consistent level ($\alpha = 0.822$). In addition, there were 4 items that were reversed before developing the further analysis. Items B1, B2 and B3, belonging to the first dimension “sensory” also demonstrated a moderate consistent measure ($\alpha = 0.697$), which is close to 0.7. The following dimension “affective” which included items B4, B5 and B6 presented a significantly low consistent level ($\alpha = 0.546$). Items B7, B8 and B9, which are part of dimension “behavioral” presented, as well, a low consistent level ($\alpha = 0.475$). Lastly, for items B10, B11 and B12, integrating dimension “intellectual”, it also demonstrated a low consistent level according to *Cronbach's Alpha* ($\alpha = 0.441$). Given the low results of consistency demonstrated, it proceeded to retrieve the lowest item from each dimension in order to understand if this would improve the internal consistency. Each dimension would now be made of only two items, each. For dimension “sensory” was retrieved item B3 and the *Cronbach's Alpha* value improved ($\alpha = 0.874$), which reflects a significantly high consistent level. For dimension “affective” was retrieved item B5, which improved as well the internal consistency ($\alpha = 0.685$). Item B9 was retrieved from dimension “behavioral”, which also improved the internal consistency, according to the *Cronbach's Alpha* coefficient ($\alpha = 0.790$). Lastly, for dimension “intellectual”, upon item B11 was retrieved, the internal consistency was slightly improved ($\alpha = 0.599$). Even though the co-

efficients for dimensions “affective” and “intellectual” slightly improved, it was performed a correlation test to analyse if the two items in each dimension were correlated or not.

For the dimension “affective”, item B4 (“Resinscape induced feelings and sentiments”) and item B6 (“Resinscape is an emotional brand”) present a good correlation ($r(289) = 0.53, p < 0.001$). As such, it is possible to group the items into the mentioned dimension. For the dimension “intellectual”, item B10 (“I engaged in a lot of thinking when I encountered Resinscape”) and item B12 (“Resinscape stimulated my curiosity and problems solving”) also present a good correlation ($r(289) = 0.43, p < 0.001$) meaning this it is possible to group the items into the dimension referred. In addition, after the presented information, a new brand experience variable without the reverse items (B3, B5, B9, B11) was computed, meaning that the new variable only considers 8 items. According, the new *Cronbach's Alpha* coefficient demonstrates a high consistent value ($\alpha = 0.889$).

Afterwards, the correlations for the manipulation checks were analysed. Considering the gamification presence, items G1 (“The activity proposed by Resinscape was to play a game”) and G3 (“I interacted with gamified elements during the Resinscape’s activity”) were grouped once the items present a significant correlation ($r(288) = 0.74, p < 0.001$). The items related to the manipulation check for the gamification absence (G2 “The activity proposed by Resinscape was to read a text or brand flyer” and G4 “Resinscape didn’t ask me to play any game during the brand proposed activity”) presented a correlation with the p value greater than 0.05 ($r(288) = -0.06, p = 0.30 > 0.05$) which means the items are not correlated and thus, can not be grouped. As such, they need to be analysed individually.

The augmented reality presence manipulation check items (AR1 “Resinscape’ activity used augmented reality” and AR2 “Resinscape’ activity created a digital environment in real time”) were grouped into one variable once the two items show a significant correlation ($r(288) = 0.54, p < 0.001$). The manipulation checks items for the AR absence (AR3 “Resinscape’ activity didn’t use augmented reality” and AR4 “Resinscape’ activity just used the real environment”) were also grouped because the items present a significant correlation ($r(288) = 0.49, p < 0.001$).

4.3 Manipulation check analysis

One way ANOVA tests were conducted in order to evaluate the efficacy of the performed manipulations. Considering the AR presence variable (composed by the AR1 and AR2), results demonstrate that there is a significant difference between AR experimental conditions ($F_{(1,286)} = 24.61, p < 0.001$). As expected, specifically, participants who were exposed to experimental condition with AR presented a greater level of agreement with the AR presence items in comparison to participants in the condition without AR ($M_{\text{WithAR}} = 4.60; SD = 1.25; M_{\text{withoutAR}} = 3.84; SD = 1.36$).

