

The Role of Perceived Value of Avatar's Virtual Fashion in Metaverse on the Impact of Sense of Presence on Purchase Intention

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Abstract

With the advent of Metaverse, a promising new era for business on virtual reality (VR) platforms has dawned. In this rapidly expanding Metaverse platform, the potential for virtual fashion marketing through avatars is vast, with leading fashion brands already making strides by creating virtual fashion stores or hosting virtual fashion shows. However, the research on fashion-related industries in this newly emerging virtual world platform is still in its infancy. This study sought to identify the relationship between the characteristics of the Metaverse and the factors that influence how the perceived value of virtual fashion products affects purchase intention. A survey was conducted with three hundred Korean respondents, and the hypothesis was verified through analysis using the SPSS statistical program. Our analysis revealed that the sense of presence significantly influences the value of fashion products on the Metaverse platform. As a result, the sense of presence significantly influenced the emotional, visual authority, and economic value of the avatar virtual fashion perceived by users. Second, enjoyment, visual authority, and economic value influence users' intention to purchase virtual fashion items. In addition, all of these perceived value factors were confirmed to have a significant partial mediating effect on the impact of the presence of the Metaverse platform on the purchase intention. Through this study, we empirically analyzed the causal relationship between the characteristics of the Metaverse platform and the virtual fashion experience using avatars - a topic that has yet to be covered. We formed new insights into virtual fashion consumption, providing primary data for related research streams. Our survey respondents consisted only of those with recent Metaverse experience, so the research results were highly effective.

Keywords: Metaverse, Virtual Fashion, Perceived Value, Purchase Intention

1. Introduction

On the rapidly expanding Metaverse platform, various fashion brands are attempting to launch and promote products by creating virtual fashion stores or holding virtual fashion shows. Zepeto, Korea's representative

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Metaverse platform, stands out by providing a variety of VR content experiences based on its robust avatar services [1]. These services enable users to communicate using 3D avatars, a key feature in the creation of virtual fashion that appropriately expresses the avatar character [2]. The first step in entering the digital Earth, the Metaverse, is to create an avatar. An avatar can be said to be a characterization of the self [3]. The concept of an avatar representing oneself in the virtual world is nothing new. However, as more freedom is given within it and various interactions similar to the real world become possible, the tendency to think of the avatar as one's alter ego is growing stronger. Consumers freely express their individuality through avatars, which are a way of expressing another self in cyberspace. They express themselves in images different from the real world, satisfy their needs, and develop a special affection for them [4]. For example, Zepeto opened the Gucci Villa map in a virtual world called Map and actively targeted the age group of people in their teens and twenties by selling virtual bags and clothes for avatars to wear. After this successful collaboration with Gucci, Christian Dior, Nike, Converse, The North Face, and others, entered Zepeto, and many fashion brands have joined the Metaverse ecosystem. Due to this explosive interest in the industry, prior research on fashion related to the context has recently been increasing, but the approach perspective is somewhat limited. In particular, even though avatars are a crucial medium through which consumers experience fashion products in this Metaverse environment, studies have not discussed the avatars of the Metaverse. There has been no empirical research on the virtual fashion of these avatars from the consumer's perspective, and more research is needed to analyze consumers' psychological factors related to virtual fashion using avatars – which are essential to the virtual world [5].

Accordingly, this study examines how the sense of presence of the Metaverse platform affects purchase intention through the perceived value of avatar virtual fashion products [6]. We aim at understanding the consumption behavior of consumers who access virtual fashion products through the Metaverse platform. The study aims at providing some initial ideas that help marketers in achieving their marketing results through virtual fashion products in the Metaverse platform in the future.

2. Literature Review

2.1 Metaverse

Metaverse is a compound word of Meta, meaning transcendence, and Universe, meaning a specific type of experience world, and refers to a digitally created world beyond the physical realm [5, 6]. In 2007, the Acceleration Studies Foundation (ASF), an American technology research organization, defined the Metaverse as a phenomenon allowing users to experience both the natural and virtual worlds through the Metaverse Roadmap Pathways to the 3D Web. Metaverse was defined as a more advanced concept, meaning another universe created beyond reality and can be said to be a three-dimensional space where virtuality and reality interact and co-evolve and create value through social and cultural activities [6]. The Metaverse is constantly changing and sharing daily life on social media such as Instagram, Facebook, and Twitter, being a community member, and playing online games can all be ways of living in a kind of Metaverse. The Metaverse is constantly changing and sharing daily life on social media such as Instagram, Facebook, and Twitter, being a community member, and playing online games can all be a way of living in a kind of Metaverse. This refers to the digitized Earth as a new world expressed through various digital media such as smartphones and the Internet [6, 7]. Moreover, the Metaverse platform is defined from a comprehensive and holistic perspective, explaining that it includes all spatial worlds in which virtual assets can be used, such as contexts upon VR, augmented reality (AR), mixed reality (MR), extended reality (ER), and non-fungible token (NFT), etc. [7-9].

