The Effect of Ideal Avatar on Virtual Brand Experience in XR Platform*

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Abstract

Purpose: This study aims to verify whether avatars that embody different brand concepts offer different experiences to users. Furthermore, this study explores the relationship between user identification with avatars and their actual brand purchase intentions. **Research design, data and methodology:** The research design employed a between-subjects approach, with two independent variables: brand concept and avatar. The measured dependent variables were brand experience in extended reality (XR) and purchase intention. Additionally, brand attitude served as a control variable. **Results:** First, in virtual brand spaces with symbolic benefits, ideal avatars were found to elicit higher levels of brand experience than actual avatars. Specifically, participants reported elevated levels of entertainment and relational assembly experiences in symbolic brand spaces. Second, this research reveals that the relationship between users' identification with avatars and their intention to make actual brand purchases is mediated by brand experience in XR. **Conclusions:** The findings suggest that ideal avatars evoke higher levels of brand experience within symbolic brand spaces, particularly in entertainment, relational connection, and a sense of community. Furthermore, this study establishes the role of brand experience in XR as a mediator between avatar identification and purchase intentions.

Keywords: Virtual Shopping, Extended Reality, Virtual Retail, Brand Experience, Ideal Avatar

JEL Classification Code: L81, M15, M30, M31

1. Introduction[1]

The emergence of the Metaverse has paved the way for unparalleled levels of personalization in the customer experience (Jeon, 2023a). The present study highlights the transformative power of the Metaverse and its potential to shape customer interactions across domains, such as work, shopping, education, socialization, and entertainment. Although the Metaverse platform can lead the immersive economy beyond the experience economy, discussions on the concept have been relatively sparse (Pine & Gilmore, 1999; Lee et al., 2011).

A new technology that overcomes space–time limitations has led to the proliferation of immersive technology that uses wired communications. Extended reality (XR) technologies, including augmented reality (AR) and virtual reality (VR), play increasingly important roles in socio-economic development (Xi et al., 2022). Consequently, this technology is altering how companies generate and maintain customer value. XR offers a collective construct encompassing both VR and AR technologies, which are used interchangeably with mixed reality (Fast-Berglund et al., 2018; Kim & Hall, 2019; Kwok & Koh, 2021). XR is associated with a real-virtual continuum that enables the introduction of virtual elements

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in real spaces via AR or the placement of real behaviors in virtual spaces via AR. Therefore, these XR technologies are defined as immersive technologies where people behave as if the technological space were real.

Virtual worlds are widely recognized as immersive technology providing users with unique opportunities to interact with brands (Barnes & Mattsson, 2011; Cho & Menor, 2010). The degree of connectivity between users and brands within virtual worlds offers brands enhanced experiential engagement opportunities with their users (Fetscherin et al., 2008). Although prior research suggests that users can extract real brand experiences from virtual interactions, users seem to derive brand experiences from the escapism and entertainment offered by retailers in virtual stores (Shin, 2018). Although users can have diverse brand experiences in the physical world, web-based XR platforms that represent the immersive economy allow users to experience brands more diversely (Scholz & Smith, 2016). The concept of brand experience has generated considerable interest in XR platforms. XR managers have recognized the importance of understanding how users experience brands in a virtual store to develop strategies for virtual brand items. Additionally, avatars represent users in virtual worlds and hence opportunities to expand users' brand experiences.

It is not uncommon for users to customize avatars that resemble themselves, nor is it unusual for them to develop a strong emotional bond with the avatars they create. Creating avatars is common for people who participate and interact in virtual worlds. The term "avatar" was defined in Hinduism as the descent of a deity to Earth in an incarnate form or manifest shape (Mancini et al., 2019; Szolin et al., 2023; Yee & Bailenson, 2007). However, in today's society, it has been broadly adopted to refer to any form of representation that marks the identity of a user. Nevertheless, the term "avatar" most commonly refers to the digital self-representation of virtual world participants (Bailey et al., 2009; Yee & Bailenson, 2007). The avatar is a digital representation through which the user interacts with others in the virtual environment and develops relationships with them. The avatar, used extensively in online games, virtual malls, online messaging, and forums, has been found to affect user perception and behavior.

These features allow users to experiment and build their self-representations with unique appearances, personalities, and personalized behavioral patterns to support their online social interactions. The avatar can be highly customized and designed by the user individually (Cacioli & Mussap, 2014). Advancements in 3-D modeling techniques, for instance, have resulted in realistic and highly customizable avatars and objects of virtual environments. The freedom to customize one's avatar opened up various opportunities for the individual to create a digital self that reflects one's true self. Some video games offer

customization options for almost every conceivable visual aspect of the avatar.

Brand strategies must investigate the potential of new technology trends, such as the XR platform, to create a more personalized and engaging customer experience. This study presents an overview of the theoretical and practical knowledge surrounding the application of the XR platform in marketing, focusing on creating personalized customer experiences and creative brand strategies. It investigates the influence of avatar representation on brand experiences within the virtual brand space in XR.

This research paper aims to investigate the influence of avatar types and brand concepts on brand experience on XR platforms. The study assesses the relationship between user identification with avatars and their subsequent brand purchase intentions. By analyzing XR analysis use cases and focusing on various virtual brand spaces, personalization strategies, and virtual try-on features, the study provides valuable insights into the effectiveness of avatars in shaping brand experiences.