Manipulation checks results for AR absence (variable with AR3 and AR4 grouped) demonstrate that there is a significant difference between AR experimental conditions ($F_{(1,286)} = 9.24, p < 0.01$). In particular, participants who were exposed to experimental conditions without AR presented a greater level of agreement with the AR absence items instead of the participants in the condition with AR ($M_{\text{withoutAR}} = 4.40; SD = 1.30; M_{\text{WithAR}} = 3.91; SD = 1.42$).

Following, was performed a One way ANOVA test for the gamification experimental condition. Results demonstrate that there is a significant difference between experimental conditions and gamification presence perception ($F_{(1,286)} = 8.63, p < 0.01$). As expected, specifically, participants who were exposed to experimental condition with gamification elements presented a greater level of agreement in regards to the presence of gamification (variable grouping G1 and G3) in comparison to participants in the condition without gamification ($M_{\text{WithGamification}} = 4.61; SD = 1.64; M_{\text{withoutGamification}} = 4.03; SD = 1.69$).

Moreover, One way ANOVA test was performed only to the item G2 “The activity proposed by Resinscape was to read a text or brand flyer”. Results demonstrate that there is a significant difference between experimental conditions ($F_{(1,286)} = 12.55, p < 0.001$). Participants who were exposed to a gamification absence experimental condition agreed more with the item instead of participants who were exposed to gamification ($M_{\text{withoutGamification}} = 3.69; SD = 1.82; M_{\text{WithGamification}} = 2.95; SD = 1.70$).

Another One way ANOVA test was performed considering the item G4 “Resinscape didn’t ask me to play any game during the brand proposed activity”. Results demonstrate that there is a significant difference between gamification experimental conditions ($F_{(1,286)} = 7.77, p < 0.01$). Participants who were not exposed to a gamification experimental condition agreed more with the item instead of participants who were exposed to gamification ($M_{\text{withoutGamification}}$

= 4.11; $SD = 1.91$; $M_{WithGamification} = 3.46$; $SD = 2.05$). Globally the results suggest that AR and gamification manipulations were successfully executed.

4.4 Hypothesis testing

4.4.1 Dependent variable analysis

In order to analyse consumer brand engagement, it was created one single variable that includes all the 24 items corresponding to this variable. It was conducted a *One way ANOVA* test to verify the effect of the independent variable (Brand activations that resort to AR) on the dependent variable (consumer brand engagement). Results show that there is no significant difference between the two experimental conditions and consumer brand engagement ($F_{(1,287)} = 0.05$, $p = 0.82$). Specifically, participants on the condition brand activation that resorts to AR present a similar consumer brand engagement than those in the condition without AR ($M_{WithAR} = 4.32$; $SD = 1.22$; $M_{WithoutAR} = 4.29$; $SD = 1.34$).

One way ANOVA test were performed on each of the dimensions of consumer brand engagement. Firstly, it was made to dimension “Collecting brand information” which includes items C1 to C6. Results show that there is no significant difference between the two experimental conditions and consumer brand engagement ($F_{(1,287)} = 0.10$, $p = 0.75$). Specifically, participants on the condition brand activation that resorts to AR present the same level of consumer brand engagement than those in the condition without AR ($M_{WithAR} = 4.76$; $SD = 1.18$; $M_{WithoutAR} = 4.71$; $SD = 1.33$).

Secondly, *One way ANOVA* test the dimension “Participating in brand marketing activities” which includes items C7 to C15. Results show that there is no significant difference between the two experimental conditions and consumer brand engagement ($F_{(1,287)} = 0.11$, $p = 0.74$). Specifically, participants on the condition brand activation that do not resort to AR present similar consumer brand engagement than those in the condition with AR ($M_{WithoutAR} = 4.58$; $SD = 1.49$; $M_{WithAR} = 4.53$; $SD = 1.27$).

