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**How VR experiences influence brand coolness perceptions of
customers in the airline industry – the impact of experiential values and
the use of gamification**

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Master in Marketing, MMA2

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October, 2022



**BUSINESS
SCHOOL**

Department of Marketing, Strategy and Operations

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RESUMO

A Realidade Virtual (RV) revolucionou as experiências do cliente e tornou-se uma ferramenta indispensável para as empresas. É crucial que as empresas aumentem os seus conhecimentos nesta tecnologia e descubram como podem beneficiar da sua aplicação. Apesar de múltiplas vantagens da RV já terem sido confirmadas, ainda não foi investigado como os valores experienciais de uma experiência de RV impactam as percepções de marca pelos clientes. Adicionalmente, é importante examinar como esta tecnologia pode ser melhorada, pois por si só é insuficiente enquanto vantagem competitiva.

Baseado na Teoria de Ação Fundamentada (TRA), este estudo analisa como os valores experienciais de uma experiência de RV afetam as percepções dos clientes sobre *brand coolness* na indústria aérea. Foi desenvolvido um *Destination Quiz* em formato RV e um questionário que recolheu as percepções dos valores experienciais e de *brand coolness* dos participantes. Ademais, o estudo investiga se a implementação de gamificação melhora as experiências de RV conduzindo uma análise multi-grupos.

Os resultados revelam que os valores hedónicos e sociais melhoram a percepção de *brand coolness*, enquanto os valores utilitários só impactam a *brand coolness* quando os valores hedónicos ou sociais não são suficientemente fornecidos. Os mecanismos da gamificação examinada não fortalecem significativamente estas relações, mas conduzem a um impacto maior na disposição de pagar um preço premium. Adicionalmente, é identificada uma relação próxima entre *brand coolness* e identidade da marca, confirmando que contribuem para os mesmos resultados, nomeadamente, identificação e preferência pela marca, disposição a pagar um preço premium e fidelidade do cliente.

Palavras-chave: realidade virtual, gamificação, *brand coolness*, valores experienciais, identidade de marca, indústria aérea

Classificação JEL: M31, O33

ABSTRACT

Virtual reality (VR) has revolutionised customer experiences and has become an indispensable tool for businesses. It is crucial for companies to increase their expertise in VR technology and discover how they can benefit from its application. Although multiple advantages of VR have already been confirmed, it has not yet been investigated how experiential values created within a VR experience impact customers' brand perceptions. Furthermore, it is important to examine how to enhance VR experiences as the provision of plain VR technology no longer serves as a competitive advantage.

Based on the theory of reasoned action (TRA), this study aims to analyse how the experiential values of a VR experience affect brand coolness perceptions of customers in the airline industry. Therefore, a VR destination quiz was developed and a post-experiment survey was used to collect participants' perceived experiential values and brand coolness perceptions. Additionally, the study investigates whether the implementation of gamification improves VR experiences by conducting a multi-group analysis.

The results reveal that hedonic and social values enhance brand coolness perception, while utilitarian value impacts brand coolness only when social or hedonic value is not sufficiently provided. The examined gamification mechanics do not significantly strengthen these relationships but lead to a greater impact of brand coolness on willingness to pay a premium. Moreover, a close relationship between brand identity and brand coolness is identified by confirming that brand coolness enhances the same marketing outputs as brand identity, namely brand identification, brand preference, willingness to pay a premium and customer loyalty.

Keywords: virtual reality, gamification, brand coolness, experiential values, brand identity, airline industry

JEL Classification: M31, O33

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1. INTRODUCTION

Virtual reality (VR) technology has transformed how customers can experience and interact with brands and is predicted to continue doing so. Hardware for VR becomes more affordable to the public and more and more businesses aim to catch up and implement virtual reality in their experiential marketing strategies (van Berlo et al., 2021). The global VR market is growing very fast and is expected to increase from slightly less than five billion U.S. dollars in 2021 to more than 12 billion U.S. dollars by 2024 (Alsop, 2021). However, although not long ago the implementation of VR served as a competitive advantage for companies, nowadays customers demand it and VR technology has turned into a must-have for successful competing businesses (Wedel et al., 2020). Therefore, it is highly important for companies to understand how virtual reality generates value for customers and how their VR experiences can be improved. A promising way to enhance virtual reality is through the implementation of gamification. Gamification, commonly defined as the usage of game elements in a non-gaming environment (Deterding et al., 2011), is most known for its potential to increase engagement, enjoyment and motivation levels of users. The concept has garnered a lot of attention in recent years and its market value is expected to be worth over 30 billion U.S dollars by 2025 (MarketsandMarkets, 2020), making it an attractive tool for businesses.

As VR and gamification shape customer experiences, they consequently also influence consumer-brand relationships (Francisco-Maffezzoli et al., 2014; Lo, 2020). Providing memorable and unique experiences of high perceived value to customers in order to build a positive relationship with them has become one of the most important tasks of marketers. In fact, 80% of marketing managers state that enhancing customer experiences belongs to their main priorities (VanBoskirk, 2019). One industry that relies strongly on consumer-brand relationships is the airline industry, as it is a very competitive market in which the offers of most players are very similar to each other. For an airline, superior customer relationship management is a way to differentiate themselves from the competition and to gain a sustainable competitive advantage (Chang & Yeh, 2002; Chen & Hu, 2013).

In addition, customer experiences and their provision of experiential values have been proven to impact brand strength (Wiedmann et al., 2018), while their influence on brand coolness has not yet been studied. Cool brands are ahead of their competition – they benefit, among other factors, from favourable customer attitudes and increased word-of-mouth (WOM) (Warren et al., 2019). Brand coolness has become an indicator of brand success (Loureiro et al., 2020; Warren et al., 2019), making it a very relevant topic to explore further. Therefore, the thesis aims to explore the above gap by using the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980) as a basis to examine whether the experiential values

provided within a VR customer experience positively impact brand coolness perceptions of customers. Therefore, the first research question of this study is, “How do the experiential values of virtual reality customer experiences influence customers’ brand coolness perceptions?”. The thesis considers three value dimensions, namely utilitarian, hedonic and social values and analyses their relationships with the ten brand coolness characteristics suggested by Warren et al. (2019), which are extraordinary, aesthetically appealing, energetic, original, authentic, rebellious, high status, subcultural, iconic and popular. The dissertation answers this research question by conducting two studies. The first study addresses brand coolness as an overall construct. An additional second study examines the specific effects of the three experiential values on each of the ten individual characteristics of brand coolness.

Until now, there has been very little research which addresses a combination of virtual reality and gamification. Only recently, starting in 2020, the first gamified virtual reality experiences have been conducted primarily focusing on user acceptance (e.g. Chen, 2020; Falah et al., 2021; Senecal et al., 2020). So far, the experiments have shown that the combination of gamification and VR can create enjoyable and energetic customer experiences that maintain participants' engagement and interest, and provide them with more interactive, fast and reliable information (Jang & Hsieh, 2021). Further research is needed to investigate how exactly gamification enhances VR experiences in terms of value creation, as the creation of value is the primary goal of gamification in marketing (Huotari & Hamari, 2012; Noorbehbahani et al., 2019). This thesis aims to address this research gap by investigating whether gamification can be used to enhance VR experiences in terms of the influence of experiential values. Thus, the second research question is, “Does the implementation of gamification strengthen the impact of experiential values of VR experiences?”. To investigate this research question, a VR destination quiz was developed with three slightly different versions. The versions vary depending on the gamification elements implemented. To analyse the impact of the gamification elements, the experiential values of a non-gamified VR experience are compared to the experiential values of the gamified VR experiences in a multi-group analysis.

All in all, the master thesis contributes to the literature and practice by examining three relevant and recent topics in marketing, namely brand coolness, virtual reality and gamification, as well as their relationships to marketing's primary goal of value creation. The dissertation addresses two research gaps, the effect of experiential values occurring in a VR customer experience on customers’ brand coolness perceptions, as well as the influence of implemented gamification elements in a virtual reality setting on the impact of experiential values. Additionally, the relationship between brand identity and brand coolness is explored

by comparing their marketing outputs, as similarities between the two concepts can be identified in the literature.

The research proposal is outlined as follows. Firstly, literature review is conducted, starting with an introduction in the airline industry. Then the context of brand coolness is explored, beginning with the importance of consumer-brand relationships before moving on to brand identity and brand coolness itself. Afterwards, the use and impact of VR and gamification on customer experiences is analysed and the gamification design is explained. Then, previous gamified VR experiences are examined, and different dimensions of experiential values are introduced. The conceptual framework and correlating hypotheses are presented, before the methodology explains the intention, preparation and execution of the study's experiment in detail. Finally, the results of both studies are presented and discussed and final conclusions as well as theoretical and practical implications are drawn. Lastly, the limitations of the study are identified and suggestions for future research are made.

2. LITERATURE REVIEW

2.1 The airline industry and its competitiveness

The airline industry has always been one of the biggest intangible service provider industries (Ahmed et al., 2020; Clemes et al., 2008; Kloppenburg & Gourdin, 1992; Shostack, 1977) and is nowadays, an inevitable facilitator for global transportation (Zieba & Johansson, 2022). The aviation industry drives tourism, global trade, investment and economic growth, and impacts various other businesses and industries, such as hotels or other forms of transportation (Ganiyu, 2017; Tahanisaz & Shokuhyar, 2020). Prior to the COVID-19 pandemic, almost 12 million passengers travelled daily on more than 100,000 flights (Gittens et al., 2019). In the year 2019, airlines carried a total of 4.3 billion passengers (Gittens et al., 2019), generated a total revenue of 838 billion US dollars (IATA, 2021; Zieba & Johansson, 2022), provided direct employment to more than 10 million people and ultimately supported the provision of approximately 65.5 million jobs over the world in the aviation industry and related tourism industries (Gittens et al., 2019). The coronavirus pandemic has caused a drastic decline in the airline industry (Amankwah-Amoah, 2021), but as the constraints associated with the pandemic decrease worldwide, the International Air Transport Association (IATA) expects the industry to fully recover by 2024 and even exceed pre-COVID-19 levels by 3% (IATA, 2022).

Historically, governments used to be involved in regulating the airline industry. Then deregulation created new opportunities for airlines and ultimately led to a more competitive and globally integrated airline industry (Amankwah-Amoah, 2021; Bigné et al., 2018). Today, competition is a constant battle for airlines. In their efforts to attract and retain more customers than the competition, airlines use a variety of different strategies (Chen & Hu, 2013). In the commercial airline industry, service providers can generally be differentiated between full-service airlines and low-cost airlines. Full-service airlines offer more frequent connections to a greater number of destinations and often include additional services, such as the provision of food and beverages, assigned seating, airport lounges and in-flight entertainment (Bitzan & Peoples, 2016; Gillen, 2006; Müller & Hüscherlath, 2012). Overall, full-service carriers strive to be a one-stop provider for air travel, offering leisure and business travels to international and domestic destinations, many times by forming alliances with other airlines. Low-cost airlines aim to offer the cheapest fares to travellers and focus on straightforward point-to-point service, charging extra fees for baggage or additional services, such as seat reservations or food and beverages (Bitzan & Peoples, 2016).

As the competition within and outside the aviation industry intensifies, it is important for airlines to provide additional value to their passengers (Han et al., 2020). Although it is known that price is one of the most important decision factors for customers, competing

only on price is not a sustainable winning strategy in the aviation industry, as airlines can react quickly to price adjustments made by competitors (Chang & Yeh, 2002; Chen & Hu, 2013; Jones & Sasser, 1995). In addition, customers have become increasingly demanding and expect high standards of service despite the price paid and desire services that are more individualised, digitalised, enriching and experience-based throughout the whole travel journey (Taneja, 2017). Therefore, the airline industry, like other service sectors, has had to develop new ways to gain a competitive advantage (Chen & Hu, 2013). Customer loyalty is the backbone of long-term competitive advantage in service industries. Given the present competitive market, in which the prices and services, such as frequent flyer programs, of many airlines are fairly comparable, the aviation industry needs to focus strongly on customer relationship management. Building powerful customer relationships allows to gain a competitive advantage while improving market share and customer loyalty (Chang & Yeh, 2002; Chen & Hu, 2013). Also the creation of favourable and powerful brand images enhances a sustainable competitive advantage and profitable economic gain (Aaker, 1991; Dirsehan & Kurtuluş, 2018; Keller, 1998; Persson, 2010). The brand image of an airline strongly impacts the satisfaction of passengers, this is especially the case for full-service airline passengers (Kim et al., 2021; Wongleedee, 2017). Hence, it became very important for carriers to build a strong brand image to establish passenger confidence in the airline (Dirsehan & Kurtuluş, 2018; Lin & Ryan, 2016).

A great way for airlines to improve customer relationships and the passengers' experience is to invest in digital transformation and innovative services (Koslosky, 2019). Nowadays, digital technologies provide many options for creating additional value and providing differentiated customer experiences (Büyüközkan et al., 2021). It is important for airlines to not only rely on the sale of flight tickets, but to continue to invest in digital technology and consider the full travel experience of passengers not only the flight journey itself. The challenging task of a successful airline company is to transform flights into individualised travel experiences with an interface that distinguishes the brand in a highly competitive industry (Koslosky, 2019).

2.2 The context of brand coolness

2.2.1 Consumer-brand relationships

Strong and meaningful relationships are an essential component of identity development (Fournier, 1998) and give humans a sense of purpose (Hinde, 1995; Trudeau & Shobeiri, 2016). Research shows that customers are also willing to form relationships with brands and associate human-like characteristics to them (Shank & Langmeyer, 1994; Sung & Kim, 2010; Trudeau & Shobeiri, 2016). The thought that a brand can be seen as a person and active contributor who forms relationships finds its roots in the research of Fournier (1998) and

Aaker (1997) on brand anthropomorphization and brand personality. To this date, academics often refer to Fournier's (1998) conceptualization of brand relationship quality (BRQ) when examining relationships between brands and consumers (Hudson et al., 2016). BRQ highlights that customers not only decide to buy a brand because they perform well. The purchase decision also depends on the consumer-brand relationship and its meaning. The meanings can vary, some are functional, others are emotional and psychological in nature. However, all meanings are perceived as purposeful and thus, of high importance to the individual (Fournier, 1998; Hudson et al., 2016). According to Fournier (1998), six dimensions, namely love/passion, self-connection, commitment, interdependence, intimacy, and partner quality, can measure the quality of consumer-brand relationships.

Further research has shown that customers who identify themselves with a brand have a stronger attachment to it (Escalas, 2004; Kumar & Kaushik, 2020), and through greater brand attachment, customers experience a higher level of satisfaction, which ultimately increases the likelihood of positive word-of-mouth (Hudson et al., 2016). Consumer-brand relationships influence customer's emotions (e.g. Albert et al., 2008; Pawle & Cooper, 2006), behaviours and attitudes (e.g., Aaker et al., 2004; Aggarwal, 2004) as well as their loyalty (e.g., Fournier & Yao, 1997; Khamitov et al., 2019; Valta, 2013), consequently enabling brands to foster brand commitment (e.g., Bhattacharya & Sen, 2003; Leung et al., 2014), brand love (e.g., Albert & Merunka, 2013; Batra et al., 2012; Carroll & Ahuvia, 2006) and brand passion (e.g., Swimberghe et al., 2014) through their relationships with customers (Trudeau & Shobeiri, 2016).

All businesses need to implement customer-centric strategies to ensure efficient customer relationship management (Loureiro, 2012) because it ultimately highly influences the profitability of brands (Valta, 2013). To foster meaningful consumer-brand relationships it is crucial that companies aim to better understand their customers, respond to their needs, and build a close connection with them (Hudson et al., 2016). On top of that, it is to emphasise that customer experiences positively influence relationship quality (Francisco-Maffezzolli et al., 2014; Lo, 2020). This also includes the interactions between brands and customers through social media (Hudson et al., 2016), and other digital tools, such as virtual reality.

2.2.2 Brand identity

The identity of a brand helps to establish meaningful customer-brand relationships through a proposition of values grounded on functional, affective and self-expressive benefits (Aaker, 1996b; Muhonen et al., 2017). Therefore, the creation and maintenance of a brand identity is one of the first steps to build a strong brand (Aaker, 1996a; Keller, 2003; Madhavaram et al., 2005). Aaker (1996a, p.68) defines brand identity as "a unique set of brand associations that

the brand strategist aspires to create or maintain". The brand identity represents a promise of specific attributes, such as brand values, norms and artefacts (Osakwe et al., 2020), to customers. These attributes form the brand and should differentiate it from the competition and promote trust and credibility (Aaker & Joachimsthaler, 2000; Muhonen et al., 2017). Contrary to brand image, the brand identity is what the company wants the brand to be known for, not how the brand is perceived by the public (Aaker & Joachimsthaler, 2000; Viot, 2011). It is very difficult that the brand image will perfectly match the brand identity, due to the complexity of the communication system. Thus, it is very important that the brand identity precisely informs, guides and implements the brand's communication strategy (Madhavaram et al., 2005).

A strong brand identity is a key success factor for a company, as research has proven that customers show higher brand identification (e.g. Alnawas & Altarifi, 2016; Bhattacharya & Sen, 2003), brand preference (e.g. De Chernatony, 2009) and willingness to pay a premium (e.g. Anselmsson et al., 2014), when interacting with a brand that has a distinctive brand identity (Casidy et al., 2019). Additionally, strong brands benefit from higher brand power to finance new launches and enhanced customer loyalty (Ghodeswar, 2008).

2.2.3 Brand coolness as a brand attribute

People chase cool brands and they are willing to spend a premium for them, even if they may not be able to clearly explain why the brand is cool in the first place (Chen et al., 2021; Warren et al., 2019). Brand coolness is a perceived attribute of a brand (Warren et al., 2019) and serves as a competitive advantage that can differentiate a company from its competition and make customers switch to the cooler brand. Apple's cool brand image, for example, has helped the company to stay ahead of its competitors (Chen et al., 2021; Warren et al., 2019). More and more companies aim to make their products and services cool and try to create a cool brand image by designing cool advertisements or appointing a cool spokesperson (Lu et al., 2021; Rahman, 2013; Sundar et al., 2014; Warren & Campbell, 2014). But what exactly makes a brand cool? The term "cool" dates back to the 1920s and its underlying complexity still corresponds to disputes between researchers and managers (Loureiro et al., 2020).

Coolness has been approached from different perspectives in several industries. Some researchers see coolness as a personality trait (e.g. Dar-Nimrod et al., 2012, Dar-Nimrod et al., 2018; Warren et al., 2018) or a part of a design that drives innovation (e.g. Holtzblatt, 2011; Sundar et al., 2014), others relate coolness to different generations (e.g. Chen et al., 2021) or to a marketing tool (e.g. Loureiro et al., 2020; Rahman, 2013; Warren et al., 2019; Warren & Campbell, 2014). Warren and Campbell (2014) define coolness based on four characteristics. First, they propose that coolness is socially constructed and shared in the social community, however, perceptions on cool brands can also vary among individual

customers and peer groups (Chen et al., 2021; Runyan et al., 2013). This leads to the second feature, coolness is subjective and changes over time, generations and cultures (Warren & Campbell, 2014). Warren et al. (2019) examine that brands initially become cool to a small niche before they become popular to the mass over time. The third feature of coolness is that it is a positive and desirable quality. But coolness is something more than just desirable, the fourth aspect that distinguishes coolness from desirable is the factor of autonomy. Cool brands create and follow their own path despite external expectations (Warren et al., 2019; Warren & Campbell, 2014). In the study of Warren et al. (2019) ten characteristics are found that customers associate with brand coolness, namely extraordinary, aesthetically appealing, energetic, original, authentic, rebellious, high status, subcultural, iconic and popular.

