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# UGC as a New Digital Promotion in the Metaverse Context

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## Abstract

**Purpose:** This study aims to investigate how brand-related user-generated content (UGC) influences consumers' brand attitude and behavioral intention in the context of the Metaverse, and the mediating role of virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising. **Research design, data and methodology:** The study was conducted using a survey with 239 questionnaires from frequent social media users in China and hypothesis testing through AMOS 26.0 structural equation modeling. **Results:** The findings suggest that (1) brand-related UGC positively influences brand attitude and behavioral intention through virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising. (2) The study identified the fully-mediated effects of virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising in the impact of brand-related UGC on brand attitude and behavioral intention. (3) The mediating pathway with the most significant impact on behavioral intention was the virtual brand experience and attitude toward the advertising, followed by the effect of the virtual brand experience, perceived information usefulness, and perceived interactivity on brand attitude. **Conclusions:** This study presents UGC as a new type of digital promotion that can positively impact the effectiveness of brand advertising in the Metaverse.

**Keywords:** Brand-related UGC, Perceived Interactivity, Virtual Brand Experience, Brand Attitude, Behavioral Intention

**JEL Classification Code**: M30, M31, M37

## 1. Introduction

The concept of the Metaverse was first introduced 30 years ago in Neal Stephenson's science fiction novel, Snow Crash (Stephenson, 1992). Based on this early concept, Kim (2021) defines the Metaverse as "an interoperable and persistent network of shared virtual environments in which people can interact with other agents and objects in real-time through avatars" (p. 2).

As the 2D era of web 2.0 moves into the 3D era of Metaverse 3.0, 3D technologies such as AR and VR are being used in a wide range of media. In the co-creation of meaning in the context of advertising, the role played by consumers gradually began to shift from a passive one to a more active and participatory one (Stern, 1994) as consumers started serving as active initiators of the advertising process (Rodgers & Thorson, 2000).

As virtual technologies in the Metaverse become more prevalent, the forms of advertising become richer as well. Therefore, advertising should consider consumers' individual needs and preferences and avoid meaningless advertising by researching the advertising messages consumers want. Personalized rather than standardized

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advertising messages should be provided to meet consumers' specific needs for information (Cheng et al., 2009). For example, advertisers who sell to META display more targeted ads in user-generated content for promotion (Evans et al., 2022).

Brand-related UGC was chosen because UGC is an important method of influencing consumers in the marketplace (Riegner, 2007). UGC not only brings brand experience indirectly but also creates advertising effects (Ko et al. 2015; Kim & Song 2018), therefore, UGC is considered more valuable than advertisements promoted by companies (Kim & Song 2018; Gunasekar & Sudhakar 2019). Some studies have shown that product-related UGC can assist consumers in forming an understanding and awareness of a product, which can lead to purchase intention (Gan & Wang, 2017; Sreejesh et al., 2020). Therefore, UGC in the Metaverse, as a new type of digital promotion, ultimately influences consumers' attitudes towards advertising and brands, and thus behavioral intentions. This is particularly important for advertising marketers concerned with the Metaverse to motivate more consumers to engage with it spontaneously. According to previous studies on UGC, most of them have been conducted on 2D social media platforms (e.g., Kim & Song, 2018; Arif et al., 2020; Yu & Ko, 2021; Mathur et al., 2022). In a recent review, Ahn, Kim and Kim (2022) suggest that new forms of advertising promotion are needed in the background of the metaverse. Recent studies have also investigated how merchants display targeted advertisements with user-generated content in the context of the metaverse (Evans et al., 2022). Nonetheless, there are still many unexplored aspects of the literature on studying the impact of brand-related UGC on consumer behavior intention. With this in mind, it is necessary to examine how UGC enables brand advertising to deliver better promotional results within it.

This study attempts to use brand-related UGC as a brand marketing and promotion tool, aiming to explore how brand-related UGC influences consumers' brand attitude and behavioral intention, and the mediating role of virtual brand experience, perceived information usefulness, perceived interactivity, and attitudes towards advertising, in this context and the extent to which each of the mediating pathways is influential, which contributes to the literature on UGC advertising effectiveness, consumer behavior, and metaverse virtual experiences in the Mataverse.

## 2. Theoretical Framework and Hypotheses Development

### 2.1. Theoretical Framework

This study builds on the unified theory of acceptance and use of technology (UTAUT) and attitude theory to explore the impact of consumer engagement with brand-related UGC on behavioral intentions, propose a research model, and identify the relationships between the constructs and factors in each theory. Our modified model based on UTAUT (Fig. 1) describes consumers' positive attitude towards advertising and brands through the use of brand-related UGC, thereby influencing brand attitudes behavioral intentions.