2.2 The Sense of Presence

Presence, a psychological state in which one feels that one exists in a new world different from the real world, has significant practical implications in the field of VR [10]. A sense of presence also refers to a psychological state in which the subject experiences virtual spaces, objects, etc., with similar emotions to natural objects [11]. In other words, the sense of presence refers to obtaining a similar experience to the object. However, the feeling experienced differs depending on the application object (product, service, etc.). The sense of presence is defined as the illusion of actually being in a place described as VR, and this can also be said to be considered to be in the world through the response of an avatar in VR. Prior studies noted that the user's sense of presence in a virtual shopping mall creates enjoyment and increases the intention to continue using it [12, 13]. Indeed, Zhao et al. confirmed that by improving social presence and remote presence, virtual experiences in online education improve the intention to use the educational platform by forming an individual's flow [14]. Furthermore, Tseng et al. reported that presence factors formed within online games increase loyalty to the game platform [15]. In addition, awareness of the presence factors provided by online platforms helps users build trust in the platform. Additionally, Ou, Pavlou, and Davison confirmed that the presence factor provided by online marketplaces builds trust and leads to repurchase intention [16]. Looking at recent prior research on the sense of reality of fashion products, we can see that research is being conducted on virtual fashion products, expanding from online, live commerce spaces, and online and offline omni-channel spaces to AR and Metaverse. Concerning the preceding research above, this study analyzes whether users who experience and consume virtual fashion products through avatars on the Metaverse platform perceive a sense of reality for virtual fashion products.

2.3 Perceived Value of Virtual Fashion

Perceived value can be expressed in the dictionary as an indicator of the consumer's evaluation of the benefits received, and the consumer's evaluation is defined as a factor that determines post-purchase activities for the product or service purchased. Consumers' purchasing purposes and motivations vary [17]. Today, consumption also includes time, effort, service, and image. In this way, consumption is explained as a comprehensive behavior that includes purchasing a product, the consumer's effort and purpose during the purchase process, and the actions that occur after use [18]. Value implies the social and cultural rights of the time and are interpreted as mental needs that are influenced by changes in the context of the times [19]. This is explained by the value inherent in an individual as a subjective and abstract concept of the conceptual self. Therefore, value is defined as expressions that influence individuals' basic cognitive desires and goals [20].

Sheth et al.'s study on consumption value and market choices explains that market choices are a multidimensional phenomenon that includes various values [6]. In addition, by integrating previous research results, it has become possible to explain purchase decisions, product and brand decisions according to corporate preferences, and segmentation that affect consumer behavior. In the process of experiencing and purchasing virtual fashion products through an avatar, which is another self of the user on the Metaverse platform, the purpose and motivation of the user's purchase decision will be formed based not only on functional aspects but also on subjective and emotional value [21]. Based on the results of previous research, this study seeks to analyze the role of three major value factors that consumers can perceive through avatar experiences within the Metaverse platform - emotional value, visual authority value, and economic value.

2.2.1 Emotional Value

Emotional value is defined as the value of users purchasing digital fashion products to experience more enjoyment on the Metaverse platform [22]. It is also explained that VR platform users purchase virtual items to experience greater enjoyment [23]. Emotional value refers to participation in activities that allow individuals to escape and absorb the world's demands. Therefore, positive emotion comes from using technology for non-instrumental purposes, creating value for hedonic technology users [24]. Emotional value has two elements: escapism, which refers to the benefits of forgetting about daily life and engaging in playful activities, and enjoyment, which reflects fun. Although previous research has shown that enjoyment has a direct effect on attitudes and behavioral outcomes, the relationship between enjoyment and behavior may be more complex (i.e., mediated through valuation) [25].

2.2.2 Visual Authority Value

Visual authority value is explained as a factor that should be considered to promote the purchase of items, and it is claimed that it can be obtained when characters wear various outfits. Additionally, it is explained that the attractive visuals of virtual fashion products are one of the crucial factors in increasing users' purchasing concentration [26]. Visual authority value is a variable that induces the purchase intention of virtual fashion items. Visual authority value is explained as a value obtained when playing a game where the character wears various costumes [27]. and shows off the visual decorations of the character [28]. Visual authority value, an essential factor in increasing purchase intention, is one of the important factors included in perceived value. Perceived value is the value of the benefit obtained from purchasing a product. When users purchase an item, they purchase the item for its intended purpose rather than for the item itself [29].