Afterwards, *One way ANOVA* test the dimension “Interacting with other people” which includes items C16 to C24. Results show that there is no significant difference between two experimental conditions and consumer brand engagement ($F_{(1,287)} = 1.36$, $p = 0.25$). Specifically, participants on the condition brand activation that do resorts to AR present similar levels of consumer brand engagement than those in the condition without AR ($M_{WithAR} = 3.91$; $SD = 1.36$; $M_{WithoutAR} = 3.72$; $SD = 1.46$).

As so, considering the results for the global variable of consumer brand engagement and for its dimensions, it is possible to reject H1, once brand activations that resort to AR (versus brand activations that do not resort to AR) in entertainment events did not increase consumer brand engagement.

4.4.2 Mediator variable analysis

An analysis on the mediation of the variable brand experience on the relationship between brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement was conducted through the macro for SPSS® with 5.000 samples bootstrapped (model 4), (Hayes, 2017). The bootstrapping analysis reflects that the indirect effect of brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement through brand experience was not significant ($b = 0.09$; 95% CI: -0.08 for 0.27). The direct effect of brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement is also not significant ($b = -0.05$, $p = 0.65$; 95% CI: -0.30 for 0.19). These results show that there is no mediation of the variable brand experience, which leads to a rejection of H2. As so, it is possible to say that brand activations that resort to AR (versus brand activations that do not resort to AR) in entertainment events did not increase consumer brand engagement due to a better brand experience.

The brand experience variable is constituted by 4 dimensions: sensory, affective, behavioral and intellectual. It was also analysed the mediation of brand experience for each one of the dimensions through macro for SPSS® with 5.000 samples of bootstrapped (model 4), (Hayes, 2017) The bootstrapping analyses reflected that the indirect effect of brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement through dimensions sensory ($b = 0.14$; 95% CI: -0.05 for 0.32), affective ($b = 0.02$; 95% CI: -0.13 for 0.19), behavioral ($b = 0.13$; 95% CI: -0.04 for 0.31), and intellectual ($b = -0.02$; 95% CI: -0.17 for 0.12) were not significant. The direct effects of brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement remain not significant when evaluated through sensory ($b = -0.10$, $p = 0.39$; 95% CI: -0.34 for 0.13), affective ($b = 0.01$, $p = 0.92$; 95% CI: -0.24 for 0.26), behavioral ($b = -0.09$, $p = 0.44$; 95% CI: -0.33 for 0.15), and intellectual dimensions ($b = 0.06$, $p = 0.67$; 95% CI: -0.20 for 0.32). As so, these results demonstrate that there is no mediation of sensory, affective, behavioral, and intellectual dimensions, rejecting H2.

4.4.3 Moderator variable analysis

In order to analyse the moderation effect of gamification between the independent and dependent variable, a *Two way ANOVA* test was used. The results demonstrate that there is no significant moderation on the relationship between brand activations that resort to AR (versus brand activations that do not resort to AR) on consumer brand engagement ($F_{(1,285)} = 0.67, p = 0.41$). Therefore, H3 is rejected.

Specifically, results show that for gamification presence, brand activations that resort to AR will create the same consumer brand engagement than brand activations that do not resort to AR ($F_{(1,285)} = 0.58, p = 0.45; M_{\text{WithAR}} = 4.37; SD = 0.99; M_{\text{WithoutAR}} = 4.20; SD = 1.46$). Moreover, for participants under the gamification absence, a brand activations that resort to AR will produce the same consumer brand engagement levels than brand activations that do not resort to AR ($F_{(1,285)} = 0.15, p = 0.70; M_{\text{WithoutAR}} = 4.37; SD = 1.23; M_{\text{WithAR}} = 4.29; SD = 1.38$). Additionally, H3b will also be rejected. The absence of gamification will not weaken the relationship between brand activations that resort to AR and consumer brand engagement.

5. Conclusions and Recommendations

5.1 Conclusion

Prior to investigating the impact of augmented reality for brand activations on consumer brand engagement and the role of gamification on entertainment events, three objectives were identified to direct this study, which were the starting point for drawing some conclusions.