According to the four key constructs of UTAUT (i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions), it is shown that among them, performance expectancy, effort expectancy, and social influence play a decisive role in affecting the behavioral intention to use technology (Venkatesh et al., 2012).

First, user-generated content (UGC) can be described as information created and shared by social media users (Krishnamurthy & Dou, 2008). According to a study by Munar and Jacobsen (2014), altruism and community-related motivations are most important for information sharing. In other words, people are happy to help others avoid bad products and services by sharing experiences and giving useful information to others. Another motivation is to maintain social interaction. In this context, social influence seems to be very important and applicable (Bilgihan et al., 2016; Lee & Oh, 2017). Social influence theory (Davis et al. 1992) has been used to account for group behavior. When people feel they belong to a group on social media, in which they can share their knowledge or information, they will fit in with that group (Kang & Schuett, 2013). Furthermore, Alkhwaldi and Kamala (2017) define social influence as the extent to which important people believe they should use a particular technology. Based on this, we used brand-related UGC as a social influence to predict the impact on behavioral intentions.

Second, the utility-related construct in UTAUT, namely performance expectations (containing perceived information usefulness), has consistently proved to be the strongest predictor of behavioral intentions (UTAUT; Venkatesh et al., 2003). Davis (1989) and Davis et al. (1989) suggest that perceived usefulness is considered a major determinant of consumer attitudes. Kim and Forsythe (2009) further show that perceived usefulness is a strong predictor of consumer attitudes toward the use of virtual try-on technology. Moreover, Zhang et al. (2019) find that perceived usefulness influences online consumers' attitudes toward virtual reality technology. Based on this, we use perceived information usefulness as the extent to which consumers bring benefits in performing certain activities (Venkatesh et al., 2012), which corresponds to performance expectations.

Next, the basic concepts of the Metaverse, such as virtual experiences and interactivity, have been studied widely (Ahn et al., 2022). However, most of the existing research examines how consumers experience virtual technologies such as AR and VR, and thus the resulting behavioral intentions, rather than examining the content characteristics of advertising messages delivered via virtual technologies. Interactive digital marketing is arguably one of the most powerful promotional tools available to advertisers (Radzeviciute & Sliburyte, 2005). The extent to which interactivity can be used to create positive consumer attitudes towards advertising will contribute to how more precise advertising content can be invested in brand advertising in the Metaverse. Therefore, we include virtual experiences and perceived interactivity in our model as a way to investigate its impact on attitudes towards advertising and brands.

Finally, attitude theory suggests attitudes are determinants of individuals' behavioral intentions (Van Slyke et al., 2007). Positive attitudes increase people's motivation to engage in action (Reardon et al., 2006). Venkatesh (2012) attributes attitudes to effort expectations as a key factor in influencing behavioral intentions. Therefore, we added attitudes towards advertising as determinants of behavioral intention to the model.

Based on this, we propose an integrated model (Fig. 1) in which the concepts include brand-related UGC (social influence), perceived information usefulness (performance expectancy), perceived interactivity, and virtual brand experience. We propose the hypothesis that the above concepts positively influence attitudes (effort expectancy) towards advertising and brands, and thus behavioral intentions.

## 2.2. Hypotheses Development

### 2.2.1. Brand-related UGC

By definition UGC is any self-created content uploaded to the Internet by non-media that has a significant impact on people's consumption (Cheong & Morrison, 2008; Dijck, 2009; Jonas, 2010; Krishnamurthy & Dou, 2008; Presi et al., 2014). Consumers often purchase goods after browsing personal information generated by other users on social media platforms, and often fully trust their analyses (Horst et al., 2007) since the shared content in UGC is based on consumers′ own experiences. Therefore, such information is perceived to be more trustworthy, useful, and unbiased (Buttle, 1998; Mir & Rehman, 2013; Jonas, 2010; Verhellen et al., 2013). UGC also helps online consumers access information in less time and receive timely feedback directly from the source (Davis, 1989; Featherman & Pavlou, 2003; Racherla & Friske, 2012). Consumers often share brand-related UGC, such as consumer experiences and factual information (Kim & Johnson, 2016), which impacts ratings (Chen et al., 2013; Smith et al., 2012).

