Article

The Impact of VR/AR-Based Consumers’ Brand Experience on Consumer–Brand Relationships

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Abstract: This study aims to identify types of virtual/augmented reality–based brand experiences (VR/AR experiences) to understand their impacts on consumer–brand relationships. For this study, brand experiences were divided into four types: entertainment, aesthetic, educational, and real-escape experiences. Today, consumers can experience virtual/augmented reality–based brand experiences. In this study, a survey of consumers who participated in brand experiences was conducted. A total of 518 consumers participated in the survey. To verify the study hypotheses, structural equation modeling was conducting using the EQS 6 program. The results confirmed that entertainment, aesthetic, educational, and real-escape experiences were the main types of brand experiences that consumers accessed through AR/VR technologies. Additionally, brand experiences utilizing VR/AR technologies were found to affect consumer–brand relationship-building. Moreover, consumer–brand relationships were found to have a positive effect on consumer satisfaction, which, in turn, had a positive effect on purchase intentions. Furthermore, perceived brand authenticity played an important role in moderating the relationship between the brand experience types and consumer–brand relationship-building. It was found that there were interactions between study participants who perceived brand authenticity as high or low with all regulatory variables. These empirical studies of actual consumers’ AR and VR have the advantage of being able to present the most reliable analysis method for researchers to access their goals through various statistical data and analysis techniques. One of the most important factors in empirical research is sample size. This is because samples have a significant impact on generalizing the results. This means that the validity of the research results is high. The impact of VR and AR on sustainability examined in this study, the impact of VR and AR, and consumer-brand relationship building tried to deviate from the existing perspective in explaining sustainable behavior. It is judged that it contributed to grasping the causal relationship by establishing the relationship with the variables of brand experience with VR and AR and purchase intention. The fact that this study established the impact of VR and AR experience in predicting sustainable behavior of consumers contributed to the field of sustainable marketing.

Keywords: virtual reality; augmented reality; brand experience; consumer–brand relationships; consumer satisfaction; purchase intentions

1. Introduction

In the current market environment, consumers build increasingly complex relationships with brands. Beyond the information controlled and provided by sellers, new media channels have been introduced, expanding opportunities for countless brands. Additionally, consumers continue to maintain relationships with brands following purchases by publicly promoting or criticizing purchased products and cooperating in brand development. As online purchases have become more routine, users have begun experiencing discomfort with the limited display of brand information on small screens. Thus, marketers have sought to improve this experience through design. Efforts have been undertaken to improve the user experience and user interfaces, increasing their intuitiveness by integrating infographics and icons into brand information [1,2]. Consequently, traditional graphic
design is disappearing, with user experiences becoming more comprehensive to keep up with a constantly evolving design environment [3].

The creation of brand presentations for consumers using virtual reality (VR) and augmented reality (AR) technologies has been achieved in many markets. Through marketing using VR and AR technologies, brands can create experiences, engage consumers, and induce transformations in interesting ways [4–7]. According to a Markets and Markets (2023) report, the AR and VR display market is projected to grow from USD 1.8 billion in 2023 to USD 8.2 billion by 2028; it is expected to grow at a CAGR of 35.6% from 2023 to 2028. AR has increased brand competitiveness not only in markets for personal hygiene products, clothing, and furniture, but also in the market for housing interiors. According to a survey of online shoppers across the United States conducted by Interactions Consumer Experience Marketing, a retail survey agency, 65% of shoppers want product information through AR and 61% of shoppers prefer shopping at stores that offer AR technology over stores that do not [8].

Although practical applications of VR and AR technology are multiplying, specific research on how brand marketing activities utilize these technologies is insufficient. Marketers expect brand experiences to enable them to retain customers and generate revisits and purchases; however, research on the situations and factors that affect customers when they make strategic decisions is lacking [1–3,9]. With the recent increase in VR and AR use, several related studies have been conducted. In previous studies, VR and AR technologies have been separated for comparative analysis to study not only consumer acceptance, but also to understand what motivates usage and how retailers implement AR and VR applications [1,2,9–11].

This study focuses on VR and AR phenomena, which are new marketing communication tools. It aims to understand the effect of consumers experiencing a brand through these devices. Users want to gain fun or satisfaction through VR and AR shopping and brand experience. It is judged that the results of this causal relationship can provide strategic implications for the many companies that are trying to utilize the latest technologies. The VR and AR experiences and sustainable development technology devices covered in this study promote sustainable behavior. Furthermore, it is believed that the brand experiences will play an important role in creating a sustainable future. It is necessary to have care and responsibility to ensure that these devices are designed, developed, and used in a way that maximizes environmental or technical benefits and minimizes environmental costs. If the aforementioned factors become a reality, the virtual world can truly contribute to a more sustainable and equitable future. Research related to augmented reality and virtual reality is being applied to various fields. In particular, the effects of experience and satisfaction in the fields of education, medical care, and marketing are being investigated. Start-ups and technology transfers using augmented reality and virtual reality technologies are also occurring. It is judged that certain factors from the results of this study can provide valuable information in predicting consumers’ reasonable consumption or sustainable consumption behavior.