2. Literature Review and Hypothesis

2.1. Brand Experience in the XR Platform

XR technologies have recently emerged as one of the most prominent developments in immersive technology (Kim & Hall, 2019). XR is a comprehensive term encompassing various forms of AR and VR, which are sometimes used interchangeably with mixed reality (Fast-Berglund et al., 2018; Kwok & Koh, 2021). The combination of AR and VR typologies results in two distinct types of XR applications emphasizing distinct functions and capabilities.

First, AR is rooted in the emergence of networks and virtual maps and enriches the physical world by incorporating location-awareness systems that process data in the actual environment (Adner & Kapoor, 2010; Dionisio et al., 2013). AR is present in web-based applications, such as Instagram, allowing users to interact with virtual elements in real time via smart devices. AR is frequently used to digitally enhance and transform objects in real space in XR applications. Additionally, AR not only contributes to the digital identity of users but also offers extensive possibilities for character and personality development.

Second, VR is the most widespread XR platform. It increasingly enhances users' social lives in physical environments (Hendaoui, 2008; Papagiannidis et al., 2017). Role-playing games like Roblox and Fortnite allow users to interact within imagined 3D spaces. In VR, the user's avatar is the primary element. Compared with the real world, the social functioning of individuals represented by their VR

avatars can develop rapidly, and the learning can be significantly accelerated. In VR, avatars can interact in 3D space (Papagiannidis et al., 2013).

AR and VR are key components of XR technologies because they enable users to engage with a simulated environment. Milgram and Kishino (1994) introduced the concept of the reality-virtuality continuum, where real and virtual environments are at opposite ends and AR is in the middle. XR applications represent a fusion of VR and AR, allowing users to experience a simulated interaction space (Lee & Yoo, 2021). Previous research on XR technology has focused mainly on declarative approaches, as human literacy and intelligibility facilitate easy content modification and control (Lee & Yoo, 2021).

AR and VR technologies can create an immersive brand experience within XR's vast environment. Theoretically, customers would better understand the brand by interacting with products and services in a real-world situation.

XR as an immersive concept and an extremely sensory environment can strengthen brand experience. Consumers can experience brands in various ways in the physical world. However, in web-based XR platforms, which represent the immersive economy, consumers can potentially experience brands more diversely. Brand experience in XR refers to the subjective user reactions elicited by brand spaces with experiential characteristics in XR platforms. The four dimensions of brand experience in XR are search, entertainment, relationships, and assembly, which are evoked differently by various brand spaces in XR (Jeon, 2023b). The first dimension of brand experience in XR is search, which refers to activities in which avatars search for brand functions or benefits in the brand space of XR. Information about the brand's attributes, functions, and benefits is provided when a user enters the brand space in XR. The second dimension is entertainment, which refers to play activities enjoyed by avatars in the brand space of XR. As the degree of freedom of avatars increases in the XR brand space, various entertainment experiences become available. The third dimension of brand experience in XR is relations, which refers to activities in which an avatar interacts with other avatars in an XR brand space. An avatar that projects a user's persona interacts with other avatars in the brand space and interchange activities occur. Finally, the assembly experience in XR can be conceptualized as an activity in which an avatar freely operates and installs a product in an XR brand space. Avatars in XR can freely operate, install, and utilize brand products. Understanding the dimensions of brand experience in XR can help develop effective strategies for virtual brand items.

Users can freely build and operate a brand while exploring the brand's features, pursuing fun, and interacting with other avatars in the brand space in XR. Users with various brand experiences in XR can increase their engagement if they have a pleasant experience while manipulating brand items.

2.2. Brand Concept

In brand management, functional brands prioritize and emphasize their functional performance. Prior research has defined functional value as the ability of a product to perform its intended functions in a consumer's everyday life (Hirschman & Holbrook, 1982). Functional needs are those that motivate consumers to seek out products that address consumption-related problems (Park et al., 1986; Park et al., 2013). These needs are derived from fundamental motivations and typically met by products with functional performance. Therefore, a functional brand is created to satisfy externally generated consumption needs (Brakus et al., 2009). According to Park et al. (2010), brands can be managed to reduce uncertainty in consumer lives and attain desired outcomes by providing a sense of control and efficacy. Consequently, functional brands are closely associated with product performance. Brands that feature visual representations of their functional benefits can remind customers of their functionality or communicate these benefits to them (Keller, 1993).

Functional brands have the potential to effectively communicate and reinforce their promise to assist customers in their daily lives, which, in turn, strengthens their relationships with the brand (Morgan & Hunt, 1994; Park et al., 2013). Satisfaction with functional brands is a key determinant of customer commitment, aligning with brand management's core concept. According to the information-processing paradigm, consumer behavior is predominantly objective and logical in problem-solving (Moorman et al., 1992; Chaudhuri & Holbrook, 2001). Therefore, customer confidence in a preferred functional brand may be greater when the utilitarian value of the product category is high, especially in respect of tangible product attributes, such as quality or convenience. In addition, Chaudhuri and Holbrook (2001) found that the functional value of a brand significantly and negatively correlated with an emotional response.