### 2.2.2. Perceived Information Usefulness

According to Davis (1989), perceived usefulness of information can be defined as the extent to which consumers believe that using this information will improve their shopping efficiency. Social influence can also affect perceived usefulness (Gefen et al., 2002). When consumers' attitudes toward UGC increase, the consumption and creation of such content increase. This finding highlights the importance of creating a positive customer experience through UGC, both in terms of the products offered and the content marketers provide to promote goods and services through UGC (Daugherty et al., 2008). Based on this, we propose the following hypothesis：

**H1a:** BR-UGC will have a positive impact on perceived information usefulness.

**H1b:** BR-UGC will have a positive impact on virtual brand experience.

### 2.2.3. Perceived Interactivity

According to Sung and Cho (2012), "virtual advertising is one way of delivering information that provides an enjoyable interactive experience for users, informativeness refers to the quality of useful information an advertisement effectively conveys to users, influencing their evaluation and attitude "(p. 10). Sheinin et al. (2011) state that advertising focuses on informativeness, which drives consumers to process information related to a brand, and thus helps them understand it better. Therefore, in this study, the amount of information is also conceptualized as the overall usefulness of the information perceived by consumers through brand-related UGC.

According to Steuer (1992), interactivity is often defined as "the degree to which users can participate in modifying the form and content of the mediated environment in real time" (p. 84). Interactive digital advertising allows consumers to control advertisements by manipulating "what they see on the screen in real-time" (Stern, 1994). In controlling what they see, consumers use websites that offer a greater dimension of interactive communication and a wider spread of content, content providers, and technology than that offered by traditional one-way media (Wu, 2005). However, Newhagen et al. (1995) state that personal perceptions of interactivity cannot be experienced without personal motivation to engage with interactive technology. Interactivity, therefore, occurs when consumers perceive the usefulness of the information and are willing to engage with the technology.

The perceived level of interactivity of an advertisement has been shown to have a positive impact on attitudes (Kim et al., 2012) toward the advertised product or brand (Sundar

& Kim, 2005). For example, if a person tries to interact with a link or content pushed by a brand while viewing brand-related UGC, this increased interactivity can influence positive attitudes toward the brand. In summary, several studies have found that perceived interactivity is associated with more positive attitudes towards and greater willingness to use technology (Camilleri & Camilleri, 2021, 2022; Girishet al., 2022). Comparatively high interactivity has also been shown to have a positive relationship with users' attitudes and behavioral intentions to use technology (Venkatesh et al., 2003). Based on this, we propose the following hypothesis：

**H2:** Perceived information usefulness will have a positive effect on perceived interactivity.

**H3:** Perceived interactivity will have a positive effect on brand attitude.

**H4:** Perceived interactivity will have a positive effect on behavioral intention.

### 2.2.4. Virtual Brand Experience

The virtual environment of the Metaverse offers consumers unlimited options to choose the clothes/cosmetics they wear to create a personal image that makes them happy (Sundar, 2012). Such virtual experiences can evoke positive emotional, attitudinal, and behavioral responses (Yim et al., 2012, 2017). The more consumers experience such responses to a brand, the more they tend to develop positive brand attitudes and build stronger relationships with the brand (Keller, 1993; Zarantonello & Schmitt, 2010). When consumers have a positive brand experience, they perceive the usefulness of the brand message and are therefore more likely to be satisfied with the brand. This is because virtual product experiences can influence consumers' attitudes toward real products (Mallinckrodt & Mizerski, 2007).

Pham (2004) argues that positive brand experiences through emotions, perceptions, and actions, can stimulate consumers' senses and lead to positive brand attitudes. The more intense the experience consumers receive from brand advertising, the more emotions, thoughts, feelings, and behaviors such an experience will induce, relatively speaking. Ultimately, consumers will develop more positive attitudes toward the brand (Brakus et al., 2009). Based on this, we propose the following hypothesis.

**H5:** Virtual brand experience will have a positive impact on perceived information usefulness.

**H6:** Virtual brand experience will have a positive impact on attitude toward advertising.

### 2.2.5. Brand Attitude

Brand attitude is the tendency or internal evaluation of liking or disliking a specific brand by individuals stimulated by an advertisement (Bao, 2017). Advertising attitudes are defined as changes in consumers' reactions or emotions towards a particular advertisement based on various advertising factors, either favorable or unfavorable. Many researchers have studied consumer attitudes toward advertising in terms of recognition and emotions related to specific branded products/services in advertisements, and have highlighted the impact of advertising attitudes on brand attitudes (Brown & Stayman, 1992).