From the customer perspective, perceived coolness is a positive verdict on the attractiveness, subculture and uniqueness of the product or service (Lu et al., 2021; Runyan et al., 2013; Sundar et al., 2014). Luxury values have proven to enhance brand coolness perception (Loureiro et al., 2020). Research also shows that coolness leads to an increased hedonic value perception, which ultimately influences customer attitudes in a favourable way for the company (Im et al., 2015). Additionally, brand coolness positively impacts brand exposure and familiarity, pride, satisfaction, delight, word-of-mouth, brand love, self-brand connections (SBC), brand price premium, willingness-to-pay (WTP) (Warren et al., 2019) and prosocial behaviour (Bird & Tapp, 2008; Lu et al., 2021; Mohiuddin et al., 2016). Furthermore, customers tend to think that their social image is enhanced when they consume cool products, so they often want to share their experience with others to look cool. Nowadays, this often happens on social media and through the posting of pictures and videos of the product or service cool brands often benefit from a created buzz (Apaolaza et al., 2021; Chen et al., 2021).

The beneficial consequences of brand coolness are particularly interesting for companies in competitive markets like the aviation industry. As previously mentioned, the fares and services of most airlines are becoming more and more comparable and airline brands need to find new ways to differentiate themselves and deliver additional value to their customers (Chen & Hu, 2013; Han et al., 2020). Brand coolness offers the opportunity to strengthen the brand image of airlines, which enables airline companies to boost passenger satisfaction (Kim et al., 2021; Wongleedee, 2017), passenger confidence (Dirsehan & Kurtuluş, 2018; Lin & Ryan, 2016), and ultimately create a sustainable competitive advantage (Aaker, 1991; Dirsehan & Kurtuluş, 2018; Keller, 1998; Persson, 2010).

2.3 The use of virtual reality and gamification

2.3.1 Virtual reality – definition and influence on customer experiences

Today's demanding customers value experiences over products, making the management and optimization of customer experiences major objectives of companies, especially because they positively influence customer-brand relationships (Francisco-Maffezzoli et al., 2014; Lo, 2020). The latest technologies transform customer experiences and change customers' interactions with the physical and virtual environment. VR technology is expected to be a key driver (Flavián et al., 2019). Virtual reality can be defined as a computer-generated simulation in which the participant feels immersed (Loureiro et al., 2019; Wedel et al., 2020). Users perceive the virtual world via multiple senses, mainly vision, hearing and touch (Wedel et al., 2020), and with the help of VR hardware, such as head-mounted displays (HMDs), participants can interact and move within the three-dimensional simulation as if they were actually there (Suh & Prophet, 2018; Xi & Hamari, 2021). Therefore, virtual reality is identified by its interactivity, three-dimensionality, and real-time response (Whyte, 2002; Xi & Hamari, 2021), and characterised as a medium that solves time and space limitations and delivers an immersive sensory experience (Flavián et al., 2019; Serrano et al., 2016; Xi & Hamari, 2021).

VR enables customers to have a more autonomous and dynamic role in their experiences (Ostrom et al., 2015), leading to an increased value perception (Flavián et al., 2019; Patrício et al., 2011). Therefore, many consumer-end industries, such as retailing, entertainment, fashion, automotive, education, medicine, tourism, restaurants and real estate, use virtual reality technology to strengthen customer experiences (Flavián et al., 2019; Wedel et al., 2020). Through VR implementation, new touchpoints along the customer journey are created and existing ones are improved, enhancing the way consumers search, evaluate, decide for and consume products or services (Hoyer et al., 2020). At the pre-purchase stage, VR enables customers to easily access detailed and personalised product information and to test, compare or customise products, improving decision-making (Flavián et al., 2019; Marasco et al., 2018). For example, customers can compare different furniture items in a virtual living room before deciding on one. At the purchase stage, VR generates new forms of consumer interfaces, such as virtual showrooms or simulated shelves, and optimises shopping efficiency by personalising shopping and moving shop designs, product demonstrations and walk-throughs to the virtual world. Customers can, for instance, buy their groceries in a virtual supermarket. The post-purchase experience and evaluation are enhanced through VR technology because it enables the provision of reexperiences, co-creation and further contextual information (Wedel et al., 2020). For example, a customer can receive instant virtual assistance on how to fix a previously bought dishwashing machine (Flavián et al., 2019). All in all, VR enhances omnichannel experiences and allows customers to proceed seamlessly through the customer journey.

VR increasingly influences business and marketing decisions (Loureiro et al., 2019), as it enables the creation of memorable experiences and increases fun, enjoyment, engagement and curiosity levels of customers (Hoyer et al., 2020). This ultimately influences brand attitudes, brand recall and purchase intentions (Li et al., 2003; Martínez-Navarro et al., 2019; Wedel et al., 2020) as well as customer satisfaction and loyalty (Hudson et al., 2019; Wedel et al., 2020). These effects emphasise how crucial it is for companies to adapt to technological advancements, such as VR, to successfully compete in today's marketplace.

2.3.2 Gamification – definition and influence on customer experiences

People love playing games and they do so in almost every possible situation, while relaxing, socialising, working or travelling, with the goal to create enjoyable and memorable moments (Robson et al., 2015). The concept of gamification refers to designing situations that give people the same sense of motivation and satisfaction that games can generate (Koivisto & Hamari, 2019), enhancing customer experiences and consequently positively influencing consumer behaviour. Over the past ten years, gamification has garnered a lot of attention and interest in both academia and a variety of industries, such as retail, consumer goods, media and healthcare (Hass et al., 2021; Wunderlich et al., 2020).

There are several definitions of gamification, however, most of them share the same characteristics. The broadest and most popular definition is from Deterding et al. (2011, p.9), who define gamification as “the use of game design elements in non-game contexts”. Gamification can be misunderstood easily, the point is not to play real games but to apply principles of game design to existing organisational situations, problems and processes in a non-gaming setting, with the goal to positively affect the behaviour and performance of stakeholders by engaging and motivating them. Gamification can turn traditional organisational processes into entertaining, game-like experiences (Robson et al., 2015).

Research has shown that the concept of gamification can be applied to a variety of fields and industries due to its high adaptability and different effects. The main psychological effects of gamification are enjoyment, motivation and flow, while efficiency and individual performance are the most recognised behavioural and organisational outcomes (Hass et al., 2021; Warmelink et al., 2020). Previous experiments have shown that gamification is an effective technique to boost engagement (Robson et al., 2015) and increase satisfaction (Xi & Hamari, 2019). In the field of education, students show improved learning performances and higher levels of motivation through a gamified learning environment (Su & Cheng, 2015). A great example of an educational gamified experience is the mobile app Duolingo, which helps people to learn a new language in a fun and exciting way, for instance, by collecting achievement badges. In tourism, gamification also finds its implementation opportunities. A study of TripAdvisor's implemented gamification principles shows that users experience

higher experiential values as well as higher engagement rates, making their trip planning more interactive, fun and social (Hass et al., 2021; Sigala, 2015). In marketing, gamification is a popular practice embedded in the lives of customers (Hass et al., 2021). The main goal of gamification in the marketing sector is value creation (Huotari & Hamari, 2012; Noorbehbahani et al., 2019). Gamification has proven to enhance the perceived usefulness and enjoyment of customers, which both influence brand attitudes and the engagement intention (Harwood & Garry, 2015; Xi & Hamari, 2020; Yang et al., 2017). Additionally, implemented gamification approaches can enhance brand love (Hsu & Chen, 2018), brand equity of products (Xi & Hamari, 2020) as well as the loyalty of customers (Hwang & Choi, 2020). Improved relationships with customers can also be established when gamification is used as a platform for brand co-creation experiences (Nobre & Ferreira, 2017). However, although gamification scored impressive results in a variety of applications, it is important to highlight that the effectiveness of the gamified experience also depends on the person who experiences it and the situational context (Hamari et al., 2014; Hass et al., 2021).

2.3.3 Gamification design

As there are multiple definitions of gamification, there are also different approaches on how gamification experiences should be designed, each emphasising different aspects. However, in literature, a popular proposal about the gamification construction is the MDE (mechanics – dynamics – emotions) framework that was introduced by Robson et al. (2015). Mechanics, dynamics and emotions are the three fundamental and interdependent aspects that need to be taken into account to structure an effective gamification experience (Robson et al., 2015).

Mechanics set the overall structure of the gamified simulation, including rules, goals, settings, key parties, context and all interactions during the experience. Mechanics are known beforehand and cannot be changed once the experience has started (Robson et al., 2015). Points, rewards, levels, leader boards, badges, in-game currencies, missions and avatars are, among others, types of mechanics (Sezgin & Yüzer, 2020). Robson et al. (2015) differentiate between three different kinds of mechanics. Set-up mechanics control the environment and overall settings of the experiment, for example, the number of players. Rule mechanics set the rules, goals and restrictions of the experience, determining the actions players need to follow, for example, time restrictions. Progression mechanics are achievement awards that visualise the participant's progress and give them feedback, increasing the likelihood of repetition, for example, the collection of points (Elverdam & Aarseth, 2007; Robson et al., 2015).

Dynamics are the player's responses to implemented mechanics, for instance, progress, collaboration, relationships or recovery (Sezgin & Yüzer, 2020). Gamification designers are not fully in control of dynamics, as they depend on the player's emerging in-game

behaviours, which in turn depend on the participant's personality and on how the user follows the mechanics during the experience. Thus, dynamics are difficult to predict. However, it is still important that designers of gamification experiences forecast dynamics, so they can select the mechanics that most likely lead to the occurrence of the desired dynamics. For example, if the gamification experience should allow cooperation (dynamic), a team-based structure (mechanic) should be chosen for the gamified experiment (Robson et al., 2015).

Emotions refer to the mental state of players throughout the gamification experience, they depend on the occurring dynamics and chosen mechanics (Robson et al., 2015). Among others, the feelings of accomplishment, pride, joy, shame or community acceptance are examples of gamification emotions (Sezgin & Yüzer, 2020). Gamification experiences should always aim to create positive emotions, such as fun, happiness and excitement. To do so, it is important to take cultural differences into consideration (Noorbehbahani et al., 2019).

Only through the combination of mechanics, dynamics and emotions can desired results be achieved. Hence, it is crucial to always consider the interdependence between the three elements. If all three gamification elements are aligned to each other, the likelihood of a successful gamified experiment is high (Robson et al., 2015).

2.3.4 Virtual reality and gamification combined – previous experiments

As the last two chapters demonstrated, both VR and gamification find their application in several industries and fields, both enhancing customer experiences and positively influencing customer behaviour and consumer-brand relationships. However, research is scarce when looking for the two concepts combined and only seems to be addressed since 2020.

Mostly in the field of education and learning, first gamified virtual reality experiments are conducted. Falah et al. (2021) proposed a gamified virtual learning environment that motivates students to learn in an easy and fun way when they are confronted with a complex topic, such as medicinal chemistry. The gamification principles increase the enjoyment rates of students and motivate them to improve their scores and reach the next level. Post-survey results even indicated a potential requirement for the implemented gamification elements. On top of that, students have the ability to learn at their own pace within the VR application, while still being able to compare their achievements with their colleagues, supporting competitiveness (Falah et al., 2021). Findings of a study by Pinto et al. (2021) stated that a gamified virtual environment supports the learning of a foreign language. Senecal et al. (2020) created a gamified VR simulation that helps participants to learn Salsa. One of the implemented gamification mechanics is a virtual avatar, resembling the dance partner. The results highlight that the gamification elements are needed to attain user engagement, focusing on usability, playability and fun (Senecal et al., 2020). Cavalcanti et al. (2021) tested how hazard communication can be delivered by using a gamified VR experience. Time

restrictions motivate the participants to eliminate risks as fast as possible (Cavalcanti et al., 2021). The impact of gamification is again emphasised by a study by Chen (2020), who proposed a prototype for a virtual training laboratory for three-dimensional printing. Evaluations of the first prototype revealed lacking interest and motivation of students. Only after implementing gamification mechanics, the experiment received positive feedback, highlighting that gamification elements should be considered when designing a virtual learning environment to ensure motivation and engagement (Chen, 2020).

Also in healthcare, gamified VR experiments found their first applications recently. Intending to fight obesity, Kakoschke et al. (2021) implemented gamification mechanics in a virtual reality experience for approach-avoidance training. Besides enhancing the enjoyment and engagement levels of participants, the gamification mechanics also provide helpful contextual clues, as complex interactions make it more difficult to predict the interaction of participants in the virtual environment (Kakoschke et al., 2021). Another example of a gamified VR simulation is an experiment to treat arachnophobia. Lindner et al. (2020) implemented different levels with increasingly real-looking and frightening spiders in a virtual environment. Within the virtual simulation, participants needed to complete increasingly difficult tasks, moving from helping a spider to interacting with it. Distress ratings of participants prove that a gamified VR simulation can be used as a promising self-help treatment (Lindner et al., 2020).

In tourism e-commerce, Jang and Hsieh (2021) investigated how gamified virtual reality experiences can influence consumer behaviour by designing a gamified VR-enhanced tourism web system. Results show that enjoyment and activation created through gamification positively influence media richness, which affects the usefulness and ease of use in the VR experience as well as the perceived value and satisfaction of users. This ultimately increases the likelihood of adoption, which is represented in the authors' experiment by visiting the presented destination (Jang & Hsieh, 2021).

All in all, by creating a pleasant and energised customer experience through the implementation of gamification elements, gamified VR not only keeps participants interested and engaged, but also provides them with more interactive, reliable and faster information (Jang & Hsieh, 2021). The previously mentioned experiments show that gamification has great potential to enhance virtual reality experiences. Further research is necessary to examine how exactly gamification elements impact experiential values of VR. This matter will be addressed in the experiment of this paper.

2.3.5 Experiential values of VR and gamification

The provision of unique and memorable customer experiences that increase the value perceptions of customers is a major goal of brands, as they positively influence customer

satisfaction (Yuan & Wu, 2008), customer-brand relationships and brand strength (Wiedmann et al., 2018). Multisensory experiences deliver several experiential values that can be defined as the subjective perceptions of customers, created while experiencing a product or service. In other words, experiential value is a cognitive assessment of the perceived gain that customers get from the experience (Mathwick et al., 2001; Wu et al., 2018; Yu, 2019), which is distinct from customer value that focuses on the overall assessment of the product or service utility (Torres et al., 2021; Zeithaml, 1988). Experiential values can vary depending on the type of experience and the subjective reactions of customers (Yu, 2019; Yuan & Wu, 2008), however, research commonly differentiates between three value dimensions, namely utilitarian, hedonic and social values.

Utilitarian values refer to the assessment of functional benefits and sacrifices (Overby & Lee, 2006), they are more rational and goal-oriented in nature, for example, efficiency and convenience are typical utilitarian values (Hsu et al., 2021). In the context of gamification, utilitarian values relate, among others, to the ease of use and usefulness of the experience (Hamari & Koivisto, 2015; Torres et al., 2021). VR can provide utilitarian value, for example, because of its content quality, portability (Yang & Han, 2021) or the virtual presentation of personalised product features (Hsu et al., 2021). Hedonic values are the output of affective benefits compared to affective sacrifices, they are more personal and customers generally emphasise them more. In a gamified or VR experience, feelings of enjoyment, entertainment, escapism or playfulness can, for example, represent hedonic values (Hsu et al., 2021; Overby & Lee, 2006), and can be evoked by interactivity (Hsu et al., 2021) or visual attractiveness (Yang & Han, 2021). Social values are developed in the social context of the experience and can be linked to social influence, approval and recognition. Social value reflects the importance consumers place on establishing relationships with others and how they identify themselves within the group (Hamari & Koivisto, 2015; Iyer et al., 2018; Torres et al., 2021). VR and gamification can create social value, for example, by bringing people together or creating a competitive environment.

Perceived utilitarian and hedonic value have already proven to have a positive impact on consumer attitude (Im et al., 2015). Additionally, experiential values influence customers' intentions to continue the experience (Hsu et al., 2021; Yang & Han, 2021) and to purchase (Mathwick et al., 2001). However, utilitarian, hedonic and social values might influence marketing outputs in different ways. Therefore, it is important to take all three value dimensions and their relationships with brand outcomes into account as these relationships can provide insight into which value should be improved to achieve the desired marketing outcomes, such as brand loyalty, brand love (Torres et al., 2021) or, as discussed in this thesis, brand coolness.

3. CONCEPTUAL FRAMEWORK AND HYPOTHESES

After reviewing the existing literature, the following conceptual model (see Figure 1) has been developed and is explained below.

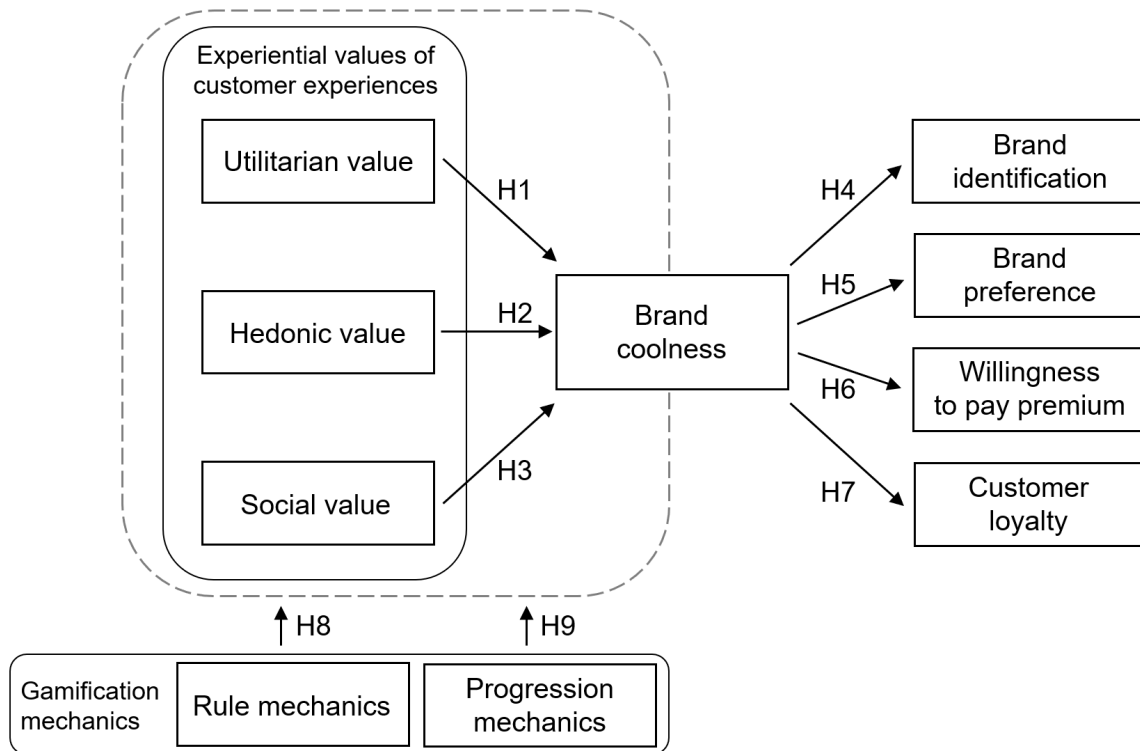


Figure 1: Conceptual framework

The study's research model is based, among others, on the assumptions of the theory of reasoned action (TRA) introduced by Ajzen and Fishbein (1980). It is a cognitive theory that provides a conceptual model to explain human behaviour in a given context. The TRA facilitates understanding of people's behaviour as well as making predictions about future behaviour. The theory of reasoned action states that the behaviour of an individual is primarily dependent on the person's intention to participate in the specific behaviour. Intentions, on the other hand, depend on the individual's attitude towards the behaviour in question as well as on subjective norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; LaCaille, 2020). The attitude towards a specific behaviour is represented by the individual's favourable or unfavourable associations towards engaging in the behaviour of interest. According to the TRA, attitudes are influenced by behavioural beliefs, which include the person's belief about what outcomes will result from engaging in the activity as well as how the individual evaluates these outcomes. Hence, people tend to have a positive attitude towards a behaviour if they believe it will lead to positive outcomes. Contrary, negative attitudes arise when individuals assume that the behaviour will lead primarily to negative

consequences (Coleman et al., 2011; Fishbein & Ajzen, 1975). Subjective norms and social pressure are formed by normative beliefs. Normative beliefs are defined as subjective perceptions about whether social referents expect the individual to engage in the behaviour of interest and are coupled with the motivation of the individual to behave according to these perceived expectations. The TRA assumes that an individual can be influenced by multiple referent people or groups, including spouses, friends, family members, colleagues, health professionals or the government (Ajzen & Fishbein, 1980; Ajzen, 2012). To summarise, according to the TRA, a person is more inclined to establish intentions to partake in a behaviour the more the individual has a favourable attitude towards it and the more the person believes it to be important to their surroundings and society (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; LaCaille, 2020).