Symbolic brand strategies differ from other brand strategies in terms of product formulation, price, distribution, customer differentiation appeals, and consumption. According to Holbrook and Hirschman (1982), symbolic refers to desires for products that satisfy internally generated needs for self-improvement, social role, or ego-identification. Therefore, symbolic brands emphasize the relationship between the brand and self-identification, reflecting a portion of the consumer's identity. Symbolic consumption is frequently associated with elite status aspirations or symbolic dominance assertions over others. Thus, symbolic brands strongly emphasize the relationship

between the brand and self-identification, allowing them to reflect a part of the consumer's identity. According to Park et al. (2013), self-expressiveness brands are brands with a distinctive concept that can express or define customers' actual or desired selves, setting them apart from others. Brands become relevant to customers by connecting them to others who share similar values and beliefs. A symbolic brand benefit is intended to associate the individual with a desired group, role, or self-image (Park et al., 1986). Consumers can value a brand's prestige, exclusivity, or fashionability because it relates positively to their self-concept. Moreover, brands that offer symbolic benefits can express, reinforce, and strengthen brand-self associations, which enhances customers' willingness to invest effort and resources in maintaining their relationship with the brand (Park et al., 2010).

2.3. Ideal Avatar Creation

Scholars have extensively studied avatar creation to understand the underlying motives. Yee et al. (2009) investigated the reasons and methods behind users' customization of avatars and their satisfaction and ease of use while utilizing existing avatar creation tools. By surveying over a hundred users of three virtual worlds (Maple Story, World of Warcraft, and Second Life), they discovered three contributing factors: (a) idealized self, (b) standing out, and (c) following a trend. The first factor relates to users who opt to create an avatar resembling their real-life appearance but with idealized attributes. The second factor relates to users who prefer an unconventional avatar appearance to stand out. The third factor encompasses avatars modified to resemble a celebrity or reflect a popular trend in the real or virtual world.

According to McArthur (2018), the process of self-representation through avatars is determined by not only the user's desired avatar appearance but also four key components self, affordances, aesthetics, and co-situated play. The self involves constructing avatars to represent some form of self-identity. Meanwhile, affordances refer to the actual and perceived availability of customization options. Aesthetics encompasses the boundaries imposed by developers to ensure that the avatar aligns with the intended game world experience, such as limiting playable races. Finally, co-situated play involves self-representation choices being influenced by other players through a desire to play together, such as choosing the same faction or team.

Self-presentation refers to the deliberate actions people take to convey a particular impression to others that is consistent with their goals (Goffman, 1967; Higgins, 1987). According to research, individuals employ various self-presentation strategies in virtual environments. For example, Vasalou and Joinson (2009) found that people on blogging

platforms tend to create avatars that closely resemble their physical appearance, lifestyle, and preferences. Meanwhile, individuals on dating and gaming websites tend to highlight specific aspects of their avatars to match the context's tone and perceived expectations.

The creation of avatars provides users with abundant opportunities to experiment with their identities and construct "possible selves." Markus and Nurius (1986) first introduced the concept of possible selves, suggesting that the self is a flexible construct influenced by social roles and cues and that individuals need self-presentation. According to Markus and Ruvolo (1989), possible selves represent "individuals' ideas of what they might become, what they would like to become, and especially what they are afraid of becoming" (p. 212). As users can activate various aspects of themselves in virtual worlds and other emerging interactive media, the malleable nature of the self becomes even more significant.

Individuals may use avatars to represent their ideal, ought, or actual selves based on the specific personality traits or aspects of their selves they wish to convey to other game players. Additionally, contextual factors can influence avatar customization, such as by social influence and conformity.

This research focuses on separating the actual avatar from the ideal avatar. The actual avatar's theme refers to creating XR characters closely resembling the individual's physical self. In contrast, the second subtheme focuses on creating ideal avatars that reflect the user's ideal self, allowing them to achieve their desired self-representation quickly and easily. This aspect is a significant motivation for playing online video games, as expressed by the participant in the study. These findings align with those of Mancini et al. (2019) and Sibilla and Mancini (2018), who studied the creation of utopian avatars in virtual environments.

The phenomenon of XR users creating an idealized version of themselves as an avatar is widespread (Sibilla & Mancini, 2018). In virtual environments, users have the ability and resources to construct a virtual representation of their ideal selves, thereby bypassing or diminishing the negative characteristics associated with their physical selves in the real world. The potential to explore and experiment with different aspects of the self, construct a unique identity, and display this identity to others is an attractive prospect demonstrated as significantly impacting user behavior in XR contexts. The concept of the idealized self through avatar creation is vital in understanding users' motivations and self-presentation strategies in virtual environments.

The notion of an ideal avatar is a relevant topic in XR technologies, where users can create a digital avatar that represents their ideal self (Jin, 2010, 2012; McArthur, 2018). This can have significant repercussions for entertainment consumption and symbolic brand relations, as individuals

can experience these domains from the perspective of their ideal self-avatar. As individuals navigate the virtual environment using their avatars, XR technologies provides them with a unique opportunity to interact with symbolic brands and their products in a personalized and immersive manner.