### 2.2.6. Attitude Towards Advertising

According to previous research, consumers' attitudes toward advertising have a positive impact on brand attitudes (Aaker & Jacobson, 2001; Han, 1989; Li et al., 2002; MacKenzie & Spring, 1992). The higher the advertising value created by the messages about products and services conveyed in interesting advertisements, the more consumers like the brands of these products and services. In addition, consumers' attitude toward advertising will become more positive through the perceived value of the context. Therefore, consumers' perceived attitudes towards advertisements have a positive impact on brand attitudes (Lee et al., 2017).

### 2.2.7. Behavior Intention

Rational behavioral theories and technology acceptance models explain an important relationship between attitude and behavioral intentions (Davis, 1989; Fishbein & Ajzen, 1975). However, this relationship has not only been explained at a theoretical level but has also been tested empirically. For example, in the context of Internet retailing, consumers' attitudes towards goods or the adoption of a certain technology have a significant impact on their willingness to purchase a product or their willingness to adopt a technology application (Rese et al., 2017; Pantano et al., 2017; Zhang et al., 2019; Plotkina & Saurel, 2019; Fan et al., 2020). Based on this, we propose the following hypothesis：

**H7:** Attitude toward advertising will have a positive impact on brand attitude.

**H8:** Attitude toward advertising will have a positive impact on behavioral intention.

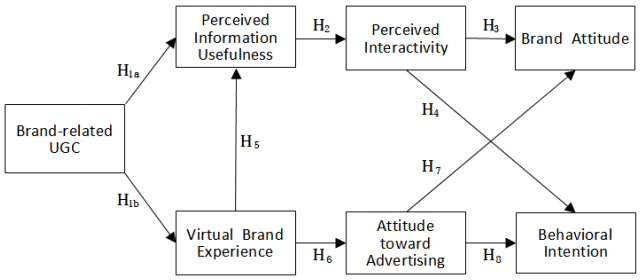


**Figure 1:** Research Mode

## 3. Methods

### 3.1. Participants and Procedure

This study investigated the associations between brand-related UGC, perceived information usefulness, perceived interactivity, virtual brand experience, attitude toward advertising, brand attitude, and behavioral intention. The survey was conducted among 239 Chinese social media users. It included 104 males (44%) and 135 females (57%). In terms of age, the largest proportion was between 20 and 30 years old (86%) (N=206), 11% (N=27) were between 30 and 40 years old, and 3% (N=6) were between 40 and 50 years old and above. This study also investigated the frequency of the subjects' social media use, and found that 83% (N=199) used it more than once a week and only 17% (N=40) used it once a week. This indicates that the subjects were eligible for the questionnaire. Specifically, all questions were answered after the participants viewed the brand-related UGC pages designed in Zepeto software, and formed a certain perceptual experience before answering the questionnaire.

Zepeto is an AR-based application used to create online avatars and virtual worlds. It consists of a Metaverse map that acts as a mirror world, integrating information from the real world into the virtual world and providing the same information as if creating a copy of the real world (Lee 2021). Users can post photos and video content in virtual worlds through Zepeto. Accordingly, Zepeto's UGC page is suitable for this research study in the context of the Metaverse.

### 3.2. Measures of Constructs

Table 1 describes measures of brand-related UGC, perceived information usefulness, perceived interactivity, virtual brand experience, attitude toward advertising, brand attitude, and behavioral intention. The scales used in the questionnaire were adapted from previous research. Each question was adapted to the context of this study and was measured using a 7-point Likert-type scale, from "strongly disagree" (1) to "strongly agree" (7).

## 4. Results

A confirmatory factor analysis (CFA) was performed on the 33 indicators of the seven latent variables measured, and the results of the CFA indicated that the measurement model had an acceptable overall fit (Chi-square/DF = 2.903, $p<0.001$, IFI= 0.914, TLI= 0.889, CFI = 0.914, RMSEA= 0.089) as shown in Appendix 1. Brand-related UGC, perceived information usefulness, perceived interactivity, virtual brand experience, attitude towards advertising, brand attitude, and behavioral intention, the reliability coefficients of the measures of attitude and behavioral intention, were 0.955, 0.939, 0.956, 0.928, 0.938, 0.919, and 0.917 respectively, and the total reliability (Cronbach $\alpha$) value was 0.985. The reliability of each factor was above 0.7, which had a high reliability level. The validation factor analysis (CFA) was conducted to test the convergent validity (AVE) and combined reliability (CR) of each dimension of the scale through the established CFA model. The results in Appendix 1 show that the AVE values of each dimension are above 0.5 and the CR values are above 0.7, which together can indicate that each dimension has good convergent validity and combined reliability.