Experiences lead to the formation of a great variety of beliefs (Fishbein & Ajzen, 1975). Brand experiences can generate certain feelings, sensations, cognitions and behavioural responses that are triggered by particular stimuli (Brakus et al., 2009). In a VR experience, behavioural beliefs can be the result of the immersive environment experienced by the customer and can be measured by experiential values. Previous research has shown that virtual reality leads to an increase in the value perceptions of customers by allowing them to have a more autonomous and dynamic role in the experience (Flavián et al., 2019; Ostrom et al., 2015; Patrício et al., 2011). Experiential values are dependent on the nature of the experiment itself and the individual characteristics of the participant (Yu, 2019; Yuan & Wu, 2008). However, in research, experiential values are commonly divided into utilitarian, hedonic and social values. Therefore, these three value dimensions are considered.

The experiential values occurring in customer experiences have already been proven to positively impact customer satisfaction (Yuan & Wu, 2008), customer-brand relationships (Francisco-Maffezzoli et al., 2014; Lo, 2020) and brand strength (Wiedmann et al., 2018), which consequently might influence customers' perceptions of a brand. Because brand experiences provide values to participants, they also favourably influence customer attitudes according to the TRA, as a person's attitude is formed simultaneously and automatically when the individual learns about new positive attributes and qualities of the brand (Brakus et al., 2009; Fishbein & Ajzen, 1975). A study by Im et al. (2015) supports the notion that perceived values have an influence on the attitudes of consumers. Therefore, it is likely that the experiential values of a virtual reality customer experience also positively impact customers' attitudes on brand coolness. Thus, the relationship between the three experiential value dimensions and the concept of brand coolness will be examined, hypothesising that:

H1: Utilitarian value positively influences brand coolness.

H2: Hedonic value positively influences brand coolness.

H3: Social value positively influences brand coolness.

Brand coolness is considered to be a brand attribute, differentiating the brand from its competition (Warren et al., 2019). The brand identity represents a promise of a set of attributes (Aaker, 1996a; Muhonen et al., 2017), making it possible to assume that brand coolness could be one of the brand identity attributes. Additionally, Aaker (1996a, p.68) defines brand identity as “a unique set of brand associations that the brand strategist aspires to create or maintain”, to be associated as cool could be such a strategic goal for a company. On top of that, both concepts have a strong influence on consumer-brand relationships. Hence, the literature shows many similarities between the two concepts. Aiming to examine if brand coolness can be seen as a part of the brand identity, this study analyses whether brand coolness positively correlates with the marketing outputs of brand identity, which are higher brand identification, brand preference, willingness to pay a premium and enhanced customer loyalty (Casidy et al., 2019; Ghodeswar, 2008). It has already been confirmed that customers are willing to pay a higher price for a cool brand (Warren et al., 2019). Additionally, according to Warren et al. (2019), self-brand connections are a consequence of brand coolness. As SBC are based on how well the inner self associates with a brand (Escalas & Bettman, 2003), it is likely that brand coolness also impacts the concept of brand identification. Similarly, brand love has already been found to respond to brand coolness (Warren et al., 2019), making it probable that brand preference, a prerequisite of brand love (Fournier, 1998), is affected by brand coolness too. Furthermore, brand coolness has proven to enhance satisfaction and word-of-mouth (Warren et al., 2019), as satisfaction is a key requirement of customer loyalty (Oliver, 1999; Picón et al., 2014) and customer advocacy in the form of WOM is a consequence of loyalty (Susanta et al., 2013), the concept of customer loyalty is likely to be influenced by brand coolness. On top of that, brand attitude valence can be considered a consequence of brand coolness (Warren et al., 2019). According to the TRA, the favourable attitudes of customers in form of higher brand coolness perceptions lead to higher levels of intention, which drives engagement in specific behaviours (Ajzen & Fishbein, 1980), making marketing outputs more likely to occur. Thus, the following four hypotheses are proposed:

H4: Brand coolness leads to increased brand identification.

H5: Brand coolness leads to increased brand preference.

H6: Brand coolness leads to increased willingness to pay a premium.

H7: Brand coolness leads to increased customer loyalty.

The study also aims to observe whether the implementation of gamification elements makes a difference in the results concerning the proposed relationships between the experiential values and the concept of brand coolness, as previous research suggests that the main goal of gamification in marketing is value creation (Huotari & Hamari, 2012;

Noorbehbahani et al., 2019) and it has already been demonstrated that gamification is capable of impacting brand attitudes (Yang et al., 2017; Xi & Hamari, 2020) and brand love (Hsu & Chen, 2018). Furthermore, recent gamified VR experiments achieved relevant results through the implementation of gamification, such as increased enjoyment rates (Falah et al., 2021), engagement levels (Chen, 2020; Senecal et al., 2020) and higher motivation of participants (Chen, 2020; Falah et al., 2021). In addition, the results of a study by Jang and Hsieh (2021), which focused on a gamified VR-enhanced web system, revealed that gamification indirectly increases customers' perceived value, as gamification creates enjoyment and activation, which impacts media richness, which in turn affects the usefulness and usability of the VR experience, which ultimately enhances the value perceptions of customers. However, it is not yet verified how individual gamification elements influence experiential values in a VR experience. Looking at the previously discussed MDE (mechanics-dynamics-emotions) framework of Robson et al. (2015) that explains the construction of gamification, only game mechanics can be controlled by game designers and are therefore considered in this study. There are three different types of mechanics, set-up mechanics that control the overall setting and environment of an experiment, rule mechanics that set the restrictions, rules and goals of the experience and progression mechanics that symbolise the participant's progress and provide feedback (Elverdam & Aarseth, 2007; Robson et al., 2015). As the experience of the study takes place in a virtual reality setting, which already includes many set-up mechanics in itself, set-up mechanics can hardly be manipulated. Therefore, it is decided that the study focuses on the impact of rule mechanics and progression mechanics, predicting the following:

H8: The implementation of rule mechanics strengthens the relationship between the experiential values, (a) utilitarian value, (b) hedonic value, (c) social value, and brand coolness.

H9: The implementation of progression mechanics strengthens the relationship between the experiential values, (a) utilitarian value, (b) hedonic value, (c) social value, and brand coolness.

4. METHODOLOGY

To analyse the relationships between the variables under observation and test the proposed hypotheses, a quantitative study with primary data, consistent of a VR experiment and a post-experiment questionnaire was conducted at a laboratory of ISCTE Business School. Two airline brands were chosen that offer the VR customer experience within the experiment, and the effects of two different gamification elements, namely time restriction (rule mechanic) and a scoreboard system (progression mechanic), were observed. In the following, the preparation of the study and its execution is explained in more detail.

4.1 Choice of brands to compare

The first step was to choose the two airline brands that were to be used in the study. The reason to take more than one brand into account was to avoid brand specific results and obtain results that can be applied to a variety of brands. The aim was to choose two brands that are similar in regard to their business segment, service and destinations. As explained in Chapter 2.1, airline carriers can be categorised as full-service airlines or low-cost carriers. For this study, it was decided to focus on two full-service airlines, since low-cost airlines compete strongly on price and the brand image of an airline primarily influences the satisfaction of full-service passengers (Kim et al., 2021; Wongleedee, 2017). In addition, it was important to check whether the two brands were currently perceived as similarly cool before starting the experiment, as otherwise participants' opinions might have been biased when asked about their perceived brand coolness of the brand used in the experiment, and the results would not have been comparable. Therefore, a pre-test survey has been conducted that questioned the current brand coolness level of both brands using the 37-item brand coolness scale of Warren et al. (2019). Afterwards, an independent t-test was performed with the software IBM SPSS Statistic 27 to compare the brand coolness levels of the two brands.

The airline brands TAP Air Portugal and Lufthansa have been chosen because they both are full-service airlines, have similar fare prices and service offerings and fly to many common destinations. Additionally, they are both partners of Star Alliance, a global aviation alliance with a total of 26 members who are committed to innovation in international travel and offering customers the highest standards of customer service and safety to allow a truly seamless journey (Star Alliance, 2022). A total of 46 participants answered the pre-test survey to compare the brand coolness of the two airline brands. Only the responses of the participants that stated that they knew the brand as well as flew with them previously were counted to ensure reliable results. This led to a total of 20 valid responses per brand. The independent t-test revealed a p-value of 0.09 (see Appendix A) and thus, confirmed that

there isn't a significant difference regarding the level of brand coolness between the two brands. Therefore, it could be concluded that the two airline brands TAP Air Portugal and Lufthansa were suitable for the study.

4.2 Questionnaire development

The survey administration software Google Forms was used to design the questionnaire and collect the data. Since the study considered two brands, two versions of the exact same questionnaire were created, with only the logo and colours adapted to fit the brand's aesthetic. The colour green was used to suit TAP Air Portugal and blue was used for the brand Lufthansa. The questionnaire was divided into four sections plus a brief introduction that summarised the nature and situational context of the questionnaire without revealing the variables under observation to avoid biased responses. It also included a formal statement of confidentiality and anonymity. To ensure the reliability and validity of the survey results, previously validated scales were used to measure the constructs under observation and are summarised in Table 1. The questions have been slightly adapted to fit the context of the study (see Appendix B) and were all measured on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree", except the questions regarding customer loyalty that were measured on a 7-point Likert scale ranging from "not at all likely" to "extremely likely".

Table 1: Adapted scales to measure constructs

Constructs	Adapted scales (authors)	No. of items
Utilitarian value	Iyer et al., 2018	3
Hedonic value	Iyer et al., 2018	4
Social value	Iyer et al., 2018	3
Brand coolness	Warren et al., 2019	37
Brand identification	Stokburger-Sauer et al., 2012	5
Brand preference	Sirgy et al., 1997	4
Willingness to pay a premium	Netemeyer et al., 2004	3
Customer loyalty	Zeithaml et al., 1996	5

The first section of the questionnaire measured the experiential values of the VR experience and consisted of a total of ten items. The questions concerning utilitarian value (3 items), hedonic value (4 items) and social value (3 items) were adapted from Iyer et al. (2018). The second section observed brand coolness and its ten characteristics. Firstly, the participants were asked if they knew the brand to make sure they were able to answer the following 37 questions to measure brand coolness, for which the brand coolness scale of Warren et al. (2019) was used. Only responses of participants that knew the brand were used to ensure high-quality results. The third section of the questionnaire dealt with the

marketing outputs of brand coolness, which were suspected to be the same as the ones of brand identity. Therefore, the 5-items brand identification scale of Stokburger-Sauer et al. (2012), the 3-items brand preference scale of Sirgy et al. (1997), the 3-items willingness to pay a premium scale of Netemeyer et al. (2004) and the 5-items customer loyalty scale of Zeithaml et al. (1996) were chosen to be used. The fourth and last section of the survey collected basic demographic information, including gender, age, nationality, employment and education, which could later be used as control variables. In Appendix C, the post-experiment questionnaire of TAP Air Portugal can be seen.

4.3 VR experiment development

The virtual reality experiences for the study were created with the software program Unity. A VR quiz template in a cube environment was purchased from the Unity asset store and manually modified into an entertaining and educational destination quiz. The head-mounted display (HMD) and the compatible controllers of the brand Oculus Rift were used to experience the VR simulation. When participants entered the virtual reality environment, they stood in front of four buttons, each had a different colourful symbol. To start the game, the participants needed to point at the quiz item that they saw straight in front of them with the controller. Then, the first question appeared. A large picture of one of the shared destinations of the airline brands was shown and four locations were suggested, one being the correct destination that could be seen in the picture. Next to the suggested locations were coloured symbols that matched the coloured symbols of the four buttons in front of the participant. The task of the players was to guess the correct destination and log in their answers by pointing with the controller at the button that had the same symbol as the one next to the suggested location that they thought was the correct one. After logging in the answer, the players knew immediately if their answer was right, as they either saw a green thumb pointing upwards if the answer was correct or a red thumb pointing downwards if it was incorrect. In case of an incorrect answer, the correct location blinked green to inform the player where this picture was taken. This was an important feature of the quiz, as it should enable the dynamic of education. A total of 20 questions were asked, each showing a different destination, which both airlines are flying to. The first five questions served as a short test round to allow the participants to adapt to the virtual environment and understand how they should interact and use the VR equipment.

The level of difficulty of any game is an important factor because potentially occurring emotions of players need to be considered (Robson et al., 2015). Participants should neither be bored because it is too easy, nor frustrated because it is too hard. Therefore, a small pre-test of difficulty was performed before implementing the questions in the virtual reality setting. The pre-test involved five participants answering the 20 quiz questions, where ten points

were awarded for each correct answer given, in the same manner as would be adopted during the VR experience. The pre-test participants scored between 110 and 150 points. An average score of 126 points indicated that the questions were suitably challenging. The quiz served as a fun way to test the player's travel knowledge while, at the same time, educating the player about different cities around the world and promoting the destinations of the airline.

The study also investigated how gamification influences the proposed relationships between the experiential values and brand coolness. Two different types of gamification mechanics, namely rule mechanics and progression mechanics, were examined. Time restriction was chosen as a rule mechanic and a scoreboard system with points was chosen as a progression mechanic. To compare the influence of implemented gamification mechanics, three different versions of the VR experience were created. One version was designed with a countdown timer that could be seen on the right side of the quiz in the VR simulation. In another version, the participants saw a scoreboard next to the quiz that showed the names and points of the five highest ranking players. For each correct answer, the participant received ten points. After the 20th question, the players saw their score, and if it exceeded one of the scores of the five best players, the name of the participant appeared on the scoreboard. This mechanic may have evoked emotions of pride and happiness in the players. The last version had no additional gamification elements implemented to act as a control and determine whether the implementation of rule and progression mechanics changed the results of the study.

Because the study considered two airline brands a total of six VR experiences were created, the three of the above described versions per brand. In order that the participants associated the VR experience to the specific brand, the brand's logo was put next to the quiz in the VR setting. Additionally, the colours were adapted to fit the aesthetic of the brand, green for TAP Air Portugal, blue for Lufthansa. However, the quiz questions and all other settings stayed identical in all six VR versions to allow an adequate comparison between the observed elements. Appendix D shows screenshots of the VR experiences for better visualization and understanding.

4.4 Pre-test

After the questionnaire and VR experience was fully developed, a pre-test of the whole experience was carried out to make sure the experiment ran smoothly and supported the study's intentions. In order that all participants experienced the experiment in the same way, a protocol was written that introduced the participant to the study and described the procedure of the experiment (see Appendix E). Additionally, the handling of the VR equipment was explained and how to adjust it, so it perfectly met the participants needs in

regard to head size, eyesight and handedness. Three participants were invited to the pre-test, one experiencing the VR destination quiz with time restriction, one with the scoreboard system and one without any gamification elements included. All three runs went well without any problems. The three participants enjoyed the VR experience and gave positive feedback. However, the participant who experienced the time restriction version missed the time frame to log in her answer a few times by seconds. The implementation of time restriction should lead to positive tension but a possible feeling of frustration should be avoided. Therefore, it was decided to increase the time limit from 20 seconds to 30 seconds per question. This was the only adjustment that was made, and the data collection could start.

4.5 Data collection

The data collection of this study started on the 15th of March 2022 and lasted until the 27th of April, taking approximately one and a half months. As it was an in-person experiment, the participants needed to come to the laboratory and were asked to plan a total of 30 minutes to participate in the experiment to allow enough time to explain the experiment, participate in it and fill in the post-experiment survey. The research centre ISTAR-IUL, standing for Information Sciences and Technology and Architecture Research Centre, is a unit of ISCTE Business School and provided the laboratory room. Non-random sampling methods, namely convenience and snowball sampling, were used to attract participants. Calendly is an online appointment scheduling software and was used for this study. An event was created on Calendly that explained the general purpose of the study without specifying the monitored variables to avoid biased behaviour and indicated the duration and location of the experiment. A link to the created event was sent to friends and acquaintances, which enabled them to choose a time slot and book an appointment. Additionally, this link was published in various Facebook groups and Instagram stories. Moreover, posters were put up at ISCTE Business School that showed a QR code which also led to the website where people could book appointments. A smaller version of the poster was handed out to students in the form of flyers to directly speak to them and encourage them to participate. This was by far the most successful method to attract participants. On top of that, word-of-mouth from people who had already participated in the experiment and told their friends and colleagues about it helped to further increase the number of participants.

The study focused on individuals who knew the airline of the experiment so that participants could accurately evaluate the brand coolness of the airline. Therefore, when booking an appointment, all participants were asked to choose the brand they knew better to allow a good preparation of the experiment. After deciding on one brand, the participant was randomly assigned to one of the three different groups which each experienced a slightly different version due to the modified gamification mechanics that were implemented as

explained in Chapter 4.3. In total, the study observed six different groups. The demographics of the groups were similar to each other to allow an adequate comparison. Later, the demographic variables served as control variables and a multi-group analysis was conducted to confirm that the demographic characteristics of the participants did not lead to significantly different results. Per group, 30 participants were targeted, aiming for a total sample size of 180 participants.

All survey responses were uploaded to the software SmartPLS 3 (Ringle et al., 2015) to conduct structural equation modeling in order to test the hypotheses and examine the relationships among the observed variables. The collected data was used for both studies of this dissertation. The first and primary study looked at the overall construct of brand coolness and its relationship with experiential values and desired marketing outputs, the second study examined the effects the experiential values have on the ten individual brand coolness characteristics.

4.6 Sample

A total sample size of 188 participants was collected. Eight participants did not fulfil the requirement criteria to know the airline brand, which was needed to allow an adequate judgement of the airline's brand coolness, and were therefore removed. This resulted in an effective response rate of 95.7%. 90 participants experienced the VR destination quiz branded as a TAP Air Portugal customer experience, the other 90 as an experience of the airline brand Lufthansa. The 180 participants were then divided in the three different groups, each consisting of 60 participants, that experienced slightly different versions of the VR experience dependent on the implemented gamification element. One group participated in the VR experience with implemented time restriction, one with the scoreboard system and the third group without any gamification elements embedded. A total of 25 different nationalities participated in the experiment, but a majority of 74.4% of all participants were Portuguese. 68.9% of the sample identified as female, 30.6% as male and 0.6% as other. The majority of participants with 85% belonged to the age group from 18 to 24 years old, which was followed by 9.4% who fell into the age category 25 to 34 years old. The sample consisted of primarily students (80%) and working students (13.9%). Most participants (53.9%) completed their high school degree, followed by 35.6% who finished their bachelor studies. All results that characterise the sample are summarised in Table 2.