The ideal avatar concept in XR technologies can create a sense of self-presentation experience and exclusivity (Schultze, 2014; Sibilla & Mancini, 2018). This is because users can customize their avatars to reflect their personal preferences and aspirations, allowing them to project an image of exclusivity. This projection of a desirable self-image can improve their social standing and self-esteem. This experience of exclusivity and self-presentation is augmented by the ability to interact with iconic brands and their products in a personalized and immersive manner within a virtual environment.

In general, the ideal avatar in XR offers a unique and potentially powerful way for symbolic brands to engage with consumers and create immersive and personalized experiences that enhance brand perceptions and consumer behavior. However, additional research is required to understand better the potential of this phenomenon and its impact on consumer attitudes and behavior toward symbolic brands.

The ideal self pertains to an individual's aspirations and self-image of who they desire to become (Vasalou & Joinson, 2009; Yee & Bailenson, 2007). In the context of XR, individuals can create a digital representation of their ideal self through avatars, which allows them to experience symbolic products and services through the lens of their ideal self-avatar (Barnet, 2011). As users can customize their ideal self-avatar to reflect their personal preferences and aspirations, this has the potential to foster a sense of symbolic experience and exclusivity. By doing so, they can also project an image associated with exclusivity, boosting their social status and sense of self-worth.

Meanwhile, the actual self refers to people's perception of themselves as they are in reality, including their current behaviors, attitudes, and characteristics. When individuals identify with their true selves in XR, they may be more likely to engage in behaviors related to problem-solving and functional needs fulfillment. This is more consistent with the products offered by functional brands. Unlike those who identify with their ideal selves and seek various brand experiences within XR, users who create actual avatars will not notice any difference in brand experience.

The ideal avatar in XR is linked to a desire for meaningful and immersive experiences. Users tend to gravitate toward avatars that align with their relational identity, enabling them to establish social connections and experience a sense of belonging in virtual spaces. Additionally, symbolic representations of avatars can hold emotional and cultural significance, allowing users to express their identities and aspirations in these immersive environments in a unique way. In contrast, the actual avatar in XR may not always align with the ideal avatar. Users might find themselves encountering brand-related items or advertisements in the virtual space. This discrepancy highlights the potential for brands to leverage XR environments as a novel platform for marketing and engagement.

Understanding the distinctions between the ideal and actual avatars in XR environments is crucial for both symbolic and functional brands. Symbolic brands can capitalize on users' desire for self-expression and identity formation by providing avatar customization options that resonate with their target audience's values and interests. By doing so, these brands can foster a deeper emotional connection with users and reinforce brand loyalty. XR allows functional brands to strategically integrate branded content and products into virtual experiences. Careful and contextually appropriate placement of brand items can enhance brand recognition, increase consumer engagement, and lead to conversions in the real world.

In conclusion, the ideal avatar in XR may be associated with a desire for relational, symbolic, and self-expressive experiences, whereas the actual avatar in XR may encounter any brand item in brand space. Understanding these differences can provide valuable information for symbolic and functional brands that seek to engage consumers in XR environments.

H1: The ideal avatars in XR are likelier to seek out brand experiences in symbolic brand spaces.
H2: The actual avatar in XR does not make any different brand experiences in brand spaces.

2.4. The Effect of Avatar Identification on Purchase Intention Mediated by Brand Experience in XR

In addition to serving as self-representations, virtual characters in VR environments can be manipulated to represent another individual. Prior research has found that individuals tend to identify with their virtual characters when they behave as expected but identify them as others when they deviate from expected behaviors. This suggests that the perceived identity of a virtual character is determined by not only its appearance but also its actions and behaviors.

Van Looy et al. (2012) defined avatar identification as users' emotional attachment toward their avatars. It can be divided into three subcategories: perceived similarity, embodied presence, and wishful identification. Studies have suggested that male and younger users are more likely to identify with their avatars, particularly if their avatars are idealized (Bailey et al., 2009; Mohd Tuah et al., 2017; Szolin

et al., 2023). Furthermore, research has shown a positive correlation between high levels of avatar identification and avatar idealization. In line with these findings, Van Looy et al. (2014) found that players who strongly identified with their avatars perceived them as more ideal.

Several studies have investigated the relationship between identification with player characters and various outcomes, including self-discrepancy, self-efficacy, trust, and the intention to purchase game items. For example, Bessiere et al. (2007) found that identification with player characters can reduce self-discrepancy. Similarly, Kim et al. (2012) demonstrated that identification with player characters can improve player self-efficacy and trust within their virtual communities. Moreover, Yee et al. (2009) discovered that online virtual world visitors who perceive a smaller psychological difference between themselves and their avatars are more satisfied with their avatars and spend more time online. Additionally, identification has been found to positively affect players' intent to purchase game items so as to improve their competitiveness and avatars' appearance (Park & Lee, 2011). Overall, increased identification can improve player engagement, motivation, and enjoyment of the game.

The experience of virtual self-identification enables a person to relate to the experience of a virtual character, as demonstrated by Yee et al.'s (2009) Proteus effect (PE). The PE stipulates that individuals' behavior corresponds to their virtual representations. For example, the length or attractiveness of avatars in online communities influences how individuals interact with others online and in subsequent face-to-face interactions (Yee et al., 2009). Observations about an avatar's appearance and other observable cues can influence players' behavior and attitudes in the game world and beyond. This phenomenon is known as PE, and it refers to the tendency for gamers to adjust their attitudes or behavior to match the perceived characteristics of their in-game avatar (Yee et al., 2009).