Table 1 gives the correlation coefficient matrix for the seven factors in Appendix 1. The results of the analysis show there is a significant correlation between all the variables at the 99% significance level. Based on the results of the correlation coefficients, it can be seen that the correlation coefficients r between the variables are greater than 0. Therefore, it can be stated that there is a significant positive correlation between all the variables in this analysis.

**Table 1:** Inter-correlation matrix of the factors

| | BR-UGC | PIU | PI | VBE | ATOAD | BA | BI |
|---|---|---|---|---|---|---|---|
| BR-UGC | 1 | | | | | | |
| PIU | .822** | 1 | | | | | |
| PI | .838** | .904** | 1 | | | | |
| VBE | .811** | .828** | .857** | 1 | | | |
| ATOAD | .746** | .712** | .733** | .773** | 1 | | |
| BA | .803** | .831** | .871** | .827** | .816** | 1 | |
| BI | .767** | .781** | .828** | .805** | .794** | .848** | 1 |

Note 1: ** $p < .01$
Note 2: BR-UGC=Brand-related UGC, PIU=Perceived Information Usefulness, PI=Perceived Interactivity, VBE=Virtual Brand Experience, ATOAD =Attitude towards advertising, BA=Brand Attitude, BI=Behavioral Intention.

Based on the above results, we built an SEM for path coefficient analysis, the proposed path model, as shown in Fig. 2, with an acceptable fit (Chi-square/DF = 2.851, $p<0.001$, IFI = 0.915, TLI = 0.902, CFI = 0.915, RMSEA = 0.088), and the regression coefficients indicate that the reliability of the measurements is acceptable. All paths show positive and significant effects (see Table 2 and Fig. 2). Brand-related UGC has a significant positive effect on perceived information usefulness ($\beta = .361$ $p < 0.001$). Therefore, H1a is supported. Brand-related UGC has a significant positive effect on virtual brand experience ($\beta = .875$ $p < 0.001$). Therefore, H1b is supported. Perceived

information usefulness has a significant positive effect on perceived interactivity (β = .977 p < 0.001). Therefore, H2 is supported. Perceived interactivity has a significant positive effect on brand attitude (β = .616 p < 0.001). Therefore, H3 is supported. Perceived interactivity has a significant positive effect on behavioral intention (β = .541 p < 0.001). Therefore, H4 is supported. Virtual brand experience has a significant positive effect on perceived information usefulness (β = .605 p < 0.001). Therefore, H5 is supported. Virtual brand experience has a significant positive effect on attitude towards advertising (β = .852 p < 0.001). Therefore, H6 is supported. Attitude toward advertising has a significant positive effect on brand attitude (β = .410 p < 0.001). Therefore, H7 is supported. Attitude toward advertising has a significant positive effect on behavioral intentions (β = .456 p < 0.001). Therefore, H8 is supported.

**Table 2:** Results of Testing Hypotheses

| Hypothesis | Paths | Estimate | S.E. | C.R. | P | Results |
|---|---|---|---|---|---|---|
| H1a | BR-UGC→PIU | .361 | .075 | 4.819 | *** | Supported |
| H1b | BR-UGC→VBE | .875 | .059 | 14.768 | *** | Supported |
| H2 | PIU→PI | .977 | .054 | 16.955 | *** | Supported |
| H3 | PI→BA | .616 | .060 | 11.030 | *** | Supported |
| H4 | PI→BI | .541 | .069 | 8.770 | *** | Supported |
| H5 | VBE→PIU | .605 | .080 | 7.561 | *** | Supported |
| H6 | VBE→ATOAD | .852 | .065 | 13.959 | *** | Supported |
| H7 | ATOAD →BA | .410 | .049 | 7.921 | *** | Supported |
| H8 | ATOAD →BI | .456 | .060 | 7.526 | *** | Supported |
| Chi-square/DF =2.851, (p< .001), IFI= .915, TLI= .902, CFI= .915, RMSEA = .088 | | | | | | |

Note 1: ** p < .01; *** p < .001

Note 2: BR-UGC=Brand-related UGC, PIU=Perceived Information Usefulness, PI=Perceived Interactivity, VBE=Virtual Brand Experience, ATOAD=Attitude towards advertising, BA=Brand Attitude, BI=Behavioral Intention.