Unlike previous studies, this study has increased the reliability of the survey by allowing actual consumers to experience AR and VR. It is also possible to generalize the results by using vast consumer samples. This study seeks to analyze consumer experience factors to determine whether these factors affect consumer–brand relationships. To this end, the experience economy theoretical model was applied. Thus far, research on the effects of VR- and AR-based brand-experience factors on customer–brand relationship building has been limited. Therefore, this study seeks to understand the influential relationships between brand experiences and the creation of consumer–brand relationships. Additionally, this research aims to determine whether a moderating effect exists by treating brand authenticity as a moderating variable. By examining this causal relationship, it is possible to determine meaningful implications that will enable companies to build consumer–brand relationships via VR and AR.
2. Theoretical and Empirical Background

2.1. Virtual and Augmented Reality (VR vs. AR)

VR is a technology through which users become immersed in a simulated three-dimensional environment that is projected through a headset. The original meaning of the word “virtual” is “being such in essence or effect but not formally recognized or admitted”, which means that a virtual reality space closely resembles an actual space—it is nearly like reality. AR, on the other hand, is a technology that adds digital elements to real environments, while VR technology completely immerses users in synthetic environments [4–6,12]. During this immersion, users cannot see the real world around them. In contrast, AR allows the user to see the real world, with virtual objects overlapping or synthesizing with the real world. AR combines virtual information with the real world, whereas with VR, all sensory information is virtual [5,13,14].

As an interface technology that mixes real-time and virtual images to provide users with virtual information overlaid upon their perceptions, AR improves users’ ability to recognize reality and has become an important digital marketing tool in recent industrial trends. Convenient information acquisition may be provided by adding information to an actual projected environment or intuitive information delivery through the camera function of a smartphone. Because AR delivers richer real messages through a combination of real-world and virtual-world elements, real-time interaction, and the use of three-dimensional images, it generates user satisfaction, user immersion of the five senses, and augmented effects [1,2,9–11].

In a VR experience, a person interacts with a simulated surrounding environment in a virtual space with a high level of immersion. In other words, VR is delivered through the interface between a programmer who can create a virtual experience and the technology [6,15–17]. This is an innovative technology that extends the five human senses through virtual space. Recently, a range of devices, new content production, and virtual distribution platforms have emerged. For its part, AR is typically viewed as a form of VR; however, unlike VR, AR involves a virtual interface that mixes digital features with reality [1,2,9–11,13]. The main difference between VR and AR is that VR feels like reality itself, while AR overlays a specific virtual image on a real background [18,19].

In marketing, VR and AR technologies are being used actively for “shopping”. Consumers can access products they are considering through AR before buying them. For example, the famous fast-fashion brand ZARA has utilized AR to allow customers to check whether the clothes they desire will fit them without having to try on the clothes physically. Additionally, IKEA can match a home with desired furniture in advance through AR and help consumers to see the colors or textures they are seeking in advance. Alibaba in China has used VR machines to allow shoppers to shop in virtual spaces in famous department stores in New York in the United States.

In terms of marketing effectiveness and experience, VR technology has undeniable potential and has brought new IT innovation to marketing. VR marketing has already become an important means through which companies seek to enhance their competitiveness and has been characterized as potentially the most significant marketing innovation of the twenty-first century [20]. According to some research reports, 75% of world-famous brands (excluding Chinese companies) identified by Forbes provide consumers or employees with some type of VR- or AR-based experience. VR technology is widely applied in corporate product development, marketing research, and store and advertising promotions [1,2,9–12,21,22].

2.2. Brand Experience

A brand experience is conceptualized as an emotional, cognitive, and behavioral response to the design, packaging, communication, and environmental features of a product or service created by brand-related stimuli that form part of a brand’s identity [23]. A brand experience comprises a consumer’s perceptions at any moment of contact with a brand, whether that involves the brand’s image projected in an advertisement, personal
contact, or the quality of the individual treatment received [24,25]. Brand experiences are created when customers use a brand, communicate with others about the brand, and seek brand-related information, promotions, and events [26–28].

Brand managers should work with consumers to create an overall brand experience [29,30]. Brand-related marketing activities can affect a consumer’s “mindset” about a brand, i.e., what is known and felt about the brand. In this context, a customer’s mindset comprises everything that exists in the customer’s mind in relation to a particular brand, e.g., thoughts, emotions, experiences, images, perceptions, beliefs, and attitudes about the brand [26]. When consumers search for, purchase, and consume brands, they are exposed to the practical attributes of the corresponding products. However, they are also exposed to a variety of specific brand-related stimuli, such as a brand’s identification colors [31–33].

Pine and Gilmore argue that when a product embodies a variety of brand experience types, it becomes a highly competitive and differentiated experiential product [29]. Additionally, to prevent a brand’s products from being involved in price competition with competitors and to increase product demand to generate profits, the key is to create experiential products and services that remind consumers of memories by enabling them to participate in the production process. Additionally, by appropriately harmonizing distinct types of brand experiences to create memories, companies can increase their marketing opportunities.