The first specific objective of this study, aimed to evaluate rigorously the impact of a brand activation that used augmented reality on consumer brand engagement, in a context of entertainment events. The findings showed that participants who were exposed to the experimental conditions of presence of augmented reality and non presence of augmented reality, presented very similar results. The consumer brand engagement did not change significantly. As so, as opposed to what was said by authors Grudzewski, Awdziej, Mazurek, & Piotrowska, 2018; Van Kerrebroeck, Brengman, & Willems (2017). , people do not consider that the presence of augmented reality is a criteria that allows for the increase of consumer brand engagement. Therefore, the present dissertation results show that the introduction of AR for brand activation generated similar consumer brand engagement than traditional brand activations with no AR. On another words, even though augmented reality is an innovative technology and can impact people, it did not have a significant effect on participants.

The second objective was to examine if brand experience could explain the influence of a brand activation that resorted to AR on consumer brand engagement. In regard to the mediation effect of brand experience, Kuvykaitea & Piligrimiene (2014) defended that when a brand is able to elicit positive and emotional values, it will create positive associations on consumers and improve the consumer brand relationship. Results showed that brand experience did not have a significant indirect effect on the relationship between AR and consumer brand engagement. It was also analyzed the mediation of brand experience for each of the 4 dimensions: sensitive, affective, behavioral and intellectual. In addition, all these dimensions had an indirect effect superior to the direct effect (but still not significant), which reflects a low influence on brand experience. As so, it is possible to conclude that the experience to which participants were exposed did not create enough positive feelings and sensations, in order to ultimately elevate consumer brand engagement.

The third objective was to evaluate how the incorporation of gamification on a brand activation that used AR could affect consumer brand engagement, on an entertainment events context. In the present study the moderating effect of gamification was very low and the im-

pact of gamification on the interaction with AR and consumer brand engagement was not significant. As Leclercq et al. (2018) demonstrated, gamification elements foster gratifying experiences on user which will lead to an improvement of consumer brand engagement. Berger et al. (2017) and Xi and Hamari (2019) reinforce this idea by adding that when gamification strategies are highly interactive, it will foster consumer brand engagement. Contrary to these studies, the present research findings didn't suggest that gamification can modify the effects of brand activation that used AR on consumer brand engagement.

Lastly, it was important to provide recommendations and suggestions to business managers, marketers, and event organizers, as brands are constantly seeking for innovative ways to connect and interact with their target audience. Even though the research results are contradictory to what the literature provided, several authors recognized the potential of augmented reality, gamification and brand experience. As so, it is suggested that business owners investigate how to properly incorporate these strategies in order to align with their brand goals. For instance, they can consider changing the context of the event or precisely study their target audience in order to understand what their specific needs are. Besides, this approach focuses on offering entertaining and unique experiences that are not easily forgotten, which reinforces the importance of managers shifting their vision into a more modern marketing landscape.

5.2 Research contribution

Existing research had indicated that AR implementation offered people engaging and immersive experiences, empowering sensory and cognitive engagement. Ultimately, this would elicit strong and powerful feelings towards a brand (Kim & Biocca, 1997; Lombard & Ditton, 1997; Mollen & Wilson, 2010; Schubert, 2009).

From an academic perspective, this research contributed to a better understanding of terms like augmented reality, gamification, brand experience, and consumer brand engagement, in a context of entertainment events. It was demonstrated that augmented reality, gamification, and brand experience do not significantly contribute to an increase in consumer brand engagement. Furthermore, the results reflected how complex consumer brand engagement interactions can be, nowadays. As so, even though the incorporation of different strategies may seem promising to boost consumer brand engagement, this research emphasizes the need for a narrower understanding of factors influencing these variables.

On another perspective, the failure of these approaches into improving consumer brand engagement shows how important it is to tailor initiatives to a specific target audience. Consumer preferences differ according to gender, age, context, industry, brand, etc. As so, managers in general should pursue a more in-depth approach to understand the best techniques that potentially may be aligned to the consumers specific needs.