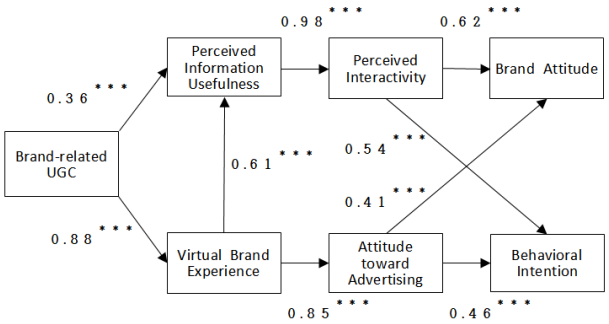


**Figure 2:** Results of proposed model

## 4.1. Mediation Effects Test

One of the research objectives of this study was to examine the mediating effects of virtual brand experience, perceived information usefulness, perceived interactivity, and attitude towards advertising in the influence of brand-related UGC on brand attitude and behavioral intention. Two direct path from brand-related UGC to brand attitude and behavioral intention was added to the model of the mediation test, and the mediation results, as shown in Table 3, were analyzed. The confidence interval [lower bound, upper bound] includes 0, and the p-value is bigger than .05. Therefore, the direct path from brand-related UGC to brand attitude and behavioral intention is not significant. In addition, all mediated paths are shown to be significant. Thus, perceived information usefulness and perceived interactivity play a fully mediated role in the effect of brand-related UGC on brand attitude and behavioral intention. Also, virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising, play a fully mediated role in the influence of brand-related UGC on brand attitude and behavioral intention. Moreover, through the analysis of the percentage of mediating effects, the mediating path through virtual brand experience and attitude towards advertising has the most significant effect on behavioral intention. The next, largest effect on brand attitude is through the mediating path of virtual brand experience, perceived information usefulness, and perceived interactivity.

**Table 3:** Mediation Effects Test

| Path Type | Paths | Estimate (Lower,Upper) | P | Proportion | Mediation Type |
|---|---|---|---|---|---|
| Direct | BR-UGC→BA | .013 (-.176, .246) | .883 | 1% | |
| | BR-UGC→BI | -.017 (-.294, .229) | .887 | -1% | |
| Indirect | BR-UGC→PIU→PI→BA | .217 (.054, .448) | .009 | 13% | Full mediation |
| | BR-UGC→PIU→PI→BI | .204 (.056, .539) | .006 | 12% | |
| | BR-UGC→VBE→PIU→PI→BA | .319 (.157, .518) | .003 | 19% | |
| | BR-UGC→VBE→PIU→PI→BI | .300 (.163, .494) | .002 | 17% | |
| | BR-UGC→VBE→ATOAD→BA | .314 (.183, .539) | .001 | 18% | |
| | BR-UGC→VBE→ATOAD→BI | .369 (.201, .588) | .002 | 21% | |
| Total | | 1.719 (1.441, 1.969) | .003 | 100% | |

Note 1: BR-UGC=Brand-related UGC, PIU=Perceived Information Usefulness, PI=Perceived Interactivity, VBE=Virtual Brand Experience, ATOAD =Attitude towards advertising, BA=Brand Attitude, BI=Behavioral Intention.

## 5. Conclusion

This study examines the relationship between brand-related UGC, perceived information usefulness, perceived interactivity, virtual brand experience, attitude toward advertising, brand attitude, and behavioral Intention. The results indicate that brand-related UGC in a virtual context as a new promotional approach positively influences brand attitude and behavioral intention through virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising. In addition, the fully mediated effects of virtual brand experience, perceived information usefulness, perceived interactivity, and attitude toward advertising on brand attitudes and behavioral intentions were identified, while the most significant effect on behavioral intentions through the path of virtual brand experience and attitude toward advertising was found, followed by the most significant effect on brand attitudes through the path of virtual brand experience, perceived information usefulness, and perceived interactivity.

Prior research has indicated that most UGC is brand-relevant (Burmann & Arnhold, 2008) and has the potential to shape consumers' brand perceptions (Christodoulides et al., 2012; Schivinski & Dabrowski, 2016), resulting in different sensory experiences and attitudes towards the brand. This study investigates brand-related UGC as an important way to influence consumers' brand attitudes and behavioral intentions. The focus of this study is on the fact that when consumers engage with brand-related UGC content and gain new experiences within a virtual brand, this experience can serve as an important influence on perceived information usefulness as well as perceived interactivity. This study also found that virtual brand experiences can influence brand attitudes and behavioral intentions through perceived information usefulness and perceived interactivity, and also through consumer attitudes towards advertisements generated during the virtual experience.