Table 2: Characteristics of the sample

n _{total} =180	Sample characteristics	n	%
Gender	Female	124	68.9
	Male	55	30.6
	Other	1	0.6
Age	<18	6	3.3
	18-24	153	85.0
	25-34	17	9.4
	35-44	3	1.7
	45+	1	0.6
Employment	Student	144	80.0
	Working student	25	13.9
	Employed part-time	2	1.1
	Employed full-time	3	1.7
	Self-employed	2	1.1
	Seeking opportunities	3	1.7
	Prefer not to say	1	0.6
Education	No schooling completed	5	2.8
	High school	97	53.9
	Bachelor's degree	64	35.6
	Master's degree	13	7.2
	PhD	1	0.6
Brand	TAP Air Portugal	90	50.0
	Lufthansa	90	50.0
Group	No gamification	60	33.3
	Time restriction	60	33.3
	Scoreboard	60	33.3

5. RESULTS AND DISCUSSION

To analyse the results, a partial least square structural equation modeling (PLS-SEM) is performed using the software SmartPLS 3 (Ringle et al., 2015). To ensure statistical power of 80% with a significance level of 5% when the maximum number of three arrows point at a construct, the sample size is recommended to be at least 30 to ensure a minimum R^2 of 0.75, 124 participants are needed to obtain a minimum R^2 of 0.10 (Cohen, 1992; Hair et al., 2014). Thus, the sample size of 180 participants is sufficient to perform the PLS-SEM.

Because of the complexity of the model due to the higher-order construct of brand coolness, the embedded two-stage approach (Ringle et al., 2012; Sarstedt et al., 2019) is used to analyse the research model. The construct of brand coolness is a higher-order model with three levels that consists of ten first-order factors which represent the ten brand coolness characteristics, as well as two second-order factors called desirability and positive autonomy. Five of the ten first-order constructs load onto one the two subdimensions. The characteristics extraordinary, energetic and aesthetically appealing load onto the higher-order factor desirability and the characteristics original and authentic load onto the higher order factor positive autonomy, as shown in Figure 2 (Warren et al., 2019). At each level brand coolness is considered to be a reflective model to fit the original conceptualization of brand coolness by Warren et al. (2019), which indicates that brand coolness causes the ten brand coolness characteristics rather than it is the result of these ten characteristics (Warren et al., 2019).

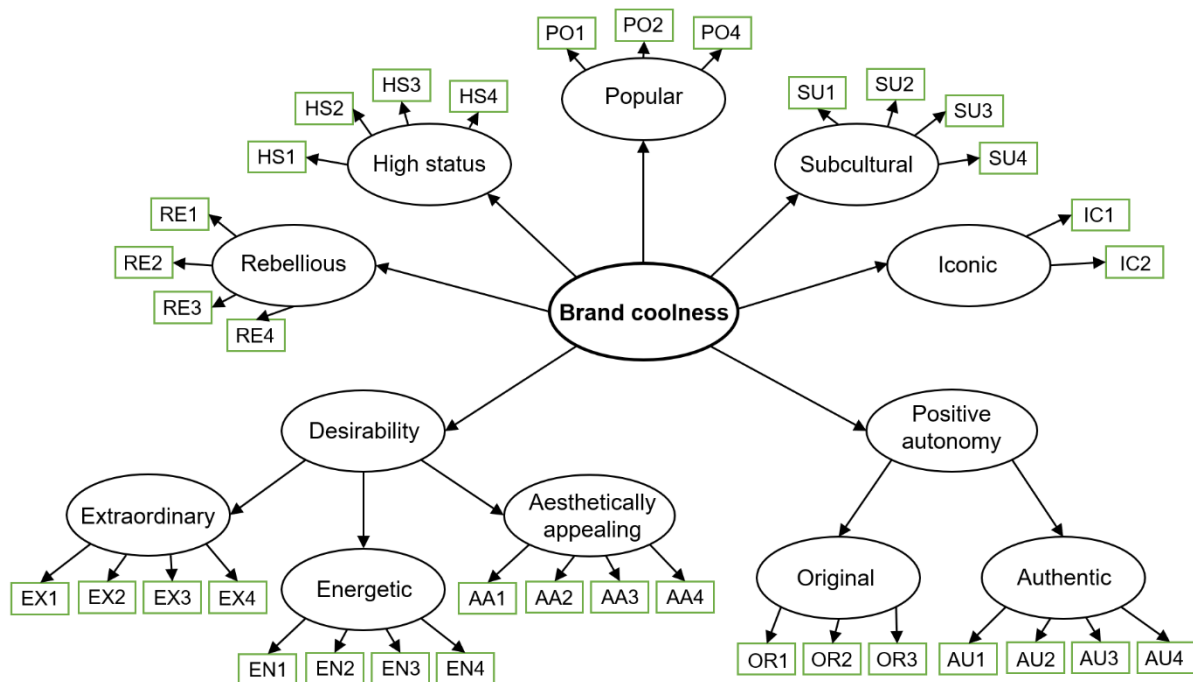


Figure 2: The construct of brand coolness adapted from Warren et al. (2019)

In the first stage of the embedded two-stage approach, the repeated indicators approach is performed, assigning all lower-order components to the higher-order components (Lohmöller, 1989; Sarstedt et al., 2019; Wold, 1982) and the latent variable scores of all constructs are saved. In the second stage, the construct scores are assessed as indicators in the measurement model of the higher-order brand coolness construct, the other constructs are measured with the single-item latent variable scores of the individual constructs (Hair et al., 2021; Sarstedt et al., 2019).

The analysis of the results is split into three parts, first the analysis of the first-order outer model (measurement model), second the analysis of the higher-order outer model and third the analysis of the inner model (structural model) (Gaskin et al., 2018). The PLS Algorithm is calculated with 1000 iterations. All bootstrapping results are applied to 5000 subsamples as recommended (Hair et al., 2012).

5.1 First-order measurement model results

To validate the first-order measurement model the metrics item reliability, convergent validity, reliability and discriminant validity are assessed. To ensure item reliability all factor loadings need to be above 0.7 (Hair et al., 2011). Of the total 64 items, only one item (PO3) has a loading below 0.7 (0.693). Because the removal of PO3 leads to an increase in the composite reliability (0.899→0.920), average variance extracted (AVE) (0.693→0.793) and Cronbach's alpha (0.850→0.871) results, it is decided to delete the indicator. The outer loadings of the remaining 63 range between 0.708 and 0.964, all being statistically significant ($p < 0.001$). The convergent validity of the model is also ensured, as the composite reliability of all latent variables is above the threshold 0.7 (Hair et al., 2010; Nunnally & Bernstein, 1994) and all AVE results exceed 0.5 (Hair et al., 2010; Urbach & Ahlemann, 2010). Additionally, all Cronbach's alpha results are greater than 0.7, proving the reliability of the research model (Hair et al., 2010). Table 3 displays the reliability and validity results of the lower-order constructs. The Fornell and Larcker (1981) criterion that implies that the square root of the AVE has to be greater than any correlation with any other factor is applied to approve discriminant validity. All first-order components of the model fulfil this condition (see Table 4). Additionally, common method bias (CMB) is tested by performing Harman's single factor test, which reveals values of total variance extracted by one factor of 46.94% (see Appendix F), thus confirming the absence of CMB in this study.

Table 3: Reliability and validity results of lower-order constructs

Constructs	Indicators	Outer loadings	α	CR	AVE
Utilitarian value	UV1. I value this experience because it has several offers.	0.898	0.783	0.860	0.675
	UV2. I value this experience because it is convenient to use.	0.847			
	UV3. I value this experience because it is easy to use.	0.708			
Hedonic value	HV1. I value this experience because it makes me feel good about myself.	0.843	0.853	0.899	0.691
	HV2. I value this experience because I can feel a personal connection with it.	0.790			
	HV3. I value this experience because I personally feel better after participating in it.	0.868			
	HV4. I value this experience because it gives me pleasure to participate in it.	0.822			
Social value	SV1. I value this experience because it shows my technological skills.	0.721	0.807	0.886	0.723
	SV2. I value this experience because it is a symbol of my social status.	0.927			
	SV3. I value this experience because it helps me fit into social groups.	0.889			
Aesthetically appealing	AA1. The brand TAP Air Portugal/Lufthansa looks good.	0.928	0.946	0.961	0.862
	AA2. The brand TAP Air Portugal/Lufthansa is aesthetically appealing.	0.911			
	AA3. The brand TAP Air Portugal/Lufthansa is attractive.	0.931			
	AA4. The brand TAP Air Portugal/Lufthansa has a really nice appearance.	0.943			
Authentic	AU1. The brand TAP Air Portugal/Lufthansa is authentic.	0.835	0.837	0.891	0.671
	AU2. The brand TAP Air Portugal/Lufthansa is true to its roots.	0.846			
	AU3. The brand TAP Air Portugal/Lufthansa doesn't seem artificial.	0.858			
	AU4. The brand TAP Air Portugal/Lufthansa doesn't try to be something it's not.	0.731			
Energetic	EN1. The brand TAP Air Portugal/Lufthansa is energetic.	0.933	0.947	0.962	0.862
	EN2. The brand TAP Air Portugal/Lufthansa is outgoing.	0.935			
	EN3. The brand TAP Air Portugal/Lufthansa is lively.	0.945			
	EN4. The brand TAP Air Portugal/Lufthansa is vigorous.	0.900			
Extraordinary	EX1. The brand TAP Air Portugal/Lufthansa is exceptional.	0.959	0.973	0.980	0.926
	EX2. The brand TAP Air Portugal/Lufthansa is superb.	0.962			
	EX3. The brand TAP Air Portugal/Lufthansa is fantastic.	0.964			
	EX4. The brand TAP Air Portugal/Lufthansa is extraordinary.	0.964			
High status	HS1. The brand TAP Air Portugal/Lufthansa is chic.	0.951	0.957	0.969	0.885
	HS2. The brand TAP Air Portugal/Lufthansa is glamorous.	0.954			

Iconic	HS3. The brand TAP Air Portugal/Lufthansa is sophisticated.	0.954	0.837	0.924	0.858
	HS4. The brand TAP Air Portugal/Lufthansa is ritzy.	0.903			
	IC1. The brand TAP Air Portugal/Lufthansa is a cultural symbol.	0.909			
Original	IC2. The brand TAP Air Portugal/Lufthansa is iconic.	0.944	0.912	0.945	0.850
	OR1. The brand TAP Air Portugal/Lufthansa is innovative.	0.914			
	OR2. The brand TAP Air Portugal/Lufthansa is original.	0.948			
Popular	OR3. The brand TAP Air Portugal/Lufthansa does its own thing.	0.904	0.871	0.920	0.793
	PO1. The brand TAP Air Portugal/Lufthansa is liked by most people.	0.916			
	PO2. The brand TAP Air Portugal/Lufthansa is in style.	0.879			
Rebellious	PO4. The brand TAP Air Portugal/Lufthansa is widely accepted.	0.876	0.885	0.920	0.743
	RE1. The brand TAP Air Portugal/Lufthansa is rebellious.	0.824			
	RE2. The brand TAP Air Portugal/Lufthansa is defiant.	0.889			
Subcultural	RE3. The brand TAP Air Portugal/Lufthansa is not afraid to break rules.	0.815	0.942	0.959	0.854
	RE4. The brand TAP Air Portugal/Lufthansa is nonconformist.	0.915			
	SU1. The brand TAP Air Portugal/Lufthansa makes people who use it different from other people.	0.899			
Brand identification	SU2. If I were to use the brand TAP Air Portugal/Lufthansa, it would make me stand apart from others.	0.954	0.944	0.957	0.817
	SU3. The brand TAP Air Portugal/Lufthansa helps people who use it stand apart from the crowd.	0.949			
	SU4. People who use the brand TAP Air Portugal/Lufthansa are unique.	0.892			
	BI1. I feel a strong sense of belonging to the brand TAP Air Portugal/Lufthansa.	0.890	0.925	0.947	0.816
	BI2. I identify strongly with the brand TAP Air Portugal/Lufthansa.	0.937			
	BI3. The brand TAP Air Portugal/Lufthansa embodies what I believe in.	0.913			
Brand preference	BI4. The brand TAP Air Portugal/Lufthansa is like a part of me.	0.893	0.903	0.919	0.879
	BI5. The brand TAP Air Portugal/Lufthansa has a great deal of personal meaning for me.	0.884			
	BP1. I like TAP Air Portugal/Lufthansa more than other airline brands.	0.912			
	BP2. I would use TAP Air Portugal/Lufthansa more than other airline brands.	0.903			
	BP3. TAP Air Portugal/Lufthansa is my preferred brand over other airline brands.	0.919			
	BP4. I would be inclined to buy a plane ticket from TAP Air Portugal/Lufthansa over other airline brands.	0.879			

Willingness to pay a premium	WTP1. The price of TAP Air Portugal/Lufthansa would have to go up quite a bit before I would switch to another airline brand.	0.842	0.881	0.927	0.809
	WTP2. I am willing to pay a higher price for TAP Air Portugal/Lufthansa than for other airline brands.	0.936			
	WTP3. I am willing to pay a lot more for TAP Air Portugal/Lufthansa than for other airline brands.	0.918			
Customer loyalty	CL1. I will say positive things about TAP Air Portugal/Lufthansa to other people.	0.921	0.928	0.946	0.779
	CL2. I will recommend TAP Air Portugal/Lufthansa to someone who seeks my advice.	0.933			
	CL3. I will encourage friends and relatives to do business with TAP Air Portugal/Lufthansa.	0.920			
	CL4. I will consider TAP Air Portugal/Lufthansa my first choice to book a flight.	0.805			
	CL5. I will do more business with TAP Air Portugal/Lufthansa in the next few years.	0.825			

Table 4: Fornell-Larcker criterion results of lower-order constructs

	AA	AU	BI	BP	CL	EN	EX	HS	HV	IC	OR	PO	RE	SU	SV	UV	WTP
AA	0.928																
AU	0.646	0.819															
BI	0.548	0.568	0.904														
BP	0.541	0.499	0.734	0.903													
CL	0.615	0.536	0.749	0.798	0.882												
EN	0.803	0.698	0.661	0.628	0.689	0.929											
EX	0.772	0.688	0.652	0.664	0.711	0.889	0.962										
HS	0.748	0.704	0.625	0.563	0.658	0.780	0.712	0.941									
HV	0.379	0.450	0.415	0.343	0.412	0.443	0.482	0.421	0.831								
IC	0.537	0.552	0.534	0.500	0.524	0.513	0.578	0.508	0.354	0.927							
OR	0.710	0.722	0.561	0.500	0.610	0.812	0.748	0.736	0.388	0.445	0.922						
PO	0.732	0.640	0.554	0.596	0.656	0.712	0.742	0.667	0.419	0.545	0.604	0.890					
RE	0.523	0.578	0.563	0.414	0.482	0.630	0.514	0.640	0.330	0.324	0.639	0.428	0.862				
SU	0.488	0.515	0.663	0.544	0.616	0.564	0.555	0.704	0.397	0.602	0.532	0.500	0.481	0.924			
SV	0.268	0.319	0.514	0.380	0.399	0.368	0.371	0.395	0.456	0.341	0.348	0.279	0.434	0.480	0.850		
UV	0.309	0.445	0.323	0.212	0.236	0.358	0.397	0.314	0.612	0.338	0.306	0.360	0.182	0.297	0.314	0.822	
WTP	0.460	0.470	0.733	0.777	0.813	0.588	0.620	0.566	0.364	0.482	0.517	0.495	0.488	0.607	0.502	0.198	0.900

5.2 Higher-order measurement model results

Looking at the higher-order measurement model the same metrics, namely item reliability, convergent validity, reliability and discriminant validity are controlled for the higher-order construct of brand coolness. All factor loadings are above the threshold of 0.7 (Hair et al., 2010) and are statistically significant ($p < 0.001$), ensuring item reliability. The composite reliability exceeds 0.7 (Hair et al., 2010; Nunnally & Bernstein, 1994) and the AVE result is above 0.5 (Hair et al., 2010; Urbach & Ahlemann, 2010), therefore, the convergent validity of the higher-order outer model can be approved. The reliability of the model can also be confirmed because the Cronbach's alpha is above 0.7 and all inner and outer variance inflation factors (VIF) are below 10 indicating no concern for potential multicollinearity (Hair et al., 2010). All reliability and validity results of the higher-order brand coolness construct can be seen in Table 5. Furthermore, the Fornell-Larcker criterion analysis and the HTMT results, which are all below the threshold of 0.85 (Henseler et al., 2015), validate the discriminant validity of the research model (see Table 6).

Table 5: Reliability and validity results of higher-order brand coolness

Construct	Indicators	Outer loadings	VIF	α	CR	AVE
Brand coolness	DE	0.907	5.024	0.915	0.933	0.668
	HS	0.897	4.282			
	IC	0.712	1.926			
	PA	0.883	3.938			
	PO	0.808	2.681			
	RE	0.712	1.960			
	SU	0.778	2.417			

Table 6: Fornell-Larcker criterion results and HTMT ratios

	BC	BI	BP	CL	HV	SV	UV	WTP
BC	0.818							
BI	0.738 (0.772)	1.000						
BP	0.671 (0.699)	0.734 (0.734)	1.000					
CL	0.752 (0.783)	0.749 (0.749)	0.798 (0.798)	1.000				
HV	0.499 (0.521)	0.415 (0.415)	0.343 (0.343)	0.412 (0.412)	1.000			
SV	0.462 (0.486)	0.514 (0.514)	0.380 (0.380)	0.399 (0.399)	0.456 (0.456)	1.000		
UV	0.401 (0.417)	0.323 (0.323)	0.212 (0.212)	0.236 (0.236)	0.612 (0.612)	0.314 (0.314)	1.000	
WTP	0.661 (0.691)	0.733 (0.733)	0.777 (0.777)	0.813 (0.813)	0.364 (0.364)	0.502 (0.502)	0.197 (0.197)	1.000

Note: The table presents the HTMT ratios in the parentheses next to the Fornell-Larcker criterion results.

5.3 Structural model results and discussion

The analysis of the structural model includes the examination of the R^2 estimates, the Stone-Geisser's Q^2 values, all path coefficients (β) of the research model as well as the p-values and are visualised in Figure 3 and Table 7. In addition, the standardised root mean square residual (SRMR) value of the research model equals 0.088 and can therefore be considered a good fit as it is below the threshold of 0.1 (Kline, 2016).