Research suggests that PE is more likely to occur when players can customize their avatars (Yee et al., 2009; Ratan et al., 2020). This improves avatar identification and embodiment, which are critical factors in the manifestation of PE (Li & Lwin, 2016; Ratan & Dawson, 2016; Song et al., 2014). In addition to the PE, characterized by behavior changes in the physical world influenced by the player's avatar, prolonged use of avatars in video games may also result in perceptual changes in the physical world via the Game Transfer Phenomenon (GTP; Ortiz de Gortari et al., 2011). As described in the excerpt, the participant's experiences appear aligned with GTP (Ortiz de Gortari et al., 2011). GTP involves the transference of video game experiences to the physical world after prolonged use, resulting in auditory, tactile, and visual hallucinations, dissociative experiences, automatic thoughts or actions,

altered perceptions of physical stimuli, and behavioral changes (Ortiz de Gortari & Diseth, 2022; Ortiz de Gortari et al., 2016). This process relies heavily on the user's identification with their avatar, which can lead to a disruption in the individual's self-concept and assimilation of the attributes or characteristics of their controlled avatar, thereby affecting the user both during and after gameplay (Lin & Wang, 2014; Yee & Bailenson, 2009).

One of the themes that emerged from the data analysis is the effect of XR experiences on the behavior and attitudes of users in the real world. Specifically, the theme relates to how controlling an avatar in XR can change the user's behavior or attitudes outside of the virtual environment. Although users can influence their avatar within the virtual world, the relationship between the player and the avatar is bidirectional, and the avatar can also influence the user. This phenomenon is not limited to customization of the appearance, as participants reported that observing their avatar dressed in a particular way could motivate them to emulate that appearance in the physical world.

One can interpret this phenomenon of emulating avatar clothing or physical features in two ways. First, participants may have deliberately chosen these stylistic options for their avatars to experiment with in the virtual world before attempting to replicate them in the physical world. In such cases, the avatar may have served as a virtual self-mannequin. Previous research has demonstrated that avatars and virtual worlds can be used to evaluate personal appearance options, such as gender dysphoric gamers utilizing game worlds to explore new gender identities in a safe environment (Arcelus et al., 2017; Griffiths et al., 2016).

Alternatively, the participants can create and customize their avatars without intending to imitate them in the real world but were influenced by them after extensive gameplay. This develops an intriguing aspect of the user-avatar relationship, that is, a bidirectional bond between an individual and their video game character. This implies that although players can impact their avatar's appearance through customization and character design, the avatar can also affect the player's appearance and style choices outside of the game.

In summary, users with avatar identification can expect to have the intention to purchase the brand items after experiencing them in a virtual brand space.

H3: The effect of avatar identifications on brand purchase intentions is mediated by brand experience in XR.

3. Materials and Methods

3.1. Data Collection and Sample

This study aimed to investigate the brand experiences of

avatars in two different brand concept spaces within XR. It also sought to explore the influence of avatar identification on evaluating brand items in XR. The research design employed a between-subjects approach, with two independent variables: brand concept (functional brand vs. symbolic brand) and avatar type (actual avatar vs. ideal avatar). The measured dependent variables were BXIXR (brand experience in XR) and purchase intention. Additionally, brand attitude served as a control variable. Data from participants who had experienced the ZEPETO platform within the past month were obtained. ZEPETO is an XR platform with 20,000 cumulative global subscribers in Korea that is particularly preferred by college students in their early 20s (Lee et al., 2023).

A total of 73 undergraduate students (37.0% male, M_{age} = 22.57, SD = 1.46) from a large university in Korea participated in the study in exchange for course credit. For the analysis of variance, a sample of approximately 20 people per group is required. Therefore, this study included 73 participants. Each participant was randomly assigned one of the four experimental conditions (Burns et al., 2917).

3.2. Stimulus Development and Measures

The researcher conducted two pretests to select brand concepts suitable for the XR platform. In the first pretest, Toreore Chicken World in ZEPETO was chosen as the functional brand (n = 12; Mfunctional benefit = 4.97 vs. Msymbolic benefit = 3.36; p < .001). In the second test, Gentle Monster in ZEPETO was selected as the symbolic brand (n = 23; Mfunctional benefit = 4.47 vs. Msymbolic

benefit = 5.10; p < .001). The items of each measure were assessed on a 7-point scale, ranging from 1 = strongly disagree to 7 = strongly agree (Table 1).

3.3. Procedure

Participants with varying degrees of ideal avatar identification were exposed to brand concepts within the XR platform. They were instructed to create a self-representation avatar for the XR environment. Participants in the ideal avatar group were specifically instructed to design an avatar that reflected their aspirations and self-image of their ideal future selves. Meanwhile, participants in the actual avatar group were instructed to create an avatar that reflected their current behaviors, attitudes, and traits, thereby representing their perception of themselves in reality. Before commencing the main experiment, participants were informed that the study was aimed at assessing brand evaluations within a virtual brand space. Each participant completed questionnaires that included control variables for brand attitude.