### 5.1. Theoretical Implications

This study makes three contributions that are critical for scholars and practitioners. Consideration was given to the importance of the form of advertising promotion in the metaverse in terms of consumers' virtual experience and perceived interactivity (Ahn et al., 2022).

Firstly, the study provides a theoretical framework to examine the impact of brand-related UGC on brand attitudes and behavioral intentions. This study innovates the theoretical foundation of UTAUT by including the concepts of virtual brand experience and perceived interactivity. Previous research indicated that the perceived interactivity of technology has a significant impact on its perceived usefulness (Chen et al., 2007; Marzuki et al., 2016; Abdullah et al., 2017). In other words, interactivity may have previously been considered an important prerequisite for influencing perceived usefulness. However, the environment in the metaverse provides a new sense of virtual experience. A new finding is that perceived interactivity can also be influenced when consumers perceive the usefulness of information from brand-related UGC. Furthermore, it was demonstrated that perceived interactivity can influence brand attitudes and behavioral intentions.

Secondly, in terms of the application of key concepts, this study reveals the pathways by which brand-relevant UGC influences brand attitudes and behavioral intentions through virtual brand experiences, perceived information usefulness, perceived interactivity, and attitudes toward advertising. The results of the study show that all hypotheses are supported. This suggests that users' virtual experience while engaging in brand-related UGC, perceived usefulness of information, perceived higher level of interaction, and positive attitudes towards advertisements are important factors that enhance brand attitudes and behavioral intentions.

Finally, this study shows that the variables play a fully mediating role in the effects of brand-related UGC on brand attitudes and behavioral intentions and that the greatest impact on behavioral intentions is achieved through this mediating path of virtual brand experience and attitude toward advertising. It was thus found that the virtual brand experience can be an important prerequisite.

Specifically, this study extends the digital promotion of UGC in the Metaverse by examining the effects of user engagement with the UGC experience. This framework is of interest to future scholars and practitioners of advertising promotion in the Metaverse, as the Metaverse is developing into a more powerful environment for real and virtual interaction and resource sharing than the traditional online environment.

These findings contribute to the development of a theory on advertising promotion and consumer behavior in the Metaverse, as well as contributing to expanding the literature on virtual experiences in the Metaverse.

### 5.2. Practical Implications

This study provides some practical implications for the promotion of advertising in virtual environments.

First, a deeper understanding of the factors that influence UGC consumer attitudes is key, as the creation and promotion of brand advertising messages can be optimized and have a greater impact on digital promotion. Especially, by providing consumers with a virtual environment in which they have a high degree of freedom to create and display and

publish, marketers can increase the value of the brand messages they present by engaging consumers more actively in the virtual experience or creation of the brand, interacting with others or the brand to gain more information about the brand. By engaging in the process of information perception, more high-level interactivity is generated, which influences consumers' attitudes and intentions (Camilleri & Camilleri, 2021, 2022).

In addition, the future of advertising is no longer just about creating formats users can't turn off or briefly control; the experiential and virtual technology of brands in the Metaverse delivers immersive ads that can be inextricably enjoyable for users. The key element of advertising in the Metaverse will therefore be the co-existence of user and brand experiences, enhancing stimuli such as useful information or interaction to increase positive attitudes towards ads and brands, and to increase consumption and creation. Marketers can aim to blur the line between advertising and the experience of advertising promotion, as users′ experience and involvement in content creation are often advertising itself.

Further, as virtual brand experiences play a key role in generating positive attitudes towards advertising and can influence subsequent attitudes and behavioral intentions towards the brand, marketers can enrich consumers' virtual experiences by incorporating a wide range of brand experience content to promote more positive attitudes and strengthen behavioral intentions towards the brand.

## 5.3. Limitations and Further Research

The virtual brand experience is particularly important as a key influencing factor in virtual environments. As the Metaverse concept has not yet achieved widespread popularity, this study has chosen specific AR applications and brands as examples to overcome the limitations of previous studies. In future research, other virtual applications or relationships with different brands could be investigated to explore the validity of the model. In addition, the perception of different mechanisms could be investigated in comparison to the web 2.0 environment. Finally, to gain a deeper understanding of consumers' behavioral responses in virtual environments, the study could be extended to explore differentiation across countries and in different cultural settings. thus providing wider insights for expanding the generalisability and practicability of research.