Brakus, Schumit, and Zhang defined brand experiences as subjective and internal repercussions for consumers caused by combining brand-related stimuli, such as identity, packaging, design, communication, and the environment, which are delivered through marketing, philosophy, management practice, and cognitive science [23]. In other studies, brand experience has been referred to as the accumulated result of user or consumer experiences. Schmitt emphasized that the concept of experiential marketing can be strengthened through brand loyalty and brand value when strategic experiences using the five senses, emotions, cognition, behavior, and relationships are provided [30]. Summarizing the results of previous studies, brand experience is an important factor in building a company’s brand.

2.3. Consumer–Brand Relationships

Research on consumer–brand relationships begins with brands’ personalities, which make these relationships similar in some ways to relationships between people. A brand’s personality is created through personalization. If the focus of a brand’s personality is to induce consumers to see using the brand’s products as an expression of a real or ideal self or a specific aspect of oneself, a consumer–brand relationship can be established with the product or brand, just as consumers are related to each other in their own ways. In other words, consumer–brand relationships, like interpersonal relationships, involve a complex mix of emotional, cognitive, and behavioral processes that occur between consumers and brands [34–36], creating solidarity between consumers and brands as equal partners [35].

Consumer–brand relationships have attracted attention recently in the marketing literature [35,37]. The concept of consumer–brand relationships began as a metaphor based on interpersonal relationships [35,37]. In consumer–brand relationships, brands are depicted as active partners, much like individuals in interpersonal relationships, and brands are known to have unique personalities just like humans [34,38,39]. The basis of consumer–brand relationships was formed through various interpersonal theories such as interdependence theory [40], social penetration theory [40,41], the investment model [42], social exchange theory [43], and resource exchange theory [44]. Therefore, the concept of a consumer–brand relationship has established itself on a theoretical and conceptual level as a distinct subject of research in the marketing literature.

Consumer–brand relationships involve brand differentiation, risk aversion, and loyal purchasing behavior as dimensions in the formation of consumer–brand relationships [45–48]. Factors that influence the formation of a consumer–brand relationship include past purchase experiences, emotional or behavioral experiences, cognitive beliefs, and brand commitment [35,45,49]. According to Fournier, the quality of a consumer–brand relationship evolves through the be-
havior of the brand and the consumer [35]. These behaviors can strengthen, dilute, or even extinguish such relationships. A model of brand relationship quality that incorporates six factors—love and passion, self-connection, interdependence, commitment, intimacy, and brand partner quality—has been presented in previous studies [35,45,49]. Consumer–brand relationships provide a basis for forming consumer behavior and outcome variables such as brand loyalty, and consumer–brand relationship quality has a positive effect on consumer behavior, increasingly attracting attention as an important factor in consumer happiness.

3. Hypotheses and Theoretical Model

3.1. Hypotheses

This study investigates whether VR- and AR-based brand experiences affect the establishment of consumer–brand relationships by exploring factors that shape VR- and AR-based brand experiences. Conceptualization and scale development regarding brand experiences are very important for understanding the concept of consumer–brand relationships [23,29,50,51]. Brand experiences can be positive or negative and short-lived or long-lasting. A brand experience can have a positive effect on consumer satisfaction as well as on establishing consumer–brand relationships [52]. The concept of a brand experience is empirically distinct from other brand- and customer-centered concepts such as brand attachment, brand participation, and consumer satisfaction [23,52].

When consumers pay attention to certain empirical characteristics of a brand, long-lasting brand experiences are stored in their memories which gradually influence their attitudes toward the brand [53,54]. In this way, the accumulation of experience through brand consumption is the starting point for establishing consumer–brand relationships. Additionally, to understand the nature of consumer relations, a brand should be viewed as an active subject from a consumer’s standpoint, not as a passive object. To establish a true relationship with consumers requires a brand to emphasize the quality, depth, and strength of its consumer relationships [35]. As described above, factors that shape brand experiences can lead to consumer–brand relationships. Pine and Gilmore identified four areas that are relevant to the customer experience of a brand, including entertainment, education, aesthetics, and escapism [29]. These four dimensions are divided across two axes: the degree of customer participation and the connection to the surrounding environment [55]. The first dimension is the entertainment factor that is developed when consumers absorb an experience passively, such as when watching a theatrical performance [27]. Entertainment can affect consumers’ emotions and satisfaction [55,56]. Therefore, this study proposes the following hypothesis to examine how brand experiences affect consumer–brand relationships:

**H1-1.** Entertainment during brand experiences has a positive (+) effect on consumer–brand relationships.

Hedonic benefits comprise the utility attained through emotions or emotional states such as pleasure, fun, and entertainment enjoyed through consumer experiences [57]. A restaurant’s Facebook fan page reflects the degree to which dining at that establishment satisfies guests’ socio-psychological and hedonic needs. Restaurant marketers hope to be effective in identifying and implementing activities that provide social, psychological, and hedonic benefits to guests, as reflected on Facebook fan pages [58,59].