Moreover, this study reinforces the idea that understanding and knowing rigorously consumer behaviors and habits plays a crucial role in the success of marketing approaches. Resorting to innovative and trendy strategies does not necessarily translate into successful strategies. Besides, pretesting these ideas before implementing it should be considered.

Lastly, augmented reality, gamification and brand experience remain valuable tools to incorporate in several marketing strategies. However, they need to be tailor made and marketers need to ensure these tools are aligned with the overall brand strategy.

5.3 Limitations and further research

Even though the results of this study contributed with theoretical and practical implications, the present dissertation includes a few limitation factors, that should be considered for future research. Firstly, the sample is mostly directed to a Portuguese audience, limiting people from other cities around the world. As so, it would be interesting for future research to gather participants from other parts of the world, which would allow to have data which is more diverse.

A second limitation consists of the brand that was used on this research being a jewelry brand, which may be more interesting for a feminine audience instead of male one. In the future, it is recommended to resort to a brand that is genderless, without preference from one gender. Therefore, results can be ensured to not be biased based on gender preferences.

In addition, the age range of the audience was very large. Older people might not be familiar with several terms throughout the questionnaire, which may have led to confusion and lack of understanding. As so, participants might have felt the pressure to answer regardless of understanding what was being presented. In future research could be considered a smaller age range, to ensure most people understand the topic and words that are being presented, answering more accurately. Besides, considering an age range of people who are familiar with technologies could be important as well.

Furthermore, the experiment was conducted by an online questionnaire and not face-to-face, which could have led to different results. In the future is recommended to develop this

study as a field experiment, since people online lack of real experience. If the scenarios were considering a context of entertainment events, probably participants would benefit from a better experience physically.

Lastly, this study focused on brand activations that resort to AR in a context of entertainment events. In the future, would be interesting to understand the impact of these brand activations on different industries. Besides, people who did not have cellphone or an Instagram account could not contribute to this study. In order to collect a more diverse range of answers, people should not be limited to the devices they have. It is recommended to develop a study that is suitable with different channels and devices, for example, laptops, Ipads, Facebook accounts, Twitter accounts.

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Appendix A – Online final questionnaire

Note: elaborated by the author, 2023

Hello! My name is Catarina Silva and I am developing this survey as part of my Master's thesis in Marketing. This questionnaire is based on an academic work that aims to study consumer's perception about brands.

There are no right or wrong answers. All information shared will be treated anonymously and confidentially, and it is not possible to identify each respondent. The results will be used only for academic purposes.

The approximate time to complete this questionnaire is 8 minutes. Thank you in advance for your availability and attention!

I confirm my interest in participating in this questionnaire

I have no interest in continuing to participate in this questionnaire

0%

100%

Do you have a mobile phone?

Yes

No

→

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100%

Do you have instagram?

Yes

No

>>

Imagine that you are participating in an entertainment event (such as music, dance, or humor festivals) that you like. You are walking around the stands of several brands and you enter the stand of Resinscape.

The brand promoter presents to you the brand by proposing you one activity.
Please take your time to perform the proposed activity, once all the questions will be about it.
Please copy the link below to your mobile phone web browser and read the following flyer carefully.
After, come back to this questionnaire to answer some questions about the activity.
https://docs.google.com/document/d/e/2PACx-1vTuZtrQCIZsI2O0iXtLX0cWB06-MU57AWffAQp9qxaveXkDAee_KZCSXryuBXWBSRyxGxo7rY2L1oq/pub

Timing

A métrica de temporizador desta página não será apresentada ao destinatário.