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# Appendixes

**Appendix 1:** Measurement

| Factors | Measurement items | Mean | SD | AVE | CR | Cronbach α |
|---|---|---|---|---|---|---|
| **Brand-related UGC** Wu & Wang (2011) Kim & Johnson (2016) | Brand-related UGC on the main Zepeto software page, | | | | | |
| | 1. Describes the features of the featured brand and product. | 5.326 | 1.357 | .772 | .953 | .955 |
| | 2. Describes the value of the featured brands and products. | 5.192 | 1.398 | | | |
| | 3. Describes the advantages of the featured brands and products. | 5.205 | 1.358 | | | |
| | 4. Creates positive vibes about the featured brands and products. | 5.351 | 1.271 | | | |
| | 5. Creates positive sentiments toward about the featured brands and products. | 5.360 | 1.305 | | | |
| | 6. Create positive feelings toward about the featured brand and product. | 5.360 | 1.292 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Perceived Information Usefulness**<br>Davis (1989)<br>Park & Park (2009) | 1. The information I get when using brand-related UGC will enable me to shop faster. | 5.310 | 1.308 | .796 | .940 | .939 |
| | 2. The Information I obtain when using brand-related UGC will improve my shopping experience. | 5.406 | 1.236 | | | |
| | 3. The information I obtain when using brand-related UGC will make buying products easier. | 5.402 | 1.239 | | | |
| | 4. I would find the information obtained from using brand-related UGC useful for my shopping experience. | 5.393 | 1.298 | | | |
| **Perceived Interactivity**<br>McMillan & Hwang（2002） | When I use brand-related UGC, | | | | | |
| | 1. It enables two-way communication. | 5.297 | 1.270 | .717 | .953 | .956 |
| | 2. It enables real-time communication. | 5.243 | 1.319 | | | |
| | 3. It is interactive. | 5.285 | 1.214 | | | |
| | 4. It loads pages quickly. | 5.251 | 1.275 | | | |
| | 5. It provides diverse content. | 5.498 | 1.170 | | | |
| | 6. I can maintain focus. | 5.251 | 1.304 | | | |
| | 7. It is easy to find my way around the site. | 5.234 | 1.339 | | | |
| | 8. It provides answers to questions instantly when I encounter them. | 5.205 | 1.285 | | | |
| **Virtual Brand Experience**<br>Brakus et al. (2009) | 1. Branding of brand-related UGC impresses my visual senses. | 5.368 | 1.289 | .759 | .926 | .928 |
| | 2. Brands in brand-related UGC evoke feelings and emotions in me. | 5.339 | 1.276 | | | |
| | 3. I feel active and energized when I use brands in brand-related UGC. | 5.197 | 1.322 | | | |
| | 4. I do a lot of thinking when I encounter brands in brand-related user-generated content. | 5.280 | 1.326 | | | |
| **Attitude towards advertising**<br>Ahn et al. (2004)<br>Porter & Donthu (2006)<br>Rese et al. (2017) | 1. I am positive about advertising in brand-related UGC. | 5.109 | 1.401 | .746 | .936 | .938 |
| | 2. Ads in brand-related UGC are very interesting, and I would like to learn more about them. | 5.180 | 1.410 | | | |
| | 3. It makes sense to use ads in brand-related UGC. | 5.234 | 1.349 | | | |
| | 4. It is a good idea to use ads in brand-related user-generated content. | 5.289 | 1.368 | | | |
| | 5. Others should also use ads in brand-relevant user-generated content. | 5.021 | 1.468 | | | |
| **Brand Attitude**<br>Lee et al. (2017) | 1. The product branding in brand-related UGC is good. | 5.285 | 1.275 | .792 | .919 | .919 |
| | 2. The product branding in brand-related UGC is pleasant. | 5.372 | 1.184 | | | |
| | 3. The product branding in brand-related UGC is favorable. | 5.439 | 1.238 | | | |
| **Behavioral Intention**<br>Park & Yoo (2020) | 1. I will buy brands from brand-related UGC. | 5.230 | 1.294 | .762 | .906 | .917 |
| | 2. I will recommend brands from brand-related UGC to my friends and family. | 5.121 | 1.359 | | | |
| | 3. I will go back to the app and buy brands from brand-related UGC. | 5.172 | 1.332 | | | |
| Chi-square/DF =2.903, (p< .001), IFI= .914, TLI= .889, CFI= .914, RMSEA = .089 | | | | | | |

**Appendix 2:** Stimulant