Visual authority value, a value that underscores the benefits derived from a product's appearance, is a significant factor in the Metaverse that influences purchase intention. This value is a combination of the usefulness and decorativeness of valuable products on the platform [28, 29]. The practical implications of this research are evident in its impact on the intention to purchase game items [30], making it highly relevant and applicable.

2.2.3 Economic Value

The value of the virtual currency in the VR space represents the value of goods or services [29, 30]. This economic value, defined as the cost of consuming a digital fashion product by evaluating its cost-effectiveness before purchasing it, is not just a concept. It's a potential for profit, an element of investment that can be obtained from objects or virtual forms of currency [31]. Investing in the Metaverse is not just about buying something that can be exchanged for other items only used in the Metaverse. It's about reaping the benefits of a potential increase in purchase rate due to the value of virtual currency within the Metaverse, a concept that should motivate and excite any investor.

The higher the virtual currency value, the greater the purchase of virtual items. The economic value of the Metaverse platform has a significant impact on the intention to purchase game items. Economic value is the value expressed in currency by people, businesses, and markets for goods or services. When users purchase and invest in virtual items, their purpose is not the virtual item, but the value of the benefits gained from owning the virtual item [30-32]. Users become more active within the Metaverse platform through character development. The way to develop a metaverse platform user's character is to purchase virtual items. Users will

invest money in their preferred virtual characters and items to become stronger. For instance, Chou and Kimsuwan found that the monetary value of a game increased the intention to purchase game items [30].

2.4 Relationship between the Sense of Presence of the Metaverse Experience, the Perceived Value of Avatar Virtual Fashion, and Purchase Intention

Metaverse users feel presence in the Metaverse environment as if they actually exist in the virtual world [33]. Presence is a concept for virtual environments and intermediate environments [34] and has been shown to positively affect perceived value through perceived flow in previous studies on various contexts, such as games and online shopping malls related to virtual experiences. Based on the above prior research that confirmed that the sense of presence significantly impacted the perceived value in the Metaverse platform and online space, this study established the following hypothesis regarding the causal relationship between the sense of presence and the value of virtual fashion products.

H₁. Sense of presence will have a positive effect on the perceived (a) emotional value, (b) visual authority value, and (c) the economic value of fashion products perceived on the Metaverse platform.

Purchase intention is a concept first presented in the research of Fishbein and Ajzen [35] and is explained based on the Theory of Reasoned Action (TRA). Consumers form beliefs and attitudes when purchasing products or services [36]. When a consumer purchases a product, consumer behavior theory divides the consumer's behavior into two types: first, when a consumer starts purchasing a specific product to purchase it from the beginning, and second, when he or she does not initially intend to purchase but purchases the product as he or she encounters it. This indicates that purchase intention best predicts consumer behavior [37]. On the other hand, attitudes are difficult to measure, and a consumer's attitude toward a particular brand or product may have nothing to do with the purchase in the first place. Various situational factors can also influence purchasing behavior [36]. Therefore, since there is a discrepancy between attitude and actual purchase behavior, purchase intention has a more significant influence than attitude toward the product when consumers decide whether to purchase a product [35-37].

Previous studies also confirmed that social value and altruistic value factors among consumer value factors positively influence brand immersion and purchase intention in studies of consumer desires reflected in the Metaverse platform. It was discussed that pleasure value, self-expression value, and economic value derived from digital fashion product value factors have a positive influence on purchase intention [37, 38]. This revealed that experiencing digital fashion products provides enjoyment and that economically reasonable products are essential within the Metaverse platform. Kim et al. [38] studied the role of design innovation in understanding the purchasing behavior of augmented products, visual authority value, economic value, mutual relationship value, and self-expression. It was confirmed that both values had a positive effect on purchase intention. Based on the results of previous research, this study established the following hypothesis regarding the causal relationship between the perceived value of virtual fashion products and purchase intention.

H₂. The perceived (a) emotional value, (b) visual authority value, and (c) economic value of virtual fashion products in the Metaverse platform will have a positive effect on purchase intention.

Lastly, hypotheses were established regarding the following mediating effects in the relationship between the sense of reality of this Metaverse experience, the perceived value of virtual fashion products, and purchase intention.

H₃. In the Metaverse platform, the perceived (a) emotional value, (b) visual authority value, and (c) economic value of virtual fashion products have a positive mediating effect on the relationship between perceived sense of presence and users' purchase intention. It will be visible.

3. Method

3.1 Survey Composition and Data Collection

Before the experiment, this study used the Metaverse platform stimuli, allowing users to experience virtual fashion products exposed to questionnaires within the Metaverse platform to control factors that may affect users' gender, preferences, and value judgments. A survey was conducted by recruiting only experimenters who had experienced fashion products on a specific Metaverse platform. In addition, reflecting the characteristics of a survey conducted on many diverse subjects, Zepeto, a metaverse platform that allows users to purchase or experience virtual fashion products, was selected as a stimulus. Considering the survey subjects with no experience using the platform, the survey was conducted in a format where the VR application environment was presented as a captured image, and users viewed and responded.