Pleasant brands are used and purchased by consumers primarily to obtain emotional satisfaction from the brands’ sensory attributes through entertainment, escape, or relaxation [60]. Advertising is a key aspect of marketing; thus, visual imagery is an important consideration in the field of consumer behavior. The aesthetic nature of a brand is related to consumers’ perception of beauty [61]. Cognitive and emotional responses to imagery may also include sensory responses [61]. Pleasant consumption is about pleasure. Pleasure may be an element of aesthetic appreciation, which almost certainly elicits a hedonic response. These two concepts are not, however, equivalent. Let us compare two activities: reading a bestselling book and bungee jumping. The former has a significant cognitive element (struggling with language, plot, and ideas) that will result in pleasure. The latter activity can also generate pleasure; however, there are few or no cognitive factors involved.
Moreover, there is no aesthetic appreciation resulting from the sense of danger and speed one experiences during free fall. Therefore, an aesthetic experience is a form of hedonic consumption. Thus, it can be predicted that consumers’ aesthetic brand experiences will be closely connected to their inclination to establish relationships with brands. Therefore, we propose the following hypothesis:

**H1-2. Aesthetic pleasure during brand experiences has a positive (+) effect on consumer–brand relationships.**

The purpose of consumer education is to protect consumers. Providing economic welfare and fair competition to contribute to society as a whole involves promoting understanding. Consumer education informs consumers about the functions, attitudes, knowledge, and understanding that they need to cope with an increasingly complex market. The internet has deepened this complexity. Consumer education influences consumer decision-making at each step in the decision-making process and through external and internal factors that influence consumer decision-making. Resource management (target-setting, personal finances, purchasing savings), and consumer participation are important factors that affect consumer–brand relationships. Therefore, we propose the following hypothesis:

**H1-3. Educational information obtained during brand experiences has a positive (+) effect on consumer–brand relationships.**

While measuring consumer satisfaction with travel experiences, it was revealed that entertainment, aesthetic, and educational experiences have a positive effect on customer satisfaction through reality-escape experiences [55,62–64]. In such cases, though, satisfaction may not be determined directly by the offering itself but rather by attributes of other empirical dimensions (e.g., entertainment, aesthetics, education). In other words, real-escape experiences are unlikely to be made satisfying through destination attributes or qualities. Rather, such satisfaction is highly likely to involve a summation of the psychological consequences of the overall experience [55,62–64]. If tourists enjoy an experience provided by a travel destination, they can step outside their daily lives and immerse themselves in a different world and in a different level of experiential economy. In this way the experience of the travel destination will satisfy tourists [55,62–64]. It can be predicted that these consumers’ brand experiences will be closely linked to the creation of consumer–brand relationships. Therefore, we propose the following hypothesis:

**H1-4. Real-escape features of brand experiences have a positive (+) effect on consumer–brand relationships.**

According to previous studies of consumer–brand relationships, factors that significantly affect such relationships include past purchase experiences, emotional or behavioral experiences, cognitive beliefs, and brand commitment [35,45,49]. Consumers tend to feel more loyal to brands they feel related to, attached to, and love [65]. Therefore, consumer–brand relationships can affect brand loyalty [66]. Researchers have learned that consumer–brand relationships create long-standing bonds between brands and their consumers. Thus, brands (including product brands) are entities with their own personalities with which consumers can sympathize [67]. Therefore, consumers tend to form specific types of relationships with brands [67], not unlike the close personal relationships they form with other individuals [68,69]. Some individuals are passionate about a brand, while others merely like the brand or are indifferent to it [70].

When a consumer is not familiar with a product or has no experience using it, the halo effect associated with a company or a product’s brand image directly affects the consumer’s purchase intention because the consumer already believes in the product. Consumer decision-making is made mainly by predicting purchase behavior. In general, when a favorable attitude toward a product’s properties is formed, a stronger purchase intention is formed, and consequently, it is more likely to lead to action [71]. As a result of brand evaluation, purchase intentions reflect the consumer’s desire to purchase a brand to achieve the highest level of satisfaction [72–76]. In other words, consumer–brand relationships form the basis of consumer behavior and outcome variables such as brand loyalty. Thus,
the quality of consumer–brand relations has attracted attention as an important factor in determining consumer satisfaction that affects consumer behavior positively. Additionally, the degree to which brand experience factors affect consumer–brand relationships may differ depending on perceived brand authenticity [77,78]. Therefore, this study proposes the following hypotheses to investigate the effects of consumer–brand relationships on consumer satisfaction and purchase intentions along with the moderating effects of perceived brand authenticity:

H2: Consumer–brand relationships have a positive (+) effect on consumer satisfaction

H3: Consumer satisfaction have a positive (+) effect on purchase intentions.