First Click	0 seconds
Last Click	0 seconds
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Please read carefully each one of the following affirmations about Resinscape using the scale from 1 = Strongly disagree to 7 = Strongly agree

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
I would like to learn more about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape had any new products or services, I would like to know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a newspaper or magazine article about Resinscape, I would tend to read it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a news story online about Resinscape, I would tend to open and read it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to visit Resinscape's website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to read online blogs about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I noticed a Resinscape ad, I would pay attention to it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I notice a sales promotion from Resinscape, I will pay attention to it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I get something in the mail from Resinscape, I will open it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape sponsors a sports, entertainment or arts event, I will notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a billboard or any outdoor type of ad for Resinscape, I would notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape has a display or demonstration in a store, I would notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I get to sample one of Resinscape's line products, I would try it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to try Resinscape products from Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to talk to other people about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to talk to people at work about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to talk to my friends and family about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to meet and inform others who use Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to join an online community with other users of Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to join an online community with others who use Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to join an online community with people from the company who make Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to join in a loyalty program for Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would notice when others are using Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Please read carefully each one of the following affirmations about Resinscape using the scale from 1 = Strongly disagree to 7 = Strongly agree

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
I would like to learn more about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape has any new products or services, I would like to know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a newspaper or magazine article about Resinscape, I would tend to read it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a news story online about Resinscape, I would tend to open and read it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to visit Resinscape's website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to read online blogs about Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I noticed a Resinscape ad, I would pay attention to it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I notice a sales promotion from Resinscape, I will pay attention to it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I get something in the mail from Resinscape, I will open it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape sponsors a sports, entertainment or arts event, I will notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I saw a billboard or any outdoor type of ad for Resinscape, I would notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Resinscape has a display or demonstration in a store, I would notice it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Considering the Resinscape activity you just participated, please evaluate each one of the following statements using the scale from 1 = Strongly disagree to 7 = Strongly agree

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
Resinscape made a strong impression on my visual sense or other senses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found Resinscape interesting in a sensory way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape didn't appeal to my senses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape induced feelings and sentiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not have strong emotions for Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape is an emotional brand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I engaged in physical actions and behaviors when I use Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape resulted in bodily experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape was not action oriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I engaged in a lot of thinking when I encountered Resinscape	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape did not make me think	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape stimulated my curiosity and problems solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Considering the Resinscape activity you just participated, indicate your agreement with the following statements using a scale that ranges from 1 = Strongly disagree and goes until 7 = Strongly agree

	Strongly Disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
The activity proposed by Resinscape was to play a game.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The activity proposed by Resinscape was to read a text or brand flyer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I interacted with gamified elements during the Resinscape's activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape didn't ask me to play any game during the brand proposed activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the Resinscape activity you just participated, please indicate your degree of agreement with the following statements using a scale that ranges from 1 = Strongly disagree and goes until 7 = Strongly agree

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
Resinscape's activity used augmented reality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape's activity created a digital environment in real time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape's activity didn't use augmented reality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resinscape's activity just used the real environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Please indicate below the number of times a week you play video games.

After carefully reading each of the following sentences, please rate them by using the scale from 1 = Strongly disagree to 7 = Strongly agree.

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree or disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
Augmented reality is not familiar to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have heard something about augmented reality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know what augmented reality is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Have you ever heard about Resinscape before?

☐ Yes

☐ No

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What is your gender?

☐ Male

☐ Female

☐ Prefer not to say

What is your age (please insert numbers, ex. 20)?

What are your academic qualifications?

☐ Inferior to 9th grade

☐ 9th grade

☐ 12th grade

☐ Bachelors

☐ Masters

☐ PhD

☐ Other

What is your occupation?

Student	<input type="radio"/>
Working student	<input type="radio"/>
Self-employed	<input type="radio"/>
Employee	<input type="radio"/>
Unemployed	<input type="radio"/>
Retired	<input type="radio"/>
Other	<input type="radio"/>
<input type="text"/>	

What is your nationality?

Portuguese	<input type="radio"/>
Spanish	<input type="radio"/>
French	<input type="radio"/>
German	<input type="radio"/>
Italian	<input type="radio"/>
Belgian	<input type="radio"/>
Dutch	<input type="radio"/>
Polish	<input type="radio"/>
Other	<input type="radio"/>
<input type="text"/>	



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Thank you for your participation in this survey and for the time spent.
Your reply has been recorded.