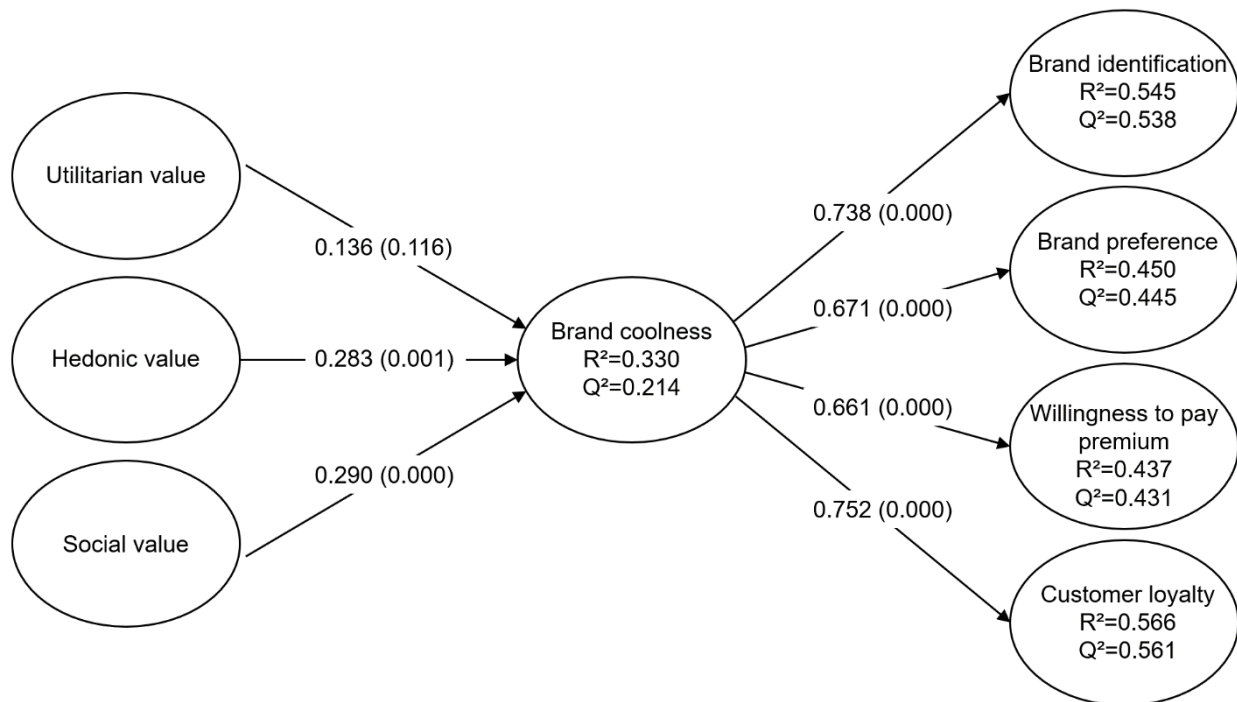


Figure 3: Conceptual model with PLS algorithm and bootstrapping results
Note: The figure presents the p-values in the paratheses next to the path coefficients.

Starting with the R^2 results, all values are greater than the cut-off value of 0.1 (Falk & Miller, 1992). The three experiential values, utilitarian, hedonic and social value, predict 33% variance in brand coolness, which indicates a moderate prediction (Chin, 1998; Henseler et al., 2009). Brand coolness on the other hand predicts 54.5% variance in brand identification, 45% variance in brand preference, 43.7% variance in willingness to pay a premium and 56.6% variance in customer loyalty, also all indicating a moderate prediction (Chin, 1998; Henseler et al., 2009).

The effect size (f^2) calculates the gain in R^2 in relation to the part of the variance of the endogenous latent variable that is left unexplained (Cohen, 1988; Henseler et al., 2009). For hedonic and social value, both effect sizes are between 0.02 and 0.15 and are therefore considered small, while the f^2 result for utilitarian value is only 0.017 and it needs to be concluded that there is no effect of utilitarian value on brand coolness in this study's research model. The effect sizes of all marketing outputs are considered large as the four f^2 values are all greater than 0.35 (Cohen, 1988; Henseler et al., 2009), ranging between 0.776 (willingness to pay a premium) and 1.302 (customer loyalty). Thus, brand coolness has a

large impact on all the four observed marketing outputs, while the biggest effect is on customer loyalty. This is also confirmed by the path coefficients of the research model, as the β -value of the relationship between brand coolness and customer loyalty is the highest (0.752). This is of interest, as customer loyalty is the backbone of a sustainable competitive advantage in service industries (Chang & Yeh, 2002; Chen & Hu, 2013). Furthermore, all Stone-Geisser's Q^2 results of the dependent variables are above 0, confirming the predictive validity of the research model (Geisser, 1974; Hair et al., 2017; Stone, 1974).

Table 7: Inner model results

Hypothesis	Relationship	Proposed effect	β	t-value	p-value	f^2	Decision
H1	UV→BC	Positive	0.136	1.574	0.116	0.017	Not supported
H2	HV→BC	Positive	0.283	3.203	0.001	0.066	Supported
H3	SV→BC	Positive	0.290	3.879	0.000	0.099	Supported
H4	BC→BI	Positive	0.738	19.505	0.000	1.198	Supported
H5	BC→BP	Positive	0.671	16.439	0.000	0.817	Supported
H6	BC→WTP	Positive	0.661	14.522	0.000	0.776	Supported
H7	BC→CL	Positive	0.752	22.198	0.000	1.302	Supported

Considering the p-values of the research model, it can be concluded that all suggested paths are statistically significant except the path from utilitarian value to brand coolness ($\beta=0.136$, $t=1.574$, $p=0.116$). Regarding the relationships between the three investigated experiential values and brand coolness, it can be inferred that utilitarian value does not significantly influence brand coolness, rejecting hypothesis 1 at this point of the analysis. Contrary, hedonic and social value show both a significant impact on brand coolness. Thus, hypotheses 2 and 3 can be accepted. Utilitarian value refers to a primarily functional and rational benefit (Overby & Lee, 2006), whereas hedonic and social values are inherently more emotional. Affective benefits are more personal and generally more emphasised by customers (Hsu et al., 2021), and since the nature of brand coolness is rather complex and affects customers' mental perceptions towards a brand, it seems sensible that more emotional-driven values like hedonic and social value show a greater impact on brand coolness than functional benefits. While previous research focused on defining coolness (e. g. Holtzblatt, 2011; Rahman, 2013; Runyan et al., 2013; Sundar et al., 2014; Warren et al., 2019) and which benefits coolness has, such as enhanced perceived attractiveness and uniqueness (Lu et al., 2021; Runyan et al., 2013; Sundar et al., 2014) as well as increased exposure, satisfaction and customer advocacy (Warren et al., 2019), this study adds insight on how to achieve brand coolness. So far, luxury values have proven to enhance brand coolness perception (Loureiro et al., 2020), as has brand autonomy (Warren & Campbell, 2014), the results of this research model reveal hedonic and social value as

antecedents of brand coolness. In addition, the finding that hedonic and social values have a significant impact on brand coolness complements previous results of the pioneer studies on the concept of brand coolness by Warren and Campbell (2014) and Warren et al. (2019), as they previously suggested that brand coolness is something desirable, indicating hedonic value, and socially constructed, indicating social value. Therefore, it seems reasonable that these two experiential values influence brand coolness perceptions of customers. Moreover, while previous studies have already demonstrated that experiential values of customer experiences positively influence customer satisfaction (Yuan & Wu, 2008), brand strength (Wiedmann et al., 2018) and customer-brand relationships (Francisco-Maffezzoli et al., 2014; Lo, 2020), the results of this study show that experiential values also enhance customers' attitudes towards the brand expressed by higher brand coolness perceptions. This finding is in accordance with the TRA (Ajzen & Fishbein, 1980) because, as the VR experience provides behavioural beliefs in the form of experiential values to participants, the customers start to associate new positive qualities and attributes with the brand, which automatically affects their attitudes (Brakus et al., 2009; Fishbein & Ajzen, 1975).

Concerning the impact of brand coolness on the four observed marketing outputs brand identification, brand preference, willingness to pay a premium and customer loyalty, the results show that brand coolness significantly influences all four of them with a p-value below 0.001. Thus, hypotheses 4, 5, 6 and 7 can be accepted. The fact that brand coolness significantly impacts the same marketing outputs as brand identity highlights how closely related the two constructs are. As previously discussed in the literature review, the brand identity represents a promise of a set of attributes (Aaker, 1996a; Muhonen et al., 2017), while brand coolness is considered to be one brand attribute (Warren et al., 2019). The study's result that both concepts lead to the same marketing outputs might indicate that brand coolness can be considered to be one of the attributes of brand identity. Furthermore, the results show that cool brands can benefit from enhanced long-term customer relationships, as customers who perceive a brand as cool are more likely to prefer and identify with the brand, have a higher tendency to pay a premium for the brand and stay loyal. These results again fit with the TRA (Ajzen & Fishbein, 1980) because the improved customer attitudes expressed by higher brand coolness perceptions lead to a greater intention to engage in the investigated behaviours of preferring the brand, identifying with it, being willing to pay a premium and remaining loyal to the brand. Moreover, these findings add to previous studies that have already confirmed that brand coolness leads to increased SBC, a construct related to brand identification (Escalas & Bettman, 2003; Warren et al., 2019); brand love, a corollary of brand preference (Fournier, 1998; Warren et al., 2019); as well as satisfaction and WOM, a prerequisite and consequence of customer loyalty respectively (Oliver, 1999; Picón et al., 2014; Susanta, 2013; Warren et al., 2019).

5.4 Multi-group analysis results and discussion

This study uses multi-group analysis to ensure that there are no significant differences between the brands used, TAP Air Portugal and Lufthansa, as well as between the demographic variables gender and age. In addition, MGA is performed to analyse if gamification serves as a moderator and strengthens the relationships between the experiential values and brand coolness. The study assumes that the implementation of gamification elements, a) rule mechanics and b) progression mechanics reinforces the positive effect that the observed experiential values have on brand coolness, as previous research has revealed that the implementation of gamification leads to, among other things, improvement in perceived usefulness and enjoyment, which enhances customers' brand attitudes (Xi & Hamari, 2020; Yang et al., 2017).

Table 8: MGA results between the brands

Relationship	β_{TAP}	$\beta_{Lufthansa}$	p-value ^{TAP vs Lufthansa}
UV→BC	0.172	0.142	0.874
HV→BC	0.381	0.203	0.348
SV→BC	0.197	0.374	0.257
BC→BI	0.728	0.729	0.973
BC→BP	0.691	0.662	0.719
BC→WTP	0.604	0.699	0.293
BC→CL	0.699	0.781	0.230

As expected, there are no significant differences between the two airline brand groups that each consisted of 90 participants (see Table 8). This is an important result for the study as it ensures that the analysed results are not brand specific and can be applied to a variety of brands. There are also no significant differences between different demographic groups desired to confirm that the results do not rely on the sample's demographics. Looking at gender, the sample consisted of 124 participants identifying as female, 55 participants identifying as male and one participant identifying as other. Because a group needs to have a minimum of eight cases to conduct MGA in SmartPLS 3 for the study's research model, the survey of the participant identifying as other needs to be disregarded for this specific multi-group analysis. Similarly, regarding the demographic variable age, the sample obtained only six records from participants under 18 years old, three records from participants between 35 and 45 years old and only one participant above 45. As these data groups are smaller than eight cases they need to be disregarded and only the age groups 18-24 with 153 records and 25-34 with 17 records can be compared. In both MGA analyses, no significant differences are detected as can be seen in Table 9. Therefore, it can be assumed that the demographic characteristics gender and age have no significant influence on the results.

Table 9: MGA results between the demographic variables gender and age

Relationship	β_{Female}	β_{Male}	p-value _{Female vs Male}	β_{18-24}	β_{25-34}	p-value _{18-24 vs 25-34}
UV→BC	0.058	0.284	0.215	0.162	0.069	0.821
HV→BC	0.303	0.279	0.909	0.331	0.225	0.752
SV→BC	0.322	0.215	0.521	0.246	0.529	0.274
BC→BI	0.718	0.775	0.438	0.744	0.623	0.591
BC→BP	0.675	0.676	0.949	0.667	0.658	0.972
BC→WTP	0.662	0.666	0.934	0.661	0.744	0.442
BC→CL	0.720	0.825	0.106	0.743	0.812	0.343

Looking at the multi-group analysis between the three experiment groups that each experienced a slightly different VR experience varying according to the implemented gamification elements, it can be observed that the path coefficients of the two gamification groups are always higher compared to the group that experienced the VR experience without any implemented gamification elements for all observed relationships with the exception of one, which is the relationship between utilitarian value and brand coolness. The higher path coefficients of the two gamification groups indicate that hedonic and social value have a stronger positive impact on brand coolness perceptions of customers when they participate in a VR experience that includes gamification elements, either rule or progression mechanics, which supports the benefits of gamification. Hedonic value has the strongest significant impact on brand coolness in the group that experienced the VR destination quiz with implemented progression mechanics ($\beta=0.340$, $p=0.021$). Progression mechanics, in this study a scoreboard system with the collection of points, serve as achievement rewards for players (Elverdam & Aarseth, 2007; Robson et al., 2015), which increase motivation and engagement levels, therefore, it seems reasonable that hedonic value shows the highest effect on brand coolness in this group. Social value also shows a significant influence on brand coolness in the progression mechanic group ($\beta=0.335$, $p=0.016$), most likely because the implemented scoreboard ranking system provides social comparison with other participants, leading to competitiveness. However, the strongest significant impact of social value on brand coolness is in the group that experienced the VR experiment that includes the rule mechanic ($\beta=0.412$, $p=0.001$). A possible reason for this could be that rule mechanics set the rules and requirements of the environment (Robson et al., 2015), which determine how the player is allowed to behave in the experiment. Similarly to real life, the rules and requirements guide the individual to facilitate peaceful social interaction and create social value in the form of social approval on what is allowed and what is not. In addition, the chosen rule mechanic time restriction adds a certain tension to the experience (Robson et al., 2015), leading to social pressure to perform within the time limit. This might be the reason why fun and enjoyment are slightly less prominent in the rule mechanic group, as the results show no significant influence of hedonic value on brand coolness in this group.

It is also interesting to observe that the no gamification group shows a significant relationship between utilitarian value and brand coolness ($\beta=0.348$, $p=0.036$), whereas the experienced social and hedonic value are not sufficient to influence brand coolness in this group. This highlights that the implementation of gamification enhances the value perceptions of customers, which is in accordance with previous studies that have stated that the main goal of gamification in marketing is value creation (Huotari & Hamari, 2012; Noorbehbahani et al., 2019). This study adds the insight that gamification provides additional hedonic and social value. Thus, if there is solely sufficient utilitarian value provided in a VR experience, it does have the potential to enhance brand coolness perception, which partially confirms hypothesis 1. But as soon as hedonic or social value is adequately delivered, utilitarian value no longer has an impact on brand coolness, as the results of the overall research model show, because affective values are more emphasised by customers, making them more powerful (Hsu et al., 2021).

However, the differences between the path coefficients of the gamification groups and the no gamification group regarding the influence of all three experiential values on brand coolness are not significant. Therefore, no significant moderation effect can be confirmed for either of the two gamification elements regarding these relationships. Hence, it needs to be interpreted that although the study observes positive effects on the experiential values when implementing gamification in the VR experience, these effects are too small to be statistically significant. This can have a variety of different reasons, as the effectiveness of gamification also depends on the situational context and the participant who experiences the customer experience (Hamari et al., 2014; Hass et al., 2021). It is also possible that the implementation of additional gamification elements does not lead to a significant difference because virtual reality on its own already increases value perceptions of customers, among other things, by ensuring autonomous and dynamic involvement of the participants (Flavián et al., 2019; Ostrom et al., 2015; Patrício et al., 2011). Since the implementation of gamification does not significantly strengthen the relationships between the experiential values and brand coolness, hypotheses 8 and 9 need to be rejected.

But one significant difference between the three groups is detected, this is the influence of brand coolness on willingness to pay a premium between the group that experienced the destination quiz without implemented gamification elements and the group that experienced the VR experiment with the implemented scoreboard system (β -difference=-0.228, $p=0.029$). Therefore, it can be interpreted that the impact of brand coolness on willingness to pay a premium is significantly greater for the gamified scoreboard group compared to the no gamification group. This implies that customers that experience progression mechanics during a VR experience have a higher tendency to pay a premium for the service offered by the brand. This result was not expected, but it is highly relevant as it

highlights the benefits of the implementation of gamification, in this case, the potential of an economic advantage. However, this significant difference between the two groups cannot be reasoned with the increased impact of hedonic and social value that the scoreboard group experienced as this increase is not statistically significant. But it is indeed possible that the implementation of the scoreboard system has enhanced a different, in this study unobserved construct. For instance, a higher engagement level or greater satisfaction with the VR customer experience can be the reason for the higher willingness to pay a premium among the participants that experienced the VR destination quiz with the implemented progression mechanic. However, further research is needed to validate this assumption. Regarding the other three marketing outputs brand identification, brand preference and customer loyalty, the two gamification groups again show higher path coefficients compared to the no gamification group indicating a stronger impact of brand coolness on these constructs when participants experience the gamified VR destination quiz, but the increases are again not statistically significant. All results of the multi-group analysis between the three experiment groups are shown in Table 10.

Table 10: MGA between the three experiment groups

Relationships	β_{NG}	β_{TR}	β_{SB}	p-value _{NG vs TR}	p-value _{NG vs SB}	p-value _{TR vs SB}
UV→BC	0.348*	0.002	0.025	0.114	0.168	0.921
HV→BC	0.219	0.250	0.340*	0.894	0.588	0.650
SV→BC	0.200	0.412**	0.335*	0.239	0.487	0.673
BC→BI	0.723***	0.777***	0.740***	0.520	0.850	0.705
BC→BP	0.652***	0.660***	0.708***	0.937	0.581	0.635
BC→WTP	0.545***	0.677***	0.773***	0.268	0.029	0.321
BC→CL	0.677***	0.760***	0.831***	0.352	0.065	0.280

Note: p-values that are bold indicate a significant difference on this path relation. β_{NG} represents the path coefficients in the no gamification group. β_{TR} represents the path coefficients in the time restriction group. β_{SB} represents the path coefficients in the scoreboard group. The ***, ** and * indicate p-values less than 0.001, 0.01 and 0.05 respectively.

5.5 Study two – results and discussion

After identifying that the experiential values of a VR experience positively influence the overall construct of brand coolness in study one, it has been decided to further investigate the specific effects of the experiential values on the ten individual characteristics of brand coolness. This insight is especially interesting for a brand when it intends to improve its brand image in one specific way, for example, when it specifically wants to be perceived as more rebellious. By focusing only on one or more distinct brand coolness characteristics, the brand will also experience a higher perception of brand coolness, as a cool brand does not need to have all ten of the characteristics of brand coolness (Warren et al., 2019).

To test the influences of the experiential values on the separate brand coolness characteristics, the higher-order construct of brand coolness is broken down into the ten lower-order constructs (see Figure 4), the reliability and validity of the model is confirmed (see Appendix G) and a bootstrapping analysis using 5000 subsamples is performed with SmartPLS 3 (Ringle et al., 2015).