H4: The influence of sub-factors of brand experiences (entertainment:H4-1, aesthetic:H4-2, educational:H4-3, and real-escape:H4-4) will affect consumer–brand relationships through the brand authenticity.

3.2. Research Model

The research model for this study was designed based on the identification of factors that influence the creation and maintenance of consumer–brand relationships by identifying types of VR/AR-related brand experiences based on previous studies. Hypothesis 1 was proposed to understand how VR- and AR-based brand experiences affect consumer–brand relationships. Hypotheses 2 and 3 were established to understand the effect of consumer–brand relationships on consumer satisfaction and purchase intentions. To fulfill the purpose and test the hypotheses proposed in this study, a research model was developed, as shown in Figure 1.

Figure 1. Suggested research model.

4. Research Methodology

4.1. Operational Definitions and Variable Measures

This study classifies brand experiences as entertainment, aesthetic, educational, and reality-escape experiences, based on a review of literature related to VR- and AR-based experiences [23,29,50–52]. Based on previous comparative cultural research, a total of 12 items were identified, including three items each for entertainment, aesthetic, and educational experiences and three items for “deviant” experiences [23,29,50–52].

Consumer–brand relationships, like interpersonal relationships, involve complex emotional, cognitive, and behavioral processes that occur between consumers and brands, reflecting the solidarity created as a result of brands’ interactions with their consumers as equal partners [35,45,49]. Consumer–brand relationships were measured with five items that were derived from previous consumer–brand relationship studies and were
modified for this study [45,46]. In this study, consumer satisfaction was defined as the level of positive emotions experienced by consumers during the overall purchase and consumption experience [47,48]. To capture this idea, a total of three measurement items derived from domestic and foreign literature sources were added and modified to suit this study. Three measurement items derived from previous literature were used to measure purchase intentions on a single scale based on consumers’ responses to a question that asked whether they were willing to purchase a given product in the near future. To examine the moderating effect of perceived brand authenticity, three items were developed based on the purpose of this study. The perceived brand-authenticity items were constructed based on existing research [77–80].

4.2. Survey Procedure and Data Collection

To construct the study questionnaire, operational definitions of the variables were obtained. Additionally, questionnaire items were extracted from previous studies, and responses to the survey items were measured using a five-point Likert scale with values ranging from 1 for “strongly disagree” to 3 for “agree” to 5 for “strongly agree”. In other words, the higher the score, the more positive the response. The demographic attributes of the sample were measured using four items about gender, age, education, and income.

This study conducted an online survey. The sample subjects were randomly extracted from a list of consumer panels registered with a global research company, and the questionnaire was randomly distributed to prospective participants. Finally, the survey was conducted after the number of participants was secured and the sample size was established. Before participating in the survey, participants were asked to undergo experimental stimulation provided by the researchers.

The survey was involved providing the survey subjects with VR- and AR-based shopping experiences and brand environments prior to administering the questionnaire. The VR- and AR-based brand experiences provided by one of the major retailers in Korea were used. The VR (virtual reality) shopping experience was a distributor’s VR store, and the AR (Augmented Reality) shopping experience used a distributor’s store. After completing the shopping experience through these two contents, participants were given VR and AR questionnaires. The survey period spanned approximately one month, from March 15 to April 15, 2021. A total of 518 respondents participated in this survey; this information was obtained by contacting consumer panels in advance to check whether the participants had completed the survey.

5. Results

5.1. Descriptive Statistics

As shown in Table 1, the final sample comprised a total of 528 participants, including 254 men and 264 women. The respondents’ average monthly income was approximately US Dollars 3000. A majority of the respondents (85%) had earned college-level degrees. Most of the participants were above 50 years of age, accounting for 23.4% of the sample. This was the threshold of the demographic distribution of this survey.

5.2. Measurement Validity

The measurement scales were tested for dimensionality, reliability, and validity using exploratory factor analysis (EFA) before assessing the hypothesized relationships, as shown in Figure 1. The Cronbach’s alpha values were higher than 0.7 for all variables. The results for factor loading, communality, and Cronbach’s alpha are presented in Tables 2 and 3. As shown in Tables 2 and 3, the factor loadings of the measurement items ranged from 0.556 to 0.865, demonstrating convergent validity at the item level. The factor analysis results for VR- and AR-based brand experiences showed that the each of the 12 measurement items fell along one of four dimensions: Factor 1 was named “entertainment experience,” Factor 2 was named “aesthetic experience,” and Factor 3 was named “educational experience,” and
Factor 4 was named “reality-escape experience.” These four factors, extracted for brand experience, explained 75.3% of the total variance.

Table 1. Sample characteristics.