After completing the control variable task, the subjects were invited to participate in a virtual brand space using XR technology for 20 minutes. Upon concluding their participation in the brand space, they were requested to respond to the manipulation check items regarding avatar types and brand concepts. Additionally, the subjects were asked to indicate their perceptions of BXIXR, avatar identification, and purchase intentions. The entire procedure took approximately 25 minutes in total.

Table 1: Scale Items

Constructs	Items	
Search Experience	I can obtain useful information from this brand. I can identify the attributes of this brand. I can collect product (service) properties from this brand. I can understand the function of the product (service) of this brand. I was able to determine the practical performance of this brand.	Jeon (2023) Lee & Yoo (2021), Papagiannidis et al. (2013)
Entertainment Experience	I felt satisfied with this brand. I had fun with this brand. I felt good about this brand. I was delighted while staying at this brand. While I was at this brand, I felt like I was taking a break.	
Relations Experience	I was able to relate to other avatars of this brand. I was able to interact with other avatars in this brand. The avatars active in this brand affect my avatar activities. I was able to interact with avatars from this brand.	
Assembly Experience	I was able to use the items of this brand on avatars. I was able to operate these brand products in my will. I was free to set up the items for this brand. I was able to install items in this brand as I wished.	
Functional Brand	This brand represents the functional benefits that I can expect from the brand. This brand ensures that the brand assists me in handling my daily life competently. This brand represents a solution to a certain problem.	Brakus et al. (2009), Park et al. (2013)
Symbolic Brand	This brand expresses my self-image. I have to pay a lot to buy this brand. This brand makes life richer and more meaningful.	

Constructs	Items	
Avatar Identification	I create my avatar to reflect my ideal view. This avatar is very similar to the person I would like to become. This avatar makes me look more valuable.	Schultze (2014) Szolin et al.(2023)
Purchase Intentions	If I have the chance, I will purchase this brand. I intend to buy this brand.	Barnes & Mattsson (2011) Papagiannidis et al.(2013)
Brand Attitude	I like this brand. This brand makes me favorable This brand is good.	Jeon (2017) Park et al. (2010)

4. Results

4.1. Manipulation Checks

Before analyzing the experimental results, a manipulation check was performed to ensure proper manipulation of the experimental stimuli. The results of the manipulation check show the experimental stimulus as manipulated successfully. Participants in the Toreore Chicken World perceived functional benefits (M = 4.92) as higher than symbolic benefits (M = 4.23; F = 19.338, p < .001). Moreover, the participants in the Gentle Monster perceived symbolic benefits (M = 5.00) higher than functional benefits (M = 2.70; F = 50.859, p < .001).

4.2. Analysis of Brand Experience in XR

ANOVA was performed for empirical verification. ANOVA determines the differences between the means of different groups. The results of the 2 × 2 between-subjects analysis on BXIXR revealed that the main effects of brand concept (F = .004, p > .1) and avatar type (F = .077, p > .1) were not statistically significant (Table 2). However, the two-way interaction effect between brand concept and avatar type was found to be significant (F = 6.40, p < .05). Specifically, when virtual brand space was a functional benefit, participants' BXIXR did not differ based on avatar type (actual avatar: 4.28 vs. ideal avatar: 3.93; F = 1.236, p > .1). However, when the virtual brand space was a symbolic benefit, participants reported a higher level of brand

experience with ideal avatars (M = 4.45) when compared with actual avatars (M = 3.76). Therefore, this finding supports Hypothesis 1 and 2.
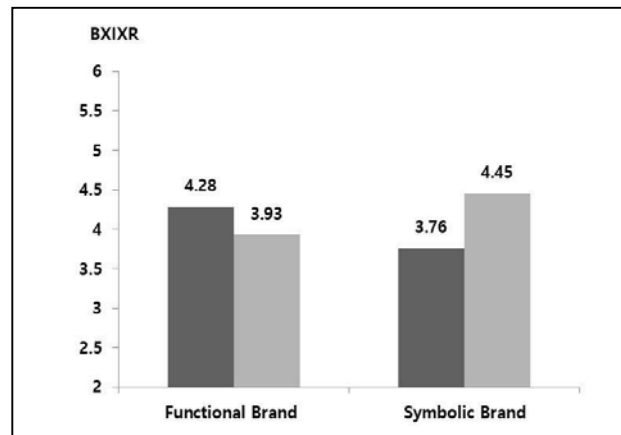

Figure 1: Interaction Effects on Brand Experience in XR

To further examine the specific differences in BXIXR, we divided the brand experiences into four experiences and analyzed the differences in each type of experience. First, when the virtual brand space was a functional benefit, the participants did not differ in the search experience by avatar type (actual avatar: 4.77 vs. ideal avatar: 4.32; F = .823, p > .1). Moreover, when virtual brand space was a symbolic benefit, participants did not differ in search experience according to avatar type (actual avatar: 3.77 vs. ideal avatar: 4.16; F = .829, p > .1).