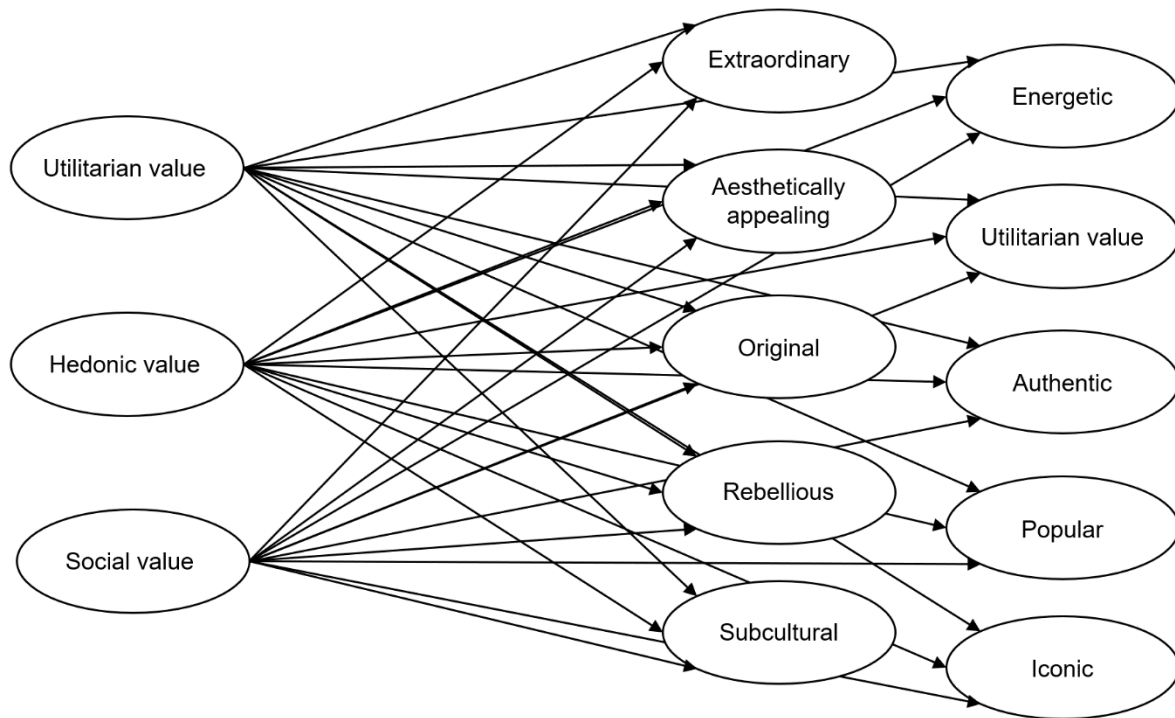


Figure 4: Conceptual model to test the influence of experiential values on lower-order brand coolness characteristics

The bootstrapping results confirm, in line with study one, that especially hedonic and social value influence brand coolness characteristics. Utilitarian value only significantly influences one of the ten characteristics of brand coolness, whereas hedonic value significantly influences nine brand coolness characteristics and social value significantly impacts seven characteristics. As one characteristic trait can be affected by multiple factors, such interdependencies were expected. Therefore, it was not surprising that only three characteristics are influenced solely by one of the experiential values and seven out of the ten brand coolness characteristics are significantly impacted by two experiential values. In case more than one experiential value significantly affects the targeted brand coolness characteristic, the study recommends brands to concentrate on providing customers primarily the experiential value that has scored a higher β -value in the bootstrapping analysis as the higher path coefficient indicates a stronger positive effect on the brand coolness characteristic. Table 11 shows the bootstrapping results of study two, the bold values mark the results of the experiential value that has the biggest influence on the brand characteristic to allow a better overview.

Table 11: Bootstrapping results of study two

Brand coolness characteristics	Utilitarian value			Hedonic value			Social value		
	β	t-value	p-value	β	t-value	p-value	β	t-value	p-value
Aesthetically appealing	0.113	1.157	0.247	0.257	2.546	0.011	0.117	1.527	0.127
Authentic	0.267	3.084	0.002	0.227	3.026	0.002	0.130	1.716	0.086
Energetic	0.129	1.523	0.128	0.273	3.005	0.003	0.207	2.918	0.004
Extraordinary	0.151	1.744	0.081	0.306	3.481	0.001	0.184	2.741	0.006
High status	0.073	0.812	0.417	0.261	2.698	0.007	0.255	3.202	0.001
Iconic	0.182	1.944	0.052	0.142	1.340	0.180	0.218	2.371	0.018
Original	0.096	1.014	0.311	0.233	2.549	0.011	0.213	2.727	0.006
Popular	0.156	1.650	0.099	0.276	3.105	0.002	0.105	1.522	0.128
Rebellious	-0.055	0.610	0.542	0.201	2.148	0.032	0.368	5.212	0.000
Subcultural	0.063	0.777	0.437	0.187	2.275	0.023	0.375	4.967	0.000

The one brand coolness characteristic that is significantly influenced by utilitarian value is the authenticity of a brand. Authentic brands are true to their roots, they do not aim to be something they are not (Warren et al., 2019). Customers appreciate this characteristic and tend to have a positive attitude towards authentic brands. A key factor for authenticity is consistency in brand behaviour (Hwang et al., 2022; Moulard et al., 2016). It seems reasonable that the feeling of stability is primarily influenced by utilitarian value that provides rational benefits. However, authenticity is also significantly influenced by hedonic value. A study by Hwang et al. (2022) that examined brand authenticity in the restaurant industry delivered the same outcome that both utilitarian and hedonic value influence the authenticity of a brand. Nevertheless, the results of this study's research model show a higher path coefficient for the influence of utilitarian value on authenticity than the path coefficient for the impact of hedonic value, indicating that providing customers utilitarian value has a greater impact on the brand's perceived authenticity than providing hedonic value.

Hedonic value significantly influences all characteristics of brand coolness except one, which is the characteristic iconic. Iconic is the only brand coolness characteristic that is solely significantly influenced by social value, which seems reasonable as iconic is defined in literature as something that has been broadly acknowledged as a cultural symbol (Holt, 2004; Warren et al., 2019; Warren & Campbell, 2014). In total, social value significantly impacts seven out of the ten characteristics, not impacted by social value are the characteristics aesthetically appealing, authentic and popular. That the popularity of a brand is not affected by social value was rather surprising, but the results show that the popularity of a brand is only significantly increased by providing hedonic value. This underlines that the provision of pleasure to customers is very important for a brand in order to become popular. Earlier findings from a study by Kujur and Singh (2016) that concentrated on brand popularity through social media usage are in line with this result. The findings show that especially

social media posts that are funny and interactive – both characteristics of hedonic value – enhance the popularity of a brand. Aesthetically appealing is also significantly influenced only by hedonic value. This result also fits previous research as aesthetic appeal has already been proven to be of hedonic value for customers (Jung Choo et al., 2012; Loureiro & Blanco, 2021).

The brand coolness characteristics energetic, extraordinary, high status and original are influenced by both hedonic and social value but the β -values of hedonic value show a larger impact. However, this difference in influence of hedonic and social value is very small for the characteristics high status and originality. Therefore, it can be interpreted that if a brand aims to be perceived as more original or of high status, hedonic and social value will both provide similar results. A possible explanation for that could be that in order for something to be original, it must stand out and be unusual, two aspects that generally evoke feelings of excitement (hedonic value) (Derbaix & Vanhamme, 2003; Moldovan et al., 2011). But standing out and being different also requires direct comparison with others (social value). Similarly, the consumption of luxury items that are associated with high status have already proven to impact both pleasure (hedonic value) and social status (social value) (Aaker, 1997; Belk, 1988; Loureiro et al., 2020; Sirgy, 1982; Vigneron & Johnson, 2004). But if the goal of the brand is to appear more energetic or extraordinary the brand should concentrate on providing primarily hedonic value to its customers. Extraordinary brands are described as being outstanding and going beyond the limits of usefulness. Energetic brands are perceived as outgoing and active (Warren et al., 2019). It is likely that the brand perception is promoted in this way during the experiment, as hedonic value provides higher levels of enjoyment and engagement (Högberg et al., 2019). On the contrary, the brand coolness characteristics rebellious and subcultural are more impacted by social value rather than hedonic value, although both experiential values significantly influence these two characteristics. It seems sensible that social value has the greatest impact on these two brand coolness characteristics, since behaving subcultural or rebellious both depend on the social context and intergroup behaviour, as subculture refers to an independent group that deviates from the mainstream culture (Runyan et al., 2013; Sundar et al., 2014; Warren et al., 2019) and rebellious behaviour contravenes social norms (Bruun et al., 2016; Nancarrow et al., 2002; Warren et al., 2019; Warren & Campbell, 2014).

6. CONCLUSION

6.1 Theoretical implications

The results of this thesis contribute to the literature by providing insights related to three recent and relevant topics in marketing, brand coolness, virtual reality and gamification. Virtual reality and gamification have both revolutionised customer experiences and have therefore the potential to enhance consumer-brand relationships (Francisco-Maffezzoli et al., 2014; Lo, 2020). While a wide range of benefits of VR and gamification have already been explored in literature, such as their potential to positively influence the engagement, motivation and enjoyment levels of customers (Hass et al., 2021; Hoyer et al., 2020; Robson et al., 2015; Warmelink et al., 2020), brand attitudes (Li et al., 2003; Wedel et al., 2020; Yang et al., 2017), customer satisfaction and loyalty (Hudson et al., 2019; Hwang & Choi, 2020; Wedel et al., 2020; Xi & Hamari, 2019), as well as their high adaptability to a variety of different industries (Flavián et al., 2019; Hass et al., 2021; Wedel et al., 2020; Wunderlich et al., 2020), the creation and provision of experiential values in a gamified VR experience and their impact on brand perception and long-term marketing goals have not yet been investigated. This research gap is addressed in this study and is of high relevance as the ultimate goal in marketing is the delivery of value to customers (Kotler, 2020). More particular, the main focus of this study is on the influence that the experiential values provided in VR customer experiences have on brand coolness perceptions of customers. Previous findings suggest that brand autonomy (Warren & Campbell, 2014) and luxury values (Loureiro et al., 2020) positively influence perceived brand coolness, this study's research model identifies hedonic and social value as antecedents of brand coolness. The results show that the provision of hedonic and social values significantly enhances brand coolness perceptions of customers in the airline industry. Utilitarian value only has the potential to increase brand coolness if hedonic and social value are both not delivered to an adequate extent, as the multi-group analysis results have shown. As soon as hedonic or social value is sufficiently provided, utilitarian value no longer has a significant impact on brand coolness. This leads to the assumption that the potential of experiential values depends on their nature. Utilitarian values are based solely on functional and rational benefits (Hsu et al., 2021; Overby & Lee, 2006). In contrast, hedonic and social value both affect the emotions and mental states of customers (Hsu et al., 2021; Overby & Lee, 2006). A lack of utilitarian benefits can have serious consequences and lead to dissatisfaction but emotional-driven values are more personal and therefore more emphasised by customers (Hsu et al., 2021). This provides hedonic and social value more power to influence factors beyond the customer's emotional state, such as what they think about the brand in terms of its coolness. The finding that experiential values have the potential to impact the attitudes of

customers is in accordance with the TRA (Ajzen & Fishbein, 1980) and expands insight on how to establish brand coolness, whereas previous research has concentrated primarily on defining coolness (e.g. Holtzblatt, 2011; Rahman, 2013; Runyan et al., 2013; Sundar et al., 2014; Warren et al., 2019) and discovering its positive effects (e.g. Lu et al., 2021; Runyan et al., 2013; Sundar et al., 2014; Warren et al., 2019).

The second study of this dissertation builds on the findings of the first study and provides a more detailed look at the specific effects that the experiential values have on the ten individual brand coolness characteristics by breaking down the overall construct of brand coolness and analysing which experiential value influences which of the ten separate characteristics of brand coolness. In line with study one, hedonic and social value show a greater impact on the brand coolness characteristics than utilitarian value. However, one characteristic of brand coolness, namely the authenticity of a brand, is significantly enhanced by utilitarian value. It is likely that the occurring rational utilitarian value promotes a sense of stability, which is a key driver for perceived brand authenticity (Hwang et al., 2022; Moulard et al., 2016). The results further indicate that the brand coolness characteristics aesthetically appealing, extraordinary, popular and energetic are mostly impacted by hedonic value, which influences levels of enjoyment and engagement (Högberg et al., 2019). The characteristics rebellious, subcultural and iconic are most affected by social value, as these three characteristics depend on the social context and intergroup behaviour (Bruun et al., 2016; Holt, 2004; Nancarrow et al., 2002; Runyan et al., 2013; Sundar et al., 2014; Warren et al., 2019; Warren & Campbell, 2014). Moreover, the characteristics original and high status are enhanced in a similar amount when customers are exposed to hedonic or social value because both characteristics are commonly influenced by social comparison and status (social value) as well as excitement and pleasure (hedonic value) (Aaker, 1997; Belk, 1988; Derbaix & Vanhamme, 2003; Loureiro et al., 2020; Moldovan et al., 2011; Sirgy, 1982; Vigneron & Johnson, 2004). These results provide valuable and in-depth insight into how customers' perceptions change when they encounter different types of experiential values.

Furthermore, this study contributes to research by investigating whether the implementation of gamification elements enhances the VR experience and strengthens the examined relationships between the experiential values and brand coolness. Literature is rather small when looking for a combination of virtual reality and gamification, as this is a novel approach and has only been addressed since 2020. Despite some scarce studies that primarily explored how the coupling of VR and gamification can affect user acceptance (e.g. Chen, 2020; Falah et al., 2021; Senecal et al., 2020), this thesis is the first to explore how such immersive experience can drive brand coolness perception and the marketing outcomes brand identification, brand preference, willingness to pay a premium and customer loyalty. As previous experiments have shown that gamification has the ability to enhance

customer experiences through primarily higher engagement, motivation, satisfaction and enjoyment levels (Hass et al., 2021; Robson et al., 2015; Warmelink et al., 2020; Xi & Hamari, 2019), it was expected that the implementation of gamification elements would strengthen the impact the experiential values have on brand coolness. The results show that experiential values of a VR experience with implemented gamification elements have a significant impact on brand coolness and that the implementation of gamification provides additional hedonic and social value. Hedonic value shows the highest impact on brand coolness perception in the group with the implemented progression mechanic, a scoreboard system. Whereas in the group that experienced the VR destination quiz with the rule mechanic time restriction, social value has the strongest influence on brand coolness. However, the study's results cannot prove that the experiential values of the gamified version of the VR experience have a significantly stronger impact on brand coolness perception than those of the non-gamified VR experience. Although both gamified versions reveal higher path coefficients for the influences of hedonic and social value on brand coolness, no significant moderation effect of gamification can be confirmed. That might be explained by the fact that virtual reality already increases value perceptions of customers on its own, in part by providing autonomous and dynamic engagement of participants (Flavián et al., 2019; Ostrom et al., 2015; Patrício et al., 2011). However, the multi-group analysis confirms a significant difference regarding the relationship between brand coolness and willingness to pay a premium between the no gamification group and the scoreboard group. The results of the gamified scoreboard group show a significantly greater impact of brand coolness on willingness to pay a premium compared to the group that experienced the non-gamified VR experience, highlighting the benefits of the implemented progression mechanic.

Additionally, this thesis adds to the literature by examining the relationship between brand identity and brand coolness because many similarities between the two concepts have been found in the literature review. Most apparent was the fact that brand identity is defined as a promise of a set of attributes (Aaker, 1996a; Muhonen et al., 2017) and brand coolness is understood as one particular attribute of a brand (Warren et al., 2019). The study provides insight into whether brand coolness can be seen as one of the attributes of brand identity by analysing if brand coolness leads to the same marketing outputs as brand identity, namely higher brand identification, brand preference, willingness to pay a premium and customer loyalty. Previous research identified that brand coolness impacts, among others, perceived attractiveness and uniqueness (Lu et al., 2021; Runyan et al., 2013; Sundar et al., 2014), brand exposure and familiarity, pride, satisfaction, delight, brand price premium, willingness-to-pay, word-of-mouth, brand love, self-brand connections (Warren et al., 2019) as well as prosocial behaviour (Bird & Tapp, 2008; Lu et al., 2021; Mohiuddin et al., 2016). However, the marketing outputs under observation and the link between brand coolness and brand

identity has not yet been investigated in literature and can now be confirmed by this dissertation. The results of this study indicate that brand coolness can be considered an attribute of brand identity and significantly enhances the marketing outputs brand identification, brand preference, willingness to pay a premium and customer loyalty.

6.2 Managerial implications

The virtual reality market is growing rapidly and is expected to keep doing so. However, nowadays the implementation of virtual reality no longer serves as a competitive advantage (Wedel et al., 2020). It is simply demanded of a business to keep up with current technologies, implement them and offer them to their customers in order to compete and be successful. Therefore, companies need to enhance their knowledge of advanced technologies, such as virtual reality, and invest time and money in them to satisfy the demands of their customers. Also, it is of immense interest for companies to know how they can use virtual reality to their own advantage. The results of this study show that customers experience utilitarian, hedonic and social values during a virtual reality experience and that experiential values have the potential to enhance the perceived coolness of a company. This is an immense new benefit of VR experiences which has not yet been discussed in literature and is of high relevance for managers in for-profit and non-profit companies because cool brands are ahead of their competitors (Chen et al., 2021; Warren et al., 2019). They have successfully added a feature to their brand that allows them to differentiate themselves. Customer attitudes are also more favourable towards cool brands (Im et al., 2015), which improves customer-brand relationships and results in increased customer advocacy (Warren et al., 2019), a key driver for future sales and loyalty (Sweeney et al., 2020). Brand coolness has become an indicator of brand success (Loureiro et al., 2020; Warren et al., 2019), which makes it extremely valuable. Companies should therefore proactively work towards being perceived as cool. This study shows that one way to do this is by offering their customers VR experiences that focus on the delivery of emotional experiential values, such as fun and enjoyment but also a sense of social interaction or competitiveness, because hedonic and social values have the strongest power to increase brand coolness perception. These results provide companies guidance on how to achieve the goal of being perceived as cool. The findings of the study also highlight how beneficial it is for brands to be perceived as cool and fundamental to allow companies to enhance their long-term relationships with customers, as the study confirms that higher brand coolness perception significantly increases brand identification, brand preference, willingness to pay a premium and customer loyalty, the impact on customer loyalty being the highest. Higher willingness to pay a premium, brand preference and customer loyalty provide economic benefits for the brand. At the same time, enhanced brand preference, customer loyalty and brand identification improve customer-

brand relationships, which must be a key objective for every successful business in a highly competitive and customer-centric marketplace (Loureiro, 2012; Valta, 2013).

The results of the second study go a step further and provide companies recommendations on how they can enhance one specific brand coolness characteristic by providing a distinct type of experiential value. This is relevant because previous research states that although cool brands are aesthetically appealing, authentic, energetic, extraordinary, high status, iconic, original, popular, rebellious and subcultural, a brand does not need to have all of these ten characteristics in order to be cool. Increasing any of them enhances brand coolness perception (Warren et al., 2019). Therefore, a brand can explicitly choose and target one or more characteristics related to how it wants to be seen by its customers. The results indicate that if a brand aims to be perceived as more aesthetically appealing, extraordinary, popular or energetic, it should concentrate on providing primarily hedonic value to customers. If the goal of the brand is to seem more iconic, rebellious or subcultural, social value should be delivered. Brands can choose to provide either hedonic or social value to their customers when they want to be perceived as more original or of high status, as both values have approximately the same impact on these two characteristics. Hence, according to the study's findings, if a brand's goal is to be perceived as more rebellious, for example, it should start offering VR experiences to customers that focus on high competitiveness between participants.

Additionally, it is important for companies to continuously look for ways to improve and enhance the VR customer experiences they provide to their customers. In this study, the implementation of gamification shows positive effects on the relationships between the experiential values of the VR customer experience and the construct of brand coolness by increasing hedonic and social value. If brands aim to provide hedonic value in a VR experience, progression mechanics are recommended to be implemented, according to the study's results. If social value should be delivered to customers, rule mechanics are recommended. However, the positive effects of gamification on the impact of the experiential values are not statistically significant. Although the study cannot confirm that the results of a gamified VR experience outweigh the results of a non-gamified VR experience concerning the impact of the created experiential values on brand coolness, the results show a significant difference between the influence of brand coolness on willingness to pay a premium between the scoreboard group and the no gamification group. Therefore, it can be assumed that companies that incorporate gamification progression mechanics into their VR experiences can benefit from an economic gain, as they are able to charge a premium. Additionally, multiple different benefits of gamification can be found in the literature review. If a brand aims to obtain, for example, higher enjoyment, motivation, engagement or even satisfaction levels of customers within a customer experience, the implementation of

gamification can still be recommended (Hass et al., 2021; Robson et al., 2015; Warmelink et al., 2020; Xi & Hamari, 2019).