<table>
<thead>
<tr>
<th>Index (n = 518)</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>254</td>
<td>49.0</td>
</tr>
<tr>
<td>Female</td>
<td>264</td>
<td>51.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–29 years</td>
<td>99</td>
<td>19.1</td>
</tr>
<tr>
<td>30–39</td>
<td>111</td>
<td>21.4</td>
</tr>
<tr>
<td>40–49</td>
<td>98</td>
<td>18.9</td>
</tr>
<tr>
<td>Over 50 years</td>
<td>121</td>
<td>23.4</td>
</tr>
<tr>
<td>High school</td>
<td>89</td>
<td>17.2</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College students</td>
<td>130</td>
<td>25.1</td>
</tr>
<tr>
<td>College level</td>
<td>60</td>
<td>11.6</td>
</tr>
<tr>
<td>Grad school</td>
<td>285</td>
<td>55.0</td>
</tr>
<tr>
<td>Monthly Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below $2000</td>
<td>43</td>
<td>8.3</td>
</tr>
<tr>
<td>$2000–$3000</td>
<td>194</td>
<td>37.5</td>
</tr>
<tr>
<td>$3000–$4000</td>
<td>127</td>
<td>24.5</td>
</tr>
<tr>
<td>$4000–$5000</td>
<td>76</td>
<td>14.7</td>
</tr>
<tr>
<td>Over $5000</td>
<td>55</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Table 2. Factor analysis results for brand experience.

<table>
<thead>
<tr>
<th>Variables (Cronbach’s Alpha)</th>
<th>Items</th>
<th>Communality</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment (0.928)</td>
<td>En1</td>
<td>0.785</td>
<td>0.837</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>En2</td>
<td>0.818</td>
<td>0.853</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>En3</td>
<td>0.803</td>
<td>0.822</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic (0.806)</td>
<td>Es1</td>
<td>0.647</td>
<td></td>
<td>0.823</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Es2</td>
<td>0.732</td>
<td></td>
<td>0.724</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Es3</td>
<td>0.733</td>
<td></td>
<td>0.663</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (0.740)</td>
<td>Ed1</td>
<td>0.637</td>
<td></td>
<td></td>
<td>0.739</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ed2</td>
<td>0.719</td>
<td></td>
<td></td>
<td>0.692</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ed3</td>
<td>0.640</td>
<td></td>
<td></td>
<td>0.718</td>
<td></td>
</tr>
<tr>
<td>Real Escape (0.792)</td>
<td>Re1</td>
<td>0.679</td>
<td></td>
<td></td>
<td></td>
<td>0.756</td>
</tr>
<tr>
<td></td>
<td>Re2</td>
<td>0.726</td>
<td></td>
<td></td>
<td></td>
<td>0.718</td>
</tr>
<tr>
<td></td>
<td>Re3</td>
<td>0.687</td>
<td></td>
<td></td>
<td></td>
<td>0.736</td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>9.215</td>
<td>4.124</td>
<td>2.907</td>
<td>1.786</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of variance</td>
<td>51.79</td>
<td>9.369</td>
<td>7.560</td>
<td>6.549</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total variance extracted</td>
<td>22.54</td>
<td>40.41</td>
<td>58.2</td>
<td>75.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KMO = 0.905, Bartlett’s Sphericity Test χ² = 3643.1(df = 66, p = 0.000)

Table 3. Discriminant and convergent validity.

<table>
<thead>
<tr>
<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.662</td>
<td>0.403</td>
<td>0.692</td>
<td>0.332</td>
<td>0.397</td>
<td>0.623</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.345</td>
<td>0.349</td>
<td>0.333</td>
<td>0.675</td>
<td>0.381</td>
<td>0.307</td>
<td>0.338</td>
<td>0.282</td>
</tr>
<tr>
<td>0.161</td>
<td>0.211</td>
<td>0.248</td>
<td>0.152</td>
<td>0.584</td>
<td>0.682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.112</td>
<td>0.169</td>
<td>0.275</td>
<td>0.158</td>
<td>0.607</td>
<td>0.253</td>
<td>0.517</td>
<td></td>
</tr>
</tbody>
</table>


As shown in Table 3, discriminant validity was assessed by comparing the correlations between the brand experience types using average variance extracted (AVE). The AVE
values ranged between 0.623 and 0.692, while the means of the squares of the correlation coefficients ranged between 0.112 and 0.607, indicating that the AVE was higher than the means of the squares of the correlation coefficients ($r^2$). This result also satisfies the requirements for discriminant and convergent validity, thus verifying the research hypothesis model.

5.3. Hypothesis Testing

To test the structural relationships represented in the model, the hypothesized causal paths were estimated. The results shown in Table 4 and Figure 2 indicate that the VR- and AR-based brand-experience types positively affect consumer–brand relationships ($\gamma = 0.101$, $p < 0.001$ for entertainment experience; $\gamma = 0.249$, $p < 0.001$ for aesthetic experience; $\gamma = 0.336$, $p < 0.001$ for educational experience; and $\gamma = 0.246$, $p < 0.001$ for reality-escape experience). Thus, H1-1, H1-2, H1-3, and H1-4 were supported. Moreover, consumer–brand relationships were found to have a positive effect on consumer satisfaction ($\gamma = 0.4$, $p < 0.001$), and consumer satisfaction had a positive effect on purchase intentions ($\gamma = 0.719$, $p < 0.001$). Thus, H2 and H3 were supported.