Table 2: Results of 2 × 2 Between-subjects Analysis

	Type of Ⅲ Sum of Squares	df	Mean Square	F	Sig.
Correct Model	33.448a	4	8.362	12.285	.000
Intercept	13.739	1	13.739	20.184	.000
Brand Attitude	27.495	1	27.495	40.395	.000
Brand Concept (A)	.003	1	.003	.004	.950
Avatar Type (B)	.052	1	.052	.077	.782
A X B	4.356	1	4.356	6.400	.014
Error	46.285	68	.681		
Total	1330.241	73			
Corrected Total	79.733	72			

Note: R^2 = .419(adjusted R^2 = .385)

Second, when the virtual brand space was a functional benefit, the participants did not differ in their entertainment experience based on the type of avatar (actual avatar: 4.50 vs. ideal avatar: 4.47; F = .005, p > .1). However, when the virtual brand space was a symbolic benefit, participants reported a higher level of entertainment experience with ideal avatars (M = 4.72) compared with actual avatars (M = 3.85; F = 4.72, p < .05).

Third, when the virtual brand space was a functional benefit, participants did not differ in their relationship experience based on avatar type (actual avatar: 3.48 vs. ideal avatar: 3.26; F = .214, p > .1). However, when the virtual brand space was a symbolic benefit, participants reported a higher level of entertainment experience with ideal avatars (M = 3.95) compared with actual avatars (M = 3.21; F = 3.415, p < .06).

Finally, when the virtual brand space was a functional benefit, participants did not differ in their relationship experience based on avatar type (actual avatar: 4.38 vs. ideal avatar: 3.67; F = 2.484, p > .1). However, when virtual brand space was a symbolic benefit, participants reported a higher level of entertainment experience with ideal avatars (M = 4.98) compared with actual avatars (M = 4.22; F = 3.983, p < .05).

4.3. Mediation Effect

A mediation analysis was performed to test Hypothesis 3, which explains the mechanism of this study. For this, Model 4 of the PROCESS macro (bootstrapping analysis using 5,000 resamples) was used. We set avatar identification as an independent variable, BXIXR as a mediating variable, and purchase intention as a dependent variable. The analysis results showed significant mediating effects of BXIXR. In other words, the indirect effects of BXIXR (indirect effect: .12.5%) were significant. Therefore, this finding supports Hypothesis 3.
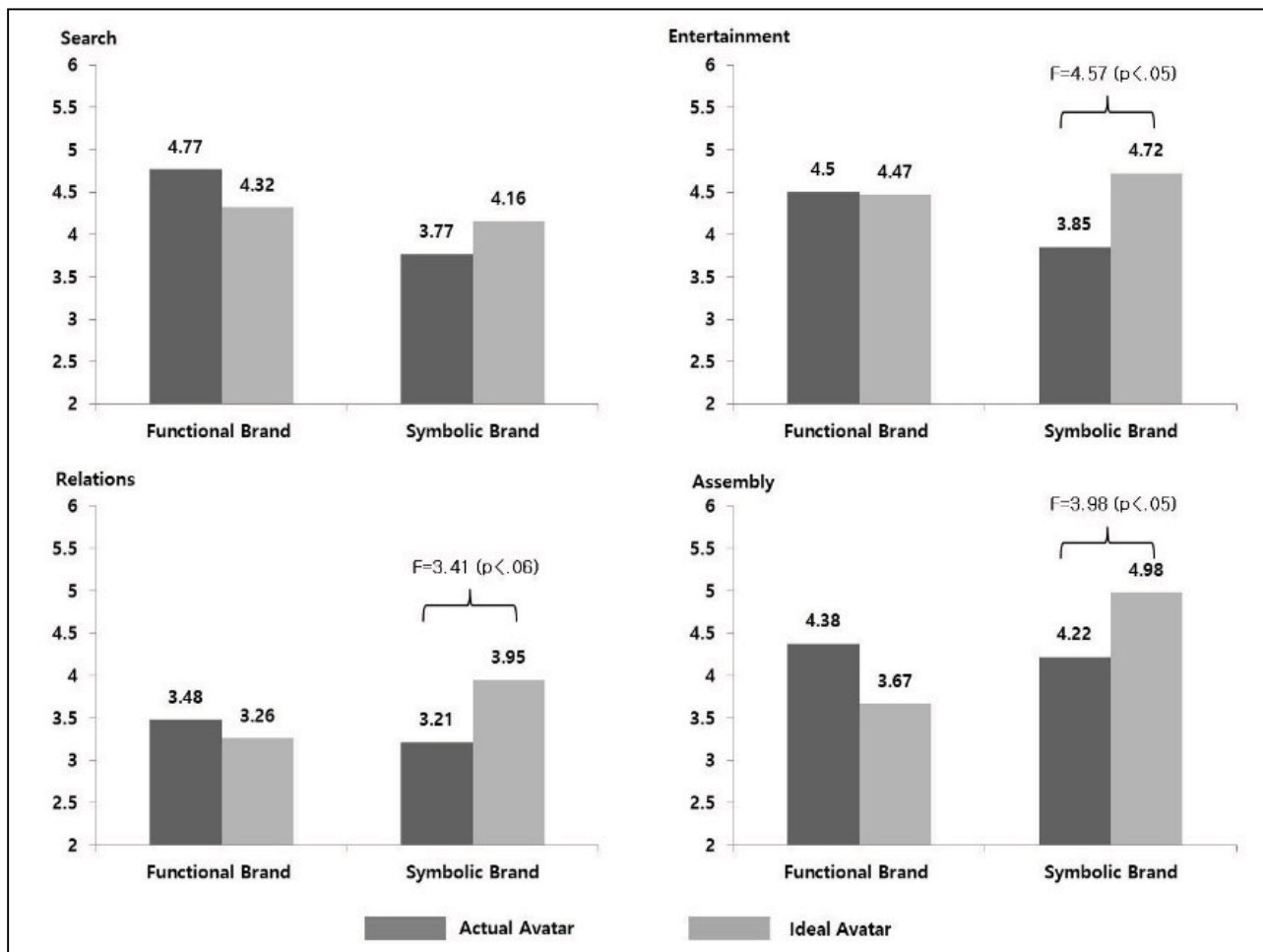