Appendix B

Appendix B1 - Constructs and items for the consumer brand engagement variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Keller, K.L. (2013)	Brand engagement behaviors	Consumer brand engagement
	1 Strongly disagree 2 Disagree 3 Neither agree or disagree 4 Agree 5 Strongly agree	Please, read carefully each one of the following affirmations about Resinscape using the scale that starts on 1 = Totally disagree and goes until 7 = Totally agree
	3 Dimensions	3 Dimensions
	Collecting brand information	Collecting brand information
	1 - I like learning about my brand of tablet. 2 - If this brand has any new products or services, I tend to notice it. 3 - If I see a newspaper or magazine article about my brand of tablet I tend to read it. 4 - If I see a news story online about my brand, I tend to open and read it. 5 - I like to visit my brand's website 6 - I like to read online blogs about my brand of tablet	1 - I like learning about my brand of tablet. 2 - If this brand has any new products or services, I tend to notice it. 3 - If I see a newspaper or magazine article about my brand of tablet I tend to read it. 4 - If I see a news story online about my brand, I tend to open and read it. 5 - I like to visit my brand's website 6 - I like to read online blogs about my brand of tablet
	Participating in brand marketing activities	Participating in brand marketing activities
	1 - If I notice an ad for my brand of tablet, I tend to pay attention to it. 2 - If I notice a sales promotion from my brand, I tend to pay attention to it. 3 - If I get something in the mail from my brand, I tend to open it. 4 - If my brand sponsors a sports, entertainment or arts event, I tend to notice it. 5 - If I see a billboard or any outdoor type of ad for my brand, I tend to notice it.	1 - If I notice an ad for my brand of tablet, I tend to pay attention to it. 2 - If I notice a sales promotion from my brand, I tend to pay attention to it. 3 - If I get something in the mail from my brand, I tend to open it. 4 - If my brand sponsors a sports, entertainment or arts event, I tend to notice it. 5 - If I see a billboard or any outdoor type of ad for my brand, I tend to notice it.

<p>6 - If my brand of tablet has a display or demonstration in the store, I tend to notice it.</p> <p>7 - If my brand of tablet shows up in a movie or a television show, I tend to notice it.</p> <p>8 - If I get to sample one of my brand's new products, I tend to try it.</p> <p>9 - I like to buy licensed products from my brand</p>	<p>6 - If my brand of tablet has a display or demonstration in the store, I tend to notice it.</p> <p>7 - If my brand of tablet shows up in a movie or a television show, I tend to notice it.</p> <p>8 - If I get to sample one of my brand's new products, I tend to try it.</p> <p>9 - I like to buy licensed products from my brand</p>
Interacting with other people	Interacting with other people
<p>1 - I like to talk to other people about my brand of tablet.</p> <p>2 - I like to talk to people at work about my brand of tablet.</p> <p>3 - I like to talk to my friends and family about my brand of tablet.</p> <p>4 - I like to seek out others who use my brand of tablet. 5 - I have joined or would like to join an online community with other users of my brand of tablet</p> <p>6 - I have joined or would like to join an online community with others who like my brand.</p> <p>7 - I have joined or would like to join an online community with people from the company who makes my brand.</p> <p>8 - I am active in a loyalty program for my brand of tablet.</p> <p>9 - I tend to notice when others are using my brand.</p>	<p>1 - I like to talk to other people about my brand of tablet.</p> <p>2 - I like to talk to people at work about my brand of tablet.</p> <p>3 - I like to talk to my friends and family about my brand of tablet.</p> <p>4 - I like to seek out others who use my brand of tablet. 5 - I have joined or would like to join an online community with other users of my brand of tablet</p> <p>6 - I have joined or would like to join an online community with others who like my brand.</p> <p>7 - I have joined or would like to join an online community with people from the company who makes my brand.</p> <p>8 - I am active in a loyalty program for my brand of tablet.</p> <p>9 - I tend to notice when others are using my brand.</p>