Table 4. Path analysis results.

<table>
<thead>
<tr>
<th>H Paths</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1-1 Entertainment $\rightarrow$ CBR</td>
<td>0.101 ** (0.091)/z = 1.997, $p = 0.044$</td>
</tr>
<tr>
<td>H1-2 Aesthetic $\rightarrow$ CBR</td>
<td>0.249 *** (0.286)/z = 5.280</td>
</tr>
<tr>
<td>H1-3 Education $\rightarrow$ CBR</td>
<td>0.336 *** (0.381)/z = 7.136</td>
</tr>
<tr>
<td>H1-4 Real Escape $\rightarrow$ CBR</td>
<td>0.246 *** (0.267)/z = 5.260</td>
</tr>
<tr>
<td>H2 CBR $\rightarrow$ CS</td>
<td>0.764 *** (0.703)/z = 26.87</td>
</tr>
<tr>
<td>H3 CS $\rightarrow$ PI</td>
<td>0.719 *** (0.781)/z = 23.50</td>
</tr>
</tbody>
</table>

Goodness of Fit: $\chi^2 = 9832.3$, df = 543, $p = 0.000$, CFI = 0.936, GFI = 0.888, AGFI = 0.855, NFI = 0.906, NNFI = 0.907, RMSEA = 0.061

Note: ***, $p < 0.001$, ** $p < 0.05$, CBR: Consumer–brand Relationship; CS: Consumer Satisfaction; PI: Purchase Intention.

5.4. Moderating Effects of Authenticity

As shown in Table 5, the hypothesized model was estimated separately for each of the two groups (i.e., those who perceived brand authenticity as high and those who perceived it as low). The values of the selected fit indexes for the multi-sample analysis of the path model with equality-constrained direct effects are reported in Table 5, which shows the standardized solutions. Generally, standardized path coefficients were used to compare paths within groups. The test results showed that interactions between the brand experience types (entertainment, aesthetic, educational, and reality-escape experiences) and consumer–brand relationships ($\Delta \chi^2 = 8.169$, $p < 0.001$ for entertainment experiences;
\[ \Delta \chi^2 = 9.609, \ p < 0.001 \] for aesthetic experiences; \[ \Delta \chi^2 = 12.87, \ p < 0.001 \] for educational experiences; and \[ \Delta \chi^2 = 9.250, \ p < 0.001 \] for real-escape experiences) were significant. Thus, H4-1, H4-2, H4-3, and H4-4 were supported.

Table 5. Results of moderating effects of brand authenticity.

<table>
<thead>
<tr>
<th>H</th>
<th>Path</th>
<th>Path Coefficient</th>
<th>( \chi^2 ) Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3-1</td>
<td>Entertainment ( \rightarrow ) CBR</td>
<td>0.269 (0.251)/z = 4.168</td>
<td>0.145 (0.106)/z = 1.895</td>
</tr>
<tr>
<td>H3-2</td>
<td>Aesthetic ( \rightarrow ) CBR</td>
<td>0.248 (0.287)/z = 3.644</td>
<td>0.097 (0.092)/z = 1.331</td>
</tr>
<tr>
<td>H3-3</td>
<td>Education ( \rightarrow ) CBR</td>
<td>0.272 (0.261)/z = 3.756</td>
<td>0.219 (0.203)/z = 2.756</td>
</tr>
<tr>
<td>H3-4</td>
<td>Real Escape ( \rightarrow ) CBR</td>
<td>0.381 (0.445)/z = 5.243</td>
<td>0.119 (0.100)/z = 1.784</td>
</tr>
</tbody>
</table>

Note: High vs. low: classification based on the degree of authenticity (e.g., high- and low-perceived authenticity).

6. Conclusions and Discussion

This study was aimed at understanding how consumers’ VR- and AR-based brand experiences, differentiated by type, affect consumer–brand relationships. It also sought to examine how consumer–brand relationships affect consumer satisfaction and purchase intentions. The results of the analysis of the study hypotheses are summarized as follows: Consumers’ VR- and AR-based brand experiences, when differentiated by type, had positive effects on their brand experiences. Moreover, consumer–brand relationships had a positive effect on consumer satisfaction, which in turn had a positive effect on their purchase intentions. Based on the above-reported results, this study concludes that brand experiences accessed through VR and AR technologies are closely connected to the building of consumer–brand relationships. The results of the analysis of the moderating effect of the perceived authenticity of brands are described below.

It was found that brand authenticity plays a moderating role when entertainment, aesthetic, educational, and real-escape experiences affect the establishment of consumer–brand relationships. The path coefficient of the group that perceived brand authenticity as low increased with the path coefficient of the group that perceived brand authenticity as high. As a result of this investigation, it was confirmed that there was an interaction effect between the high- and low-perceived brand-authenticity groups with the moderating variable. This study offers several academic and practical implications. Regarding the academic implications, this study was significant in that it investigated whether VR and AR technologies, which are widely used in the current shopping environment, lead to purchase intentions when users experience brands. Furthermore, this empirical research determined the effectiveness of VR- and AR-based brand experiences, which are currently widely used by distribution companies.