This study focuses on the aviation industry because it is a sector that relies strongly on consumer-brand relationships and because airlines need to differentiate themselves primarily through their brand image due to the strong similarities between the majority of carriers (Chang & Yeh, 2002; Chen & Hu, 2013; Dirsehan & Kurtuluş, 2018; Lin & Ryan, 2016). Brand coolness provides an opportunity to strengthen the brand image of an airline, which positively impacts passenger satisfaction (Kim et al., 2021; Wongleedee, 2017) and passenger confidence (Dirsehan & Kurtuluş, 2018; Lin & Ryan, 2016), and ultimately generates a sustainable competitive advantage (Aaker, 1991; Dirsehan & Kurtuluş, 2018; Keller, 1998; Persson, 2010). Therefore, increasing brand coolness perceptions of passengers through VR customer experiences is a promising way for airlines to enhance their consumer-brand relationships and differentiate themselves from the competition. Additionally, offering VR experiences to customers is a great opportunity to react to passengers' desire for more enriching, digitalised and experience-based services (Taneja, 2017). On top of that, a positive side effect noted during the experiment is that a great number of participants stated that they want or need to travel more after seeing and guessing the 20 different destinations of the VR destination quiz. These statements highlight that airlines can benefit from motivated customers by creating additional touchpoints outside of the usual travel journey between check-in and landing. Airline brands can start offering VR experiences to potential customers, for example, at hotels, popular travel locations or tourism exhibitions but also at other industry events, such as music festivals, where they believe to reach their target audience. However, although the study focuses on airline brands, it is to emphasise that the results are not brand specific as two different brands were chosen that both delivered the same results and that the concepts of virtual reality and gamification are highly adaptable and applicable to a variety of different industries and fields (Flavián et al., 2019; Hass et al., 2021; Wedel et al., 2020; Wunderlich et al., 2020). Thus, such an immersive gamified VR experience can be easily modified to fit, for example, a retail or cosmetic brand. In conclusion, providing VR customer experiences can benefit a variety of brands by significantly enhancing brand coolness perceptions of customers, which ultimately has a positive effect on long-term marketing goals of companies, including brand identification, brand preference, customer's willingness to pay a premium and customer loyalty.

6.3 Limitations and further research

Although this study contributes valuable insights on virtual reality, gamification and brand coolness to the literature and practice, it also has its limitations which provide opportunities

for further research. Firstly, the experiment conduction was time-consuming, as it was an in-person experiment and took up to 30 minutes per participant. Even though 180 valid responses are sufficient to perform structural equation modeling for the study's research model, a larger sample size provides greater power, which could stimulate the analysis results. Since the results show that gamification positively impacts the path coefficients for the influences of hedonic and social on brand coolness but no significant moderation effect could be confirmed, it would be interesting to see if a repetition of the study with a larger sample size would lead to different results. Additionally, the sample consisted mainly of students aged 18 to 24, reflecting a rather young audience. Future studies could therefore examine the results for older customer groups, as brand coolness perceptions can vary between different generations (Chen et al., 2021; Warren & Campbell, 2014). Furthermore, although a total of 25 different nationalities participated in the experiment, almost 75% of the participants were Portuguese and the effects of cultural differences were not examined in this study. Different nationalities and cultural differences could affect what customers perceive as cool, leading to a different perceptions of brand coolness. This should be investigated in further research.

Moreover, the study selected two brands with very similar levels of brand coolness in order to obtain comparable results. To ensure reliability, the brand coolness levels of the two airlines were compared by conducting an independent t-test with participants who knew the airlines and had travelled with them in the past, however, participants' individual previous experiences with the brands that might have impacted their brand perceptions were not considered. Furthermore, it would also be of interest to look at brands that customers perceive to be fairly different in terms of brand coolness, for example comparing a rather outdated brand like Nokia with the trendy brand Apple. It would be interesting to see if the experiential values of a VR customer experience of an uncool brand would also enhance customers' perceptions of brand coolness. Additionally, the study concentrates on the airline industry and two airline brands were selected for comparison. As previously mentioned, the application of virtual reality and gamification can be used in many different industries. Therefore, the experiment could be applied to diverse sectors to see if the results vary across different application fields.

On top of that, the long-term consequences of the impact of the experiential values occurring in VR experiences on customers' brand coolness perceptions and the observed marketing outputs brand identification, brand preference, willingness to pay a premium and customer loyalty are of interest for future research. Moreover, the study suggests that brand coolness can be seen as an attribute of the brand identity, as multiple similarities were found in the literature review and both constructs correlate with the same marketing outputs. To

confirm this conclusion, convergent validity between brand coolness and brand identity should be tested in further research.

Furthermore, the results of the study cannot confirm that gamification elements significantly enhance the impact of the experiential values on brand coolness. There may be numerous causes for this. As previously mentioned, results might change with higher sample power, but the effectiveness of gamification also depends on the situational context as well as on the participant who is experiencing it (Hamari et al., 2014; Hass et al., 2021), as experiences are always subjective. The demographic characteristics age and gender do not lead to any significant differences in the results, but for future research, it would be interesting to further investigate how personality traits, attitudes, interests, lifestyle or previous experiences of participants manipulate the results.

It also is to emphasise that although the study cannot confirm that gamification significantly enhances virtual reality experiences concerning the impact of the created experiential values on brand coolness, this does not mean that the implementation of gamification is not beneficial. The study's results show a significantly greater impact of brand coolness on willingness to pay a premium when customers participated in a gamified VR experience with an implemented scoreboard system compared to the non-gamified VR experience and in the literature review, several benefits of gamification have been found. It is likely that gamification impacts and enhances a variety of other, in this study unobserved, constructs that were not the focus of this experiment, such as the learning effect of the destination quiz or the engagement and satisfaction level of participants. Therefore, the study still recommends the implementation of gamification elements and advocates for further research in this field. Most importantly, research on how virtual reality experiences can be enhanced should continue, as the adoption of advanced technologies is a requirement, not a competitive advantage, for companies to succeed in today's demanding market.

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8. APPENDIX

Appendix A: Independent t-test results – comparison of brand coolness levels between the airline brands TAP Air Portugal and Lufthansa

Group Statistics					
	Brand	N	Mean	Std. Deviation	Std. Error Mean
BC	1 (TAP Air Portugal)	20	3.5229	0.85101	0.19029
	2 (Lufthansa)	20	4.0152	0.93782	0.20970

Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BC	Equal variances assumed	0.939	0.339	-1.738	38	0.090	-0.49226	0.28317	-1.06552	0.08099
	Equal variances not assumed			-1.738	37.647	0.090	-0.49226	0.28317	-1.06569	0.08117

Independent Samples Effect Sizes					
		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
BC	Cohen's d	0.89547	-0.550	-1.178	0.086
	Hedges' correction	0.91364	-0.539	-1.155	0.084
	Glass's delta	0.93782	-0.525	-1.160	0.123

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

Appendix B: Adapted questions

Constructs	Indicators	Original item	Reference	Adapted item
Utilitarian value	UV1	Because they offer several deals.	Iyer et al. (2018)	I value this experience because it has several offers.
	UV2	Because they are convenient to use.		I value this experience because it is convenient to use.
	UV3	Because they are easy to use.		I value this experience because it is easy to use.
Hedonic value	HV1	Because it makes me feel good about myself.		I value this experience because it makes me feel good about myself.
	HV2	Because I can feel a personal connection with it		I value this experience because I can feel a personal connection with it.
	HV3	Because I personally feel better after consuming it.		I value this experience because I personally feel better after participating in it.
	HV4	Because it gives me pleasure to use these apps.		I value this experience because it gives me pleasure to participate in it.
Social value	SV1	Because it shows my technological skills		I value this experience because it shows my technological skills.
	SV2	Because it is a symbol of my social status		I value this experience because it is a symbol of my social status
	SV3	Because it helps me fit into social groups		I value this experience because it helps me fit into social groups.
Extraordinary	EX1	Is exceptional	Warren et al. (2019)	The brand TAP Air Portugal/Lufthansa is exceptional.
	EX2	Is superb		The brand TAP Air Portugal/Lufthansa is superb.
	EX3	Is fantastic		The brand TAP Air Portugal/Lufthansa is fantastic.
	EX4	Is extraordinary		The brand TAP Air Portugal/Lufthansa is extraordinary.
Energetic	EN1	Is energetic		The brand TAP Air Portugal/Lufthansa is energetic.
	EN2	Is outgoing		The brand TAP Air Portugal/Lufthansa is outgoing.
	EN3	Is lively		The brand TAP Air Portugal/Lufthansa is lively.
	EN4	Is vigorous		The brand TAP Air Portugal/Lufthansa is vigorous.
Aesthetically Appealing	AA1	Looks good		The brand TAP Air Portugal/Lufthansa looks good.
	AA2	Is aesthetically appealing		The brand TAP Air Portugal/Lufthansa is aesthetically appealing.
	AA3	Is attractive		The brand TAP Air Portugal/Lufthansa is attractive.
	AA4	Has a really nice appearance		The brand TAP Air Portugal/Lufthansa has a really nice

Original	OR1	Is innovative	appearance.
	OR2	Is original	The brand TAP Air Portugal/Lufthansa is innovative.
	OR3	Does its own thing	The brand TAP Air Portugal/Lufthansa is original.
Authentic	AU1	Is authentic	The brand TAP Air Portugal/Lufthansa does its own thing.
	AU2	Is true to its roots	The brand TAP Air Portugal/Lufthansa is authentic.
	AU3	Doesn't seem artificial	The brand TAP Air Portugal/Lufthansa is true to its roots.
	AU4	Doesn't try to be something it's not	The brand TAP Air Portugal/Lufthansa doesn't seem artificial.
Rebellious	RE1	Is rebellious	The brand TAP Air Portugal/Lufthansa doesn't try to be something it's not.
	RE2	Is defiant	The brand TAP Air Portugal/Lufthansa is rebellious.
	RE3	is not afraid to break rules	The brand TAP Air Portugal/Lufthansa is defiant.
	RE4	Is nonconformist	The brand TAP Air Portugal/Lufthansa is not afraid to break rules.
High Status	CH1	Is chic	The brand TAP Air Portugal/Lufthansa is nonconformist.
	CH2	is glamorous	The brand TAP Air Portugal/Lufthansa is chic.
	CH3	Is sophisticated	The brand TAP Air Portugal/Lufthansa is glamorous.
	CH4	Is ritzy	The brand TAP Air Portugal/Lufthansa is sophisticated.
Popular	PO1	Is liked by most people	The brand TAP Air Portugal/Lufthansa is ritzy.
	PO2	Is in style	The brand TAP Air Portugal/Lufthansa is liked by most people.
	PO3	Is popular	The brand TAP Air Portugal/Lufthansa is in style.
	PO4	Is widely accepted	The brand TAP Air Portugal/Lufthansa is popular.
Subcultural	SU1	Makes people who use it different from other people	The brand TAP Air Portugal/Lufthansa is widely accepted.
	SU2	If I were to use it, it would make me stand apart from others	The brand TAP Air Portugal/Lufthansa makes people who use it different from other people.
	SU3	Helps people who use it stand apart from the crowd	If I were to use the brand TAP Air Portugal/Lufthansa, it would make me stand apart from others.
	SU4	People who use this brand are unique	The brand TAP Air Portugal/Lufthansa helps people who use it stand apart from the crowd.
			People who use the brand TAP Air Portugal/Lufthansa are unique.

Iconic	IC1	Is a cultural symbol	Stokburger-Sauer et al. (2012)	The brand TAP Air Portugal/Lufthansa is a cultural symbol.
	IC2	is iconic		The brand TAP Air Portugal/Lufthansa is iconic.
Brand identification	BI1	I feel a strong sense of belonging to brand X.		I feel a strong sense of belonging to the brand TAP Air Portugal/Lufthansa.
	BI2	I identify strongly with brand X.		I identify strongly with the brand TAP Air Portugal/Lufthansa.
	BI3	Brand X embodies what I believe in.		The brand TAP Air Portugal/Lufthansa embodies what I believe in.
	BI4	Brand X is like a part of me.		The brand TAP Air Portugal/Lufthansa is like a part of me.
	BI5	Brand X has a great deal of personal meaning for me.		The brand TAP Air Portugal/Lufthansa has a great deal of personal meaning for me.
Brand preference	BP1	I like [focal brand] better than [referent brand].	Sirgy et al. (1997)	I like TAP Air Portugal/Lufthansa more than other airline brands.
	BP2	I would use [focal brand] more than I would use [referent brand].		I would use TAP Air Portugal/Lufthansa more than other airline brands.
	BP3	[Focal brand] is my preferred brand over [referent brand].		TAP Air Portugal/Lufthansa is my preferred brand over other airline brands.
	BP4	I would be inclined to buy a [focal brand] over a [referent brand]		I would be inclined to buy a plane ticket from TAP Air Portugal/Lufthansa over other airline brands.
Willingness to pay a premium	WTP1	The price of (brand name) would have to go up quite a bit before I would switch to another brand of (product).	Netemeyer et al. (2004)	The price of TAP Air Portugal/Lufthansa would have to go up quite a bit before I would switch to another airline brand.
	WTP2	I am willing to pay a higher price for (brand name) than for other brands of (product)		I am willing to pay a higher price for TAP Air Portugal/Lufthansa than for other airline brands.
	WTP3	I am willing to pay a lot more for (brand name) than other brands of (product category)		I am willing to pay a lot more for TAP Air Portugal/Lufthansa than for other airline brands.
Customer loyalty	CL1	Say positive things about XYZ to other people.	Zeithaml et al. (1996)	I will say positive things about TAP Air Portugal/Lufthansa to other people.
	CL2	Recommend XYZ to someone who seeks your advice.		I will recommend TAP Air Portugal/Lufthansa to someone who seeks my advice.
	CL3	Encourage friends and relatives to do business with XYZ.		I will encourage friends and relatives to do business with TAP Air Portugal/Lufthansa.
	CL4	Consider XYZ your first choice to buy X service.		I will consider TAP Air Portugal/Lufthansa my first choice to book a flight.
	CL5	Do more business with XYZ in the next few years.		I will do more business with TAP Air Portugal/Lufthansa in the next few years.

Appendix C: Post-experiment questionnaire TAP Air Portugal



Post-Experiment Survey

Thank you very much for participating in the VR experience, I hope you enjoyed it!

This post-experiment questionnaire aims to better understand how you perceived the experience and should not take more than 10 minutes to complete. All responses are kept anonymous and confidential and are only used for the purpose of this study.

Thank you very much for taking your time and assisting me with this research!
Sincerely, Felicitas

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I value this experience because it has several offers. *

1 2 3 4 5 6 7

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I value this experience because it is convenient to use. *

1 2 3 4 5 6 7

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I value this experience because it is easy to use. *

1 2 3 4 5 6 7

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I value this experience because it makes me feel good about myself. *

1 2 3 4 5 6 7

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I value this experience because I can feel a personal connection with it. *

1 2 3 4 5 6 7

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I value this experience because I personally feel better after participating in it. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I value this experience because it gives me pleasure to participate in it. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I value this experience because it shows my technological skills. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I value this experience because it is a symbol of my social status. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I value this experience because it helps me fit into social groups. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

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How often do you book flights? (1 time = roundtrip flight) *

- ☐ I don't fly.
- ☐ 1 or 2 times a year
- ☐ 3 or 4 times a year
- ☐ 5 or 6 times a year
- ☐ more than 6 times a year

Do you know the airline brand TAP Air Portugal? *

- ☐ Yes
- ☐ No

The brand TAP Air Portugal is exceptional. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is superb. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is fantastic. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is extraordinary. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is energetic. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is outgoing. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is lively. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is vigorous. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal looks good. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is aesthetically appealing. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is attractive. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal has a really nice appearance. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is innovative. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is original. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal does its own thing. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is authentic. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is true to its roots. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal doesn't seem artificial. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal doesn't try to be something it's not. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is rebellious. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is defiant. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is not afraid to break rules. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is nonconformist. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is chic. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is glamorous. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is sophisticated. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is ritzy. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is liked by most people. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is in style. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is popular. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is widely accepted. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal makes people who use it different from other people. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

If I were to use the brand TAP Air Portugal, it would make me stand apart from others. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal helps people who use it stand apart from the crowd. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

People who use the brand TAP Air Portugal are unique. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is a cultural symbol. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is a cultural is iconic. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

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I feel a strong sense of belonging to the brand TAP Air Portugal. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I identify strongly with the brand TAP Air Portugal. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal embodies what I believe in. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal is like a part of me. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The brand TAP Air Portugal has a great deal of personal meaning for me. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I like TAP Air Portugal more than other airline brands. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I would use TAP Air Portugal more than other airline brands. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

TAP Air Portugal is my preferred brand over other airline brands. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I would be inclined to buy a plane ticket from TAP Air Portugal over other airline brands. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

The price of TAP Air Portugal would have to go up quite a bit before I would switch to another airline brand. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I am willing to pay a higher price for TAP Air Portugal than for other airline brands. *

	1	2	3	4	5	6	7	
strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree

I am willing to pay a lot more for TAP Air Portugal than for other airline brands. *

1 2 3 4 5 6 7
strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ strongly agree

I will say positive things about TAP Air Portugal to other people. *

1 2 3 4 5 6 7
not at all likely ☐ ☐ ☐ ☐ ☐ ☐ ☐ extremely likely

I will recommend TAP Air Portugal to someone who seeks my advice. *

1 2 3 4 5 6 7
not at all likely ☐ ☐ ☐ ☐ ☐ ☐ ☐ extremely likely

I will encourage friends and relatives to do business with TAP Air Portugal. *

1 2 3 4 5 6 7
not at all likely ☐ ☐ ☐ ☐ ☐ ☐ ☐ extremely likely

I will consider TAP Air Portugal my first choice to book a flight. *

1 2 3 4 5 6 7
not at all likely ☐ ☐ ☐ ☐ ☐ ☐ ☐ extremely likely

I will do more business with TAP Air Portugal in the next few years. *

1 2 3 4 5 6 7
not at all likely ☐ ☐ ☐ ☐ ☐ ☐ ☐ extremely likely

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What gender do you identify as? *

- ☐ Male
☐ Female
☐ Other
☐ Prefer not to say

What is your age? *

- ☐ Under 18 years old
- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old
- ☐ Over 45 years old
- ☐ Prefer not to say

What is your nationality? *

What is the highest level of education you have completed? *

- ☐ No schooling completed
- ☐ High School
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Ph.D. or higher
- ☐ Prefer not to say

What is your current employment status? *

- ☐ Student
- ☐ Working student
- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Self-employed
- ☐ Seeking opportunities
- ☐ Retired
- ☐ Prefer not to say

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Appendix D: Screenshots of VR experiences