Figure 2: Interaction Effects on Four Brand Experience

Table 3: Mediation Analysis Using PROCESS Macro Model 4

	Coeff	Standardized coeff	SE	t	p	LLCI	ULCI
Outcome variable: BXIXR							
AI	.2409	.4041	.0647	3.7220	.0004	.1118	.3699
Outcome variable: PI							
AI	.1939	.1922	.1195	1.6231	.1091	-.0444	.4322
BXIXR	.5201	.3072	.2004	2.5952	.0115	.1204	.9198
Outcome variable: PI							
AI	.3192	.3163	.1136	2.8095	.0064	.0926	.5457
Indirect effect of AI on PI							
	Effect	BootSE	BootLLCI	BootULCI			
BXIXR	.1253	.0629	.0198	.2663			

Note: BXIXR = Brand experience in XR; AI = Avatar identification; PI = Purchase intentions; LLCI = Lower-level confidence interval; ULCI = Upper-level confidence interval

5. Discussion and Conclusion

This study examines the impact of avatar representation on brand experiences in the virtual brand space of XR. The primary objective of this study is to investigate whether avatars influence brand experiences, focusing on their symbolic benefits. The study indicates the following key findings. First, in virtual brand spaces with symbolic benefits, ideal avatars were found to elicit higher levels of brand experience than actual avatars. Specifically, participants reported elevated levels of entertainment and relational assembly experiences in symbolic brand spaces. Second, this research reveals that the relationship between users' identification with avatars and their intention to make actual brand purchases is mediated by brand experience in XR. These findings support the notion that users who strongly identify with their avatars are more likely to exhibit purchase intentions for brand products after engaging in diverse experiences within the virtual brand space.

Prior studies have only focused on the brand experience of XR; research related to the avatar types in XR has been limited (Fast-Berglund et al., 2018; Kim & Hall, 2019; Lee & Yoo, 2021; Schultze, 2014; Sibilla & Mancini, 2018; Vasalou & Joinson, 2009). Unlike the physical world, XR enables a brand experience that transcends time and space. Further, previous brand experience research has focused on the experience economy; however, research on the immersive economy based on XR is lacking. The findings suggest that ideal avatars evoke higher levels of brand experience within symbolic brand spaces, particularly in entertainment, relational connection, and a sense of community. Furthermore, this study establishes the role of BXIXR as a mediator between avatar identification and purchase intentions. These insights contribute to understanding how avatar representation can shape brand experiences in XR environments, outlining implications for

marketers and designers seeking to optimize virtual brand spaces. As discussed above, prior focused on the experience economy. However, this study describes meaningful implications by studying brand experience based on an immersive economy.

The findings of this study will have significant implications for distribution managers and marketers operating in the virtual brand space. Understanding the impact of avatar representation on brand experiences and consumer behavior will allow them to develop more effective marketing strategies. By leveraging avatars that resonate with users and facilitate identification, brands can increase brand engagement, foster brand loyalty, and ultimately increase sales and revenue.

This study aims to contribute to the growing body of literature on immersive technologies and branding by investigating the effect of avatar representation on brand experiences and purchase intentions within the virtual brand space in XR. The results will provide practical insights for marketers and shed light on the evolving nature of consumer–brand interactions in virtual environments. Further research can build on these findings to explore additional factors influencing brand experiences in XR and develop more targeted marketing strategies.

The XR platform holds immense potential for the future of marketing, offering opportunities to enhance customer engagement, customization, diversity, appeal to younger generations, and social commerce integration. As the concept of the XR platform becomes increasingly mainstream, brands must adapt their communication strategies to leverage the advanced virtual capabilities for customer experiences. The growing influence of the XR platform requires brands to prioritize winning customer experiences. To prepare for the XR platform, brands should explore AR and VR elements and strategically plan to expand their virtual presence into an immersive landscape

where personalization and inclusion are paramount.

In the contemporary landscape, customers crave interaction. Before making a purchase, they desire to learn about products, feel them, and experience them. The Metaverse provides an unprecedented avenue for consumers to discover and test products in previously unimaginable ways. By embracing the XR platform as an additional channel, brands can drive higher loyalty through omnichannel customer engagement, further enriching the overall customer experience.

The XR platform presents a vast unexplored space, with numerous platforms embracing its potential, allowing brands and creators to innovate and create experiences and content previously considered beyond their reach. Regardless of specific business objectives, the XR platform can be leveraged to benefit any brand, fostering innovation and expansion.

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