In this study, the process of consumer–brand relationship-building was investigated by examining consumers’ VR- and AR-based brand experiences. The originality of this study lies in the fact that examining consumer–brand relationship-building revealed a causal relationship that runs from such brand experiences through consumer satisfaction to purchase intentions. The study results confirmed that VR- and AR-based brand experiences can contribute to creating consumer–brand relationships, which have a significant impact on consumer satisfaction and the intention to purchase a brand or product.

The degree of brand recognition that brand experiences generate varies with the type of brand experience involved. Educational content, design elements, and elements that can provide leisure to users were found to be more effective than the entertainment elements in VR and AR applications. Additionally, consumers tended to prefer brand experiences that applied VR and AR technologies to real-life experiences that focus on providing practical information about brands rather than mere fun. Thus, it is evident that experiential factors play a critical role in the building of customer–brand relationships. It can be concluded that VR- and AR-based brand experiences cannot be effective if the focus is simply on providing fun and one-time VR- and AR-based brand experiences in a marketing environment. In other words, rather than paying attention to the media experience itself, companies must
deliver realistic, undistorted product information through VR and AR technologies and focus on providing VR- and AR-based brand experiences that are centered on accurate information delivery.

Consumers want to search for products easily and quickly and obtain accurate information without being restricted by time and space, e.g., when shopping on mobile devices or online. However, they also want to feel the same way when seeing products in an offline environment. VR- and AR-based brand experiences provide the only brand-driven shopping environment that can satisfy all of these consumer preferences. The VR- and AR-based brand-experience environment substantially alters the distribution environment, as it overcomes physical limitations and provides a more convenient shopping environment for consumers. Additionally, in a marketing environment, where consumer brand experiences are created, consumers can immerse themselves in products and brands via VR- and AR-based brand experiences. Thus, this study contributes to the literature on the rapid response in distribution and marketing environments to the adoption of VR and AR technologies.

Moreover, brand authenticity was found to be a very important factor affecting the relationship between customer–brand relationship-building and VR- and AR-based brand experiences. When brand authenticity was added to VR- and AR-based brand experiences, consumers were more willing to positively recognize and establish relationships with brands. In other words, the story format in which authenticity is harmonized in brand content development makes consumers feel good about brands.

7. Implications and Limitations

One of the most important factors in empirical research is sample size, because samples have a significant impact on result generalization and research validity. As a result, the high validity of this study’s research results can be deemed significant.

Consumers’ brand experiences utilizing VR/AR technologies were found to affect consumer–brand relationship-building. Global consumers visit actual stores and increase carbon emissions through product sampling, product purchase, and packaging. Virtual and augmented product sampling eliminates waste such as cosmetic samples, packaging, shipping, and transportation that generates carbon emissions. With the help of augmented reality (AR) and artificial intelligence (AI), beauty brands can virtually recreate their sampling experiences while saving the planet. Virtual and augmented reality implementations are being studied in various fields. The virtual world is a powerful tool for raising awareness and educating people on environmental issues. Virtual reality and augmented reality technologies allow users to experience firsthand the effects of climate change and the impact of human activity on the environment. For example, virtual reality simulations can show the results of deforestation, melting glaciers, and rising sea levels. This type of immersive experience can help people understand the urgency of the situation and take measures to protect the planet. We believe that virtual and augmented reality-based metaverses will play significant roles in the future [81].

The goal is to create a more sustainable future by raising awareness, promoting sustainable action, reducing carbon emissions, and enabling sustainable development. However, it is important to approach this potential with care and responsibility to ensure that metaverses are designed, developed, and used in ways that maximize environmental benefits and minimizes environmental costs. By doing so, the virtual world can truly contribute to a more sustainable and equitable future. We believe that such virtual and augmented reality-based research in the field of marketing will be sustainable and contribute to consumer happiness.

Despite its significance, this study is subject to the following limitations: the study excluded various issues emerging from the technical aspects of VR and AR technologies. This problem was judged to be a factor that affects consumers when they choose and evaluate brands. In future studies, it is hoped that these factors will be considered. In this study, the inability to select various product lines was also a limitation. VR- and
AR-based brand experiences differ by product lines. This factor should also be considered in subsequent studies.

Author Contributions: Conceptualization, J.-Y.Z., Y.X. and C.-H.J.; methodology, J.-Y.Z. and Y.X.; software, validation, Y.X., J.-Y.Z. and C.-H.J.; formal analysis, investigation, resources, data curation, and writing—original draft preparation, J.-Y.Z., Y.X. and C.-H.J.; C.-H.J. project administration. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: Due to the nature of this study, no formal approval of the Institutional Review Board of the local Ethics Committee was required. Nonetheless, all subjects were informed about the study, and participation was on a completely voluntary basis. Participants were ensured of confidentiality and anonymity of the information associated with the surveys. The study was conducted according to the guidelines of the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

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