Appendix B2 - Constructs and items for Brand Experience variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Brakus et al (2009)	Brand Experience	Brand Experience
	1 Strongly disagree 2 Disagree 3 Slightly disagree 4 Neither agree or disagree 5 Slightly agree 6 Agree 7 Strongly agree	Considering the Resinscape activity you just participated, please evaluate each one of the following statements using the scale from 1 = Strongly Disagree to 7 = Strongly agree
	4 Dimensions	4 Dimensions
	Sensory	Sensory
	- This brand makes a strong impression on my visual sense or other senses. 2 - I find this brand interesting in a sensory way. - This brand does not appeal to my senses.	1 - Resinscape made a strong impression on my visual sense or other senses. 2 - I found Resinscape interesting in a sensory way. 3 - Resinscape didn't appeal to my senses.*
	Affective	Affective
	4 - This brand induces feelings and sentiments. 5 - I do not have strong emotions for this brand. 6 - This brand is an emotional brand.	4 - Resinscape induced feelings and sentiments. 5 - I do not have strong emotions for Resinscape. * 6 - Resinscape is an emotional brand.
	Behavioral	Behavioral
	7 - I engage in physical actions and behaviors when I use this brand. 8 - This brand results in bodily experiences. 9- This brand is not action oriented.	7 - I engaged in physical actions and behaviors when I used Resinscape. 8 - Resinscape resulted in bodily experiences. 9- Resinscape was not action oriented.*
	Intellectual	Intellectual

	<p>10 - I engage in a lot of thinking when I encounter this brand. 11 - This brand does not make me think.</p> <p>12 - This brand stimulates my curiosity and problems solving.</p>	<p>10 - I engaged in a lot of thinking when I encountered Resinscape. 11 - Resinscape did not make me think.*</p> <p>12 - Resinscape stimulated my curiosity and problems solving.</p>
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Appendix B3 - Constructs and items for Gamification variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Own authorship	Own authorship	Gamification
		Considering the Resinscape activity you just participated, indicate your degree of agreement with the following statements using a scale that ranges from 1 = Strongly disagree and goes until 7 = Strongly agree.
		4 Items
		1 - The activity proposed by Resinscape was to play a game.
		2 - The activity proposed by Resinscape was to read a text or brand flyer.
		3 - I interacted with gamified elements during the Resinscape's activity.
		4 - Resinscape didn't ask me to play any game during the brand proposed activity.

Appendix B4 - Constructs and items for Augmented Reality variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Own authorship	Own authorship	Augmented reality
		Considering the Resinscape' activity you just participated, please indicate your degree of agreement with the following statements using a scale that ranges from 1 = Strongly disagree and goes until 7 = Strongly agree.
		4 Items
		1 - Resinscape' activity used augmented reality
		2 - Resinscape' activity created a digital environment in real time.
		3 - Resinscape' activity didn't use augmented reality.
		4 - Resinscape' activity just used the real environment

Appendix B5 - Constructs and items for gaming frequency in general variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Manero et al. (2016)	Gaming frequency	Gaming frequency in general
	1 Strongly disagree 2 Disagree 3 Slightly disagree 4 Neither agree or disagree 5 Slightly agree 6 Agree 7 Strongly agree	Considering the game you just played, indicate how many times a week you play games.
	1 Item	1 Item
	1 - How often do you play videogames?	1 - How often do you play videogames?

Appendix B6 - Constructs and items for augmented reality familiarity variable

Note: elaborated by the author, 2023

Source	Original Scale	Adapted Scale
Simonin and Ruth (1998)	Brand familiarity	Augmented reality familiarity
	1 Strongly disagree 2 Disagree 3 Slightly disagree 4 Neither agree or disagree 5 Slightly agree 6 Agree 7 Strongly agree	After carefully reading each of the following sentences, please rate them by using the scale from 1 = Strongly disagree to 7 = Strongly agree.
	3 Items	3 Items
	1 - Brand X is not familiar to me/it is familiar to me	1 - Augmented reality is not familiar to me.
	2 - I have not heard anything about brand/I have heard something about brand	2 - I have heard something about augmented reality.
	3 - I do not know brand/I know the brand	3 - I know what augmented reality is.