3.2 Measurements

The research hypothesis was put to the test through a meticulously designed survey, which drew on the findings of previous research. The survey included the sense of the presence of the Metaverse, the value of the avatar virtual fashion product (pleasure value, visual authority value, economic value), purchase intention, and general status questions. The sense of presence of the Metaverse was measured with a total of three questions, referring to previous studies. The perceived pleasure value, visual authority value, and economic value were measured through the metaverse avatar fashion experience. Value was measured by applying each of the three questions used in related previous studies, and purchase intention was measured using three items from the relevant literature [25, 27, 38]. All questions used a 5-point Likert scale (1 point = not at all, 5 points = very much).

3.3 Analysis

In this study, each question in the questionnaire was scored and analyzed statistically. Three hundred copies of the collected data were collected. Analysis was performed using the statistical program SPSS 28.0 for Windows. First, a frequency analysis was conducted to examine the survey subjects' preliminary questions, consumers' perceived characteristics of sustainable fashion luxury goods, and demographic characteristics. Second, exploratory factors were analyzed and implemented to verify the validity of the measurement tool, and Cronbach's α coefficient was used to verify reliability [39]. Third, the mean and standard deviation were calculated to examine the characteristics of each variable, and Pearson correlation analysis was performed to determine the correlation between each variable. Fourth, multiple regression analyses were conducted to test the hypothesis, and Baron and Kenny's [40] three-stage hierarchical regression analyses were conducted to analyze the mediating effects.

4. Results and Discussion

4.1 Demographic Characteristics of Study Participants

Among the demographic characteristics of the subjects of this study, looking at gender first, 146 people were male (48.7%), and 154 women were 51.3%. Regarding age, the average was 39.32, and the standard deviation was 10.34. Regarding the educational background, 79.7% (239 people) were enrolled in/graduated from college, 24 people (8.0%) graduated from high school, 20 people (6.7%) enrolled/graduated from junior college, and 17 people (5.7%) enrolled/graduated from graduate school. Looking at occupations, 17 people were students (5.7%), office workers were 67.7% (203 people), professionals were 8.7% (26 people), service workers were 7.0% (21 people), self-employed people were 11 people (3.7%), and full-time homemakers were 12 people. 4.0%, and ten others were people, or 3.3%. Looking at income, those earning between 2 and 3 million won were the largest at 48 people (16.0%), followed by those earning between 3 million and 4 million won at 46 people (13.7%), and those earning between 5 and 6 million won at 44 people (14.7%), between 4 and 4 million won. Less than 5 million won is 41 people (13.0%), more than 9 million won is 34 people (11.3%), 6 to less than 7 million won is 31 people (10.3%), 7 to less than 8 million won is 28 people (9.3%), 8 million to 9 million won Those earning less than 10,000 won were 17 people or 5.7%. Those earning less than 2 million won were 11 people or 3.7%.

4.2 Validity and Reliability of Measurements

In this study, exploratory factor analysis and Cronbach's α were obtained to verify the validity and reliability of the measurement tool. Principal component analysis was used as a factor extraction method in exploratory factor analysis. Principal component analysis aims to group many variables into as few factors as possible while minimizing information loss. The varimax rotation method was used to rotate the factors. The criteria for selecting items in this study were an Eigenvalue of 1.0 or higher and a factor loading of .4 or higher. In addition, the KMO (Kaiser-Meyer-Olkin) value was calculated to examine the adequacy of the sample. Additionally, Bartlett's test of sphericity was used to test whether the correlation matrix between measurement items for factor analysis was a unit matrix. The KMO value is considered very good if it is over .9, good if it is around .8, and acceptable if it is around .6 to .7.

4.3 Hypotheses Testing

4.3.1 Impact of Metaverse characteristics on perceived value of virtual fashion products (H1)

In this study, a set of regression analyses was conducted to verify the hypothesis about the effect of the sense of presence of the Metaverse platform characteristics of virtual fashion products on the perceived value of virtual fashion products. First, as a result of regression analysis with presence as the independent variable and the emotional value as the dependent variable, a significant positive effect of the sense of presence was found on the emotional value (H_{1a} : $\beta = .579$, $t = 12.265$, $p < .001$). Second, the results of regression analysis with presence as the independent variable and the perceived visual authority value as the dependent variable show a positive significant effect of the sense of presence on the visual authority value (H_{1b} : $\beta = .544$, $t = 11.181$, $p < .001$). Third, in the results of regression analysis with the sense of presence as the independent variable and the perceived economic value of the virtual fashion the dependent variable, the results show