Brand Logo – TAP Air Portugal



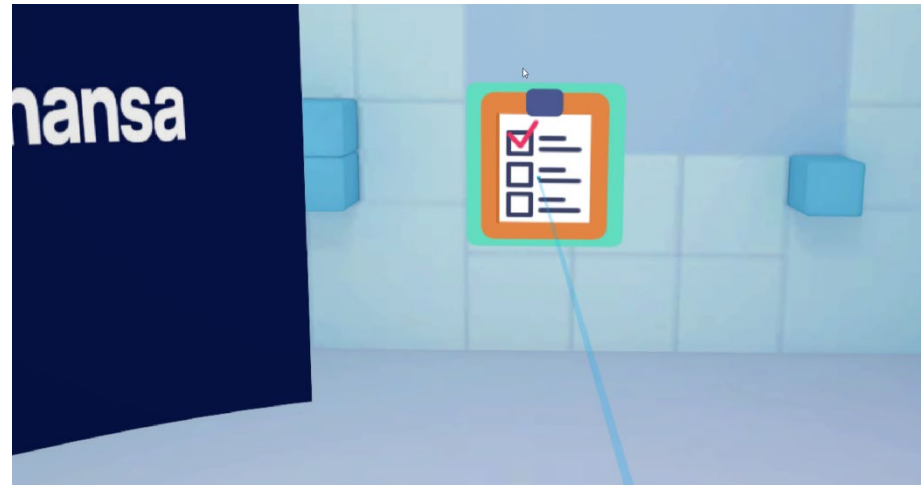
VR cube environment



Brand Logo – Lufthansa



Quiz icon to press in order to start the game



Question example



Buttons to log in the answer



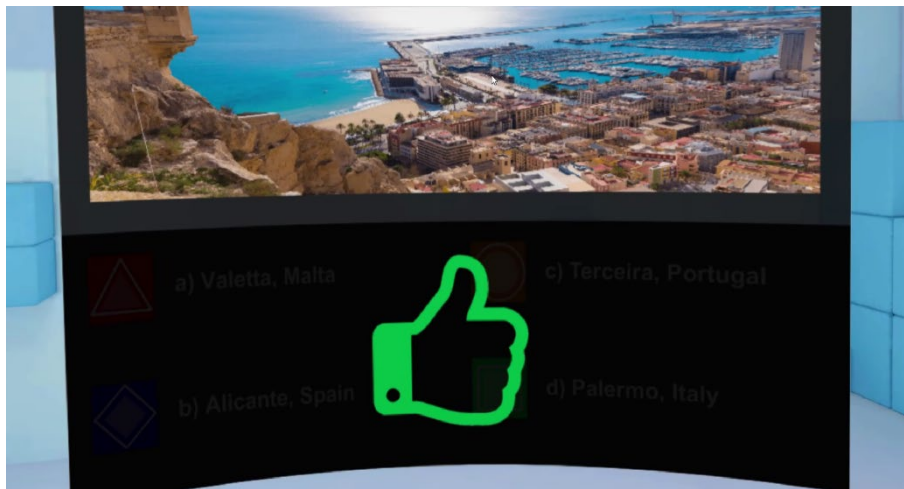
Matching coloured shapes between suggested locations and buttons



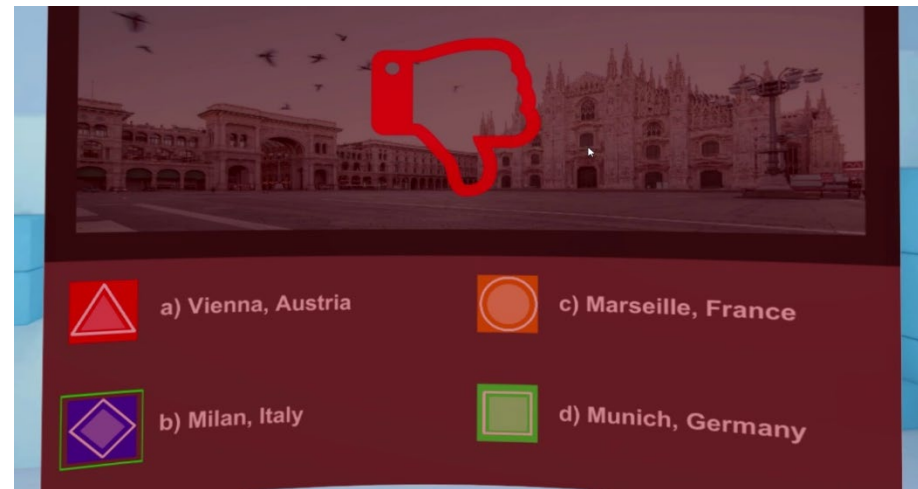
Choice of answer



Correct answer – Green thumb up



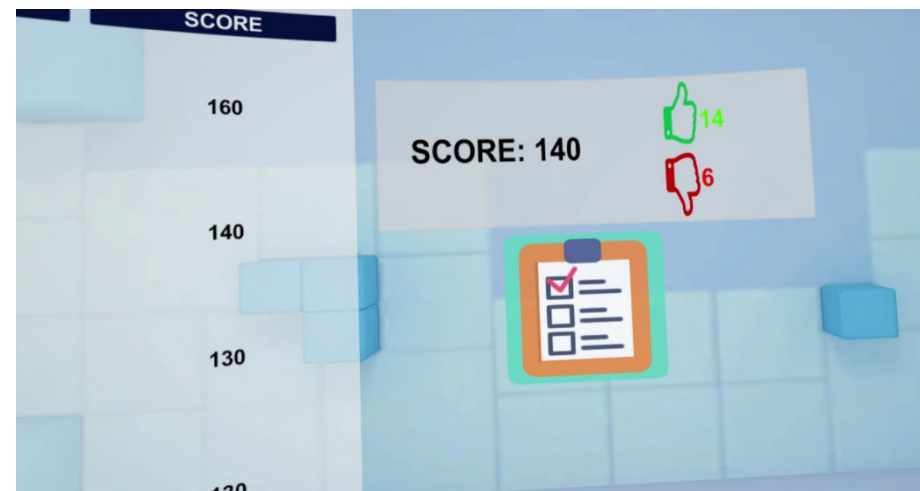
Incorrect answer – Red thumb down + correct answer blinks green



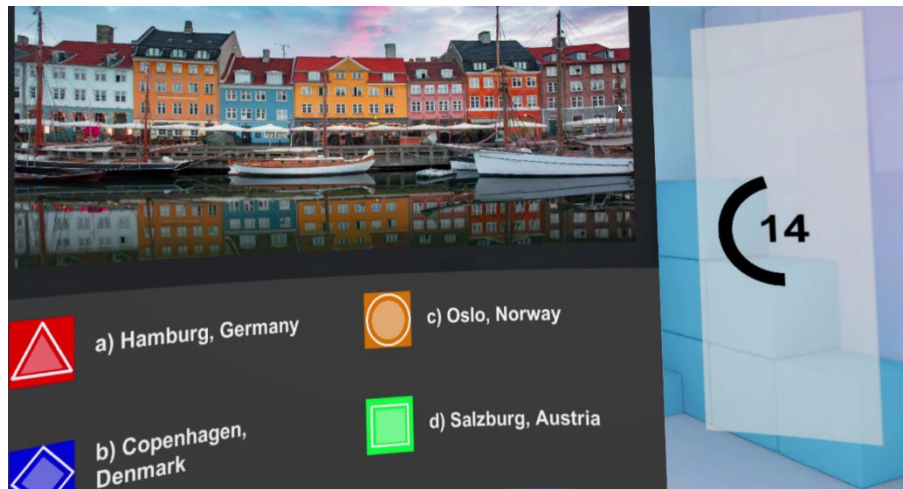
Scoreboard mechanic

SCORE BOARD		
LOGO	NAME	SCORE
	Manuel	160
	Marie	130
	Laura	130
	Marine	100

Points at the end of the quiz



Time restriction mechanic



Appendix E: Experimental protocol

Welcome and thank you for participating in this academic study on tourism. The study consists of two parts. First, you will participate in the VR Destination Quiz *by TAP Air Portugal/Lufthansa* which lets you put your travel knowledge to the test. Afterwards, you need to fill in a questionnaire that should not take more than 10 minutes to complete. All responses are kept anonymous and confidential and are only used for the purpose of this study.

Before we start the VR experience, I will shortly explain to you how everything works. First of all, are you right or left-handed?

→ *Hand out the appropriate controller.*

When we start the game, you will see a picture of one of *TAP Air Portugal's/Lufthansa's* destinations and four suggested locations where it could be. Only one of them is correct and your task is to guess which one it is. Next to a suggested location is one of four coloured shapes that match the four coloured buttons that will be in front of you. You log in your answer by pressing the button that matches the coloured shape of the suggested location you think is correct with the back button of the controller.

→ *Show how to correctly use the controller and which button to press.*

For each correct answer you get 10 points (*scoreboard version*)./For each question you have 30 seconds to answer (*time restriction version*).

We will make a quick test round so you can get used to the virtual environment and we can solve any occurring problems or questions. To start the game, you need to press the quiz icon that you will see straight in front of you with your controller.

Here you have the VR headset, you can adjust the straps on the top of your head as well as on the sides. Also, you can adjust the distance from the lenses to your face by using the button on the bottom right of the headset

→ *Hand out the headset and make sure it fits correctly.*

In case of any questions or problems, please ask me anytime. Enjoy your experience!

→ *Press play.*

→ *Press pause after the 5th question (Copenhagen) and ask for questions.*

→ *Press pause again to continue the game.*

Appendix F: Harman's single factor test results

Communalities			Total Variance Explained							Factor Matrix ^a	
	Initial	Extraction	Initial Eigenvalues				Extraction Sums of Squared Loadings			Factor	
			Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	1	
UV1	0.669	0.203									
UV2	0.693	0.090	1	30.034	47.672	47.672	29.572	46.940	46.940	UV1	0.451
UV3	0.642	0.029	2	4.031	6.398	54.071				UV2	0.300
HV1	0.662	0.285	3	3.410	5.412	59.483				UV3	0.172
HV2	0.665	0.147	4	2.758	4.379	63.862				HV1	0.533
HV3	0.707	0.235	5	1.970	3.127	66.989				HV2	0.383
HV4	0.723	0.136	6	1.466	2.326	69.315				HV3	0.485
SV1	0.617	0.107	7	1.318	2.093	71.408				HV4	0.369
SV2	0.767	0.281	8	1.226	1.945	73.353				SV1	0.326
SV3	0.753	0.174	9	1.097	1.742	75.095				SV2	0.530
EX1	0.920	0.722	10	0.985	1.564	76.659				SV3	0.418
EX2	0.921	0.731	11	0.922	1.464	78.123				EX1	0.850
EX3	0.942	0.726	12	0.895	1.420	79.543				EX2	0.855
EX4	0.937	0.716	13	0.809	1.284	80.827				EX3	0.852
EN1	0.884	0.695	14	0.780	1.238	82.065				EX4	0.846
EN2	0.900	0.666	15	0.750	1.191	83.256				EN1	0.834
EN3	0.892	0.675	16	0.654	1.038	84.294				EN2	0.816
EN4	0.865	0.710	17	0.576	0.914	85.208				EN3	0.821
AA1	0.845	0.577	18	0.564	0.896	86.104				EN4	0.842
AA2	0.828	0.455	19	0.526	0.835	86.939				AA1	0.760
AA3	0.872	0.644	20	0.479	0.760	87.699				AA2	0.675
AA4	0.872	0.554	21	0.472	0.750	88.449				AA3	0.802
OR1	0.859	0.558	22	0.445	0.707	89.156				AA4	0.744
OR2	0.867	0.556	23	0.415	0.659	89.814				OR1	0.747
OR3	0.804	0.536	24	0.398	0.632	90.447				OR2	0.745
AU1	0.835	0.498	25	0.368	0.584	91.031				OR3	0.732

AU2	0.735	0.428	26	0.353	0.561	91.592
AU3	0.785	0.419	27	0.318	0.504	92.096
AU4	0.618	0.234	28	0.313	0.497	92.593
RE1	0.717	0.234	29	0.281	0.446	93.039
RE2	0.797	0.445	30	0.263	0.418	93.456
RE3	0.755	0.179	31	0.253	0.401	93.857
RE4	0.840	0.469	32	0.247	0.391	94.249
HS1	0.913	0.626	33	0.241	0.382	94.631
HS2	0.926	0.680	34	0.221	0.350	94.981
HS3	0.894	0.681	35	0.215	0.341	95.322
HS4	0.835	0.605	36	0.204	0.324	95.646
PO1	0.839	0.450	37	0.200	0.318	95.964
PO2	0.802	0.612	38	0.187	0.297	96.261
PO4	0.771	0.349	39	0.175	0.277	96.539
SU1	0.817	0.425	40	0.164	0.260	96.798
SU2	0.918	0.505	41	0.157	0.250	97.048
SU3	0.910	0.476	42	0.152	0.241	97.289
SU4	0.852	0.467	43	0.141	0.224	97.514
IC1	0.703	0.279	44	0.137	0.217	97.731
IC2	0.826	0.438	45	0.134	0.212	97.943
BI1	0.853	0.559	46	0.127	0.202	98.144
BI2	0.898	0.595	47	0.116	0.184	98.328
BI3	0.860	0.637	48	0.108	0.172	98.500
BI4	0.833	0.504	49	0.102	0.161	98.661
BI5	0.860	0.465	50	0.091	0.144	98.805
BP1	0.861	0.566	51	0.087	0.138	98.943
BP2	0.843	0.370	52	0.082	0.129	99.072
BP3	0.872	0.508	53	0.076	0.120	99.193
BP4	0.820	0.499	54	0.073	0.115	99.308
WTP1	0.694	0.477	55	0.067	0.107	99.415
WTP2	0.887	0.485	56	0.064	0.102	99.517
WTP3	0.865	0.445	57	0.057	0.091	99.607

AU1	0.706
AU2	0.654
AU3	0.648
AU4	0.484
RE1	0.483
RE2	0.667
RE3	0.423
RE4	0.685
HS1	0.791
HS2	0.825
HS3	0.825
HS4	0.778
PO1	0.671
PO2	0.783
PO4	0.591
SU1	0.652
SU2	0.711
SU3	0.690
SU4	0.683
IC1	0.528
IC2	0.662
BI1	0.747
BI2	0.771
BI3	0.798
BI4	0.710
BI5	0.682
BP1	0.752
BP2	0.608
BP3	0.713
BP4	0.706
WTP1	0.691
WTP2	0.696

CL1	0.910	0.635
CL2	0.916	0.645
CL3	0.868	0.653
CL4	0.779	0.405
CL5	0.740	0.419

Extraction Method: Principal
Axis Factoring.

58	0.054	0.086	99.693
59	0.050	0.079	99.773
60	0.044	0.070	99.842
61	0.040	0.063	99.905
62	0.034	0.055	99.960
63	0.025	0.040	100.000

Extraction Method: Principal Axis Factoring.

WTP3	0.667
CL1	0.797
CL2	0.803
CL3	0.808
CL4	0.636
CL5	0.647

Extraction
Method: Principal
Axis Factoring.
a. 1 factors
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Appendix G: Reliability and validity results of study two

Reliability and validity results of the lower-order brand coolness characteristics in study two

Constructs	Indicators	Outer loadings	VIF	α	CR	AVE
Utilitarian value	UV1	0.894	1.496	0.783	0.861	0.677
	UV2	0.851	2.047			
	UV3	0.711	1.708			
Hedonic value	HV1	0.842	1.788	0.853	0.900	0.692
	HV2	0.791	1.846			
	HV3	0.867	2.233			
	HV4	0.824	2.110			
Social value	SV1	0.720	1.383	0.807	0.886	0.723
	SV2	0.927	2.608			
	SV3	0.890	2.456			
Aesthetically appealing	AA1	0.928	4.070	0.946	0.961	0.861
	AA2	0.906	3.613			
	AA3	0.935	4.461			
	AA4	0.942	5.173			
Authentic	AU1	0.831	1.820	0.837	0.890	0.671
	AU2	0.857	2.058			
	AU3	0.855	2.115			
	AU4	0.726	1.553			
Energetic	EN1	0.932	4.463	0.947	0.962	0.862
	EN2	0.933	5.000			
	EN3	0.944	5.425			
	EN4	0.905	3.214			
Extraordinary	EX1	0.959	7.191	0.973	0.980	0.926
	EX2	0.963	7.810			
	EX3	0.964	8.241			
	EX4	0.963	8.294			
High status	HS1	0.949	6.934	0.957	0.969	0.885

	HS2	0.953	7.511			
	HS3	0.954	6.229			
	HS4	0.907	3.444			
Iconic	IC1	0.912	2.076	0.837	0.924	0.859
	IC2	0.941	2.076			
Original	OR1	0.916	3.244	0.912	0.945	0.850
	OR2	0.945	4.292			
	OR3	0.904	2.731			
Popular	PO1	0.922	3.239	0.871	0.921	0.794
	PO2	0.869	1.898			
	PO4	0.882	2.750			
Rebellious	RE1	0.823	2.078	0.885	0.919	0.741
	RE2	0.902	2.687			
	RE3	0.802	2.225			
	RE4	0.911	3.204			
Subcultural	SU1	0.900	3.528	0.942	0.959	0.854
	SU2	0.953	7.281			
	SU3	0.948	6.623			
	SU4	0.892	3.074			
Brand identification	BI1	0.888	3.948	0.944	0.957	0.817
	BI2	0.936	5.716			
	BI3	0.913	3.914			
	BI4	0.895	4.412			
	BI5	0.887	3.951			
Brand preference	BP1	0.911	3.348	0.925	0.947	0.816
	BP2	0.904	3.447			
	BP3	0.918	3.638			
	BP4	0.880	2.615			
Willingness to pay a premium	WTP1	0.834	1.761	0.881	0.927	0.810
	WTP2	0.939	4.619			
	WTP3	0.923	4.237			
Customer loyalty	CL1	0.921	5.939	0.928	0.946	0.779

CL2	0.933	6.547
CL3	0.918	3.890
CL4	0.808	2.132
CL5	0.826	2.347

Fornell-Larcker Criterion results of lower-order brand coolness characteristics

	AA	AU	BI	BP	CL	EN	EX	HS	HV	IC	OR	PO	RE	SU	SV	UV	WTP
AA	0.928																
AU	0.647	0.819															
BI	0.549	0.568	0.904														
BP	0.544	0.500	0.734	0.903													
CL	0.616	0.535	0.749	0.800	0.883												
EN	0.804	0.699	0.662	0.628	0.688	0.929											
EX	0.774	0.688	0.651	0.664	0.710	0.889	0.962										
HS	0.749	0.705	0.626	0.564	0.658	0.781	0.712	0.941									
HV	0.380	0.452	0.415	0.343	0.411	0.444	0.482	0.421	0.832								
IC	0.540	0.551	0.532	0.500	0.522	0.513	0.577	0.507	0.353	0.927							
OR	0.712	0.717	0.561	0.500	0.610	0.812	0.748	0.736	0.388	0.443	0.922						
PO	0.729	0.637	0.550	0.595	0.653	0.708	0.740	0.660	0.416	0.543	0.599	0.891					
RE	0.526	0.580	0.570	0.420	0.487	0.635	0.519	0.644	0.335	0.326	0.641	0.423	0.861				
SU	0.492	0.514	0.663	0.544	0.615	0.565	0.555	0.704	0.396	0.601	0.532	0.497	0.484	0.924			
SV	0.269	0.319	0.515	0.379	0.398	0.369	0.370	0.396	0.455	0.340	0.349	0.277	0.441	0.480	0.850		
UV	0.308	0.444	0.321	0.210	0.234	0.359	0.396	0.312	0.612	0.338	0.305	0.357	0.184	0.296	0.313	0.823	
WTP	0.461	0.469	0.733	0.775	0.812	0.587	0.619	0.566	0.362	0.481	0.517	0.491	0.492	0.607	0.502	0.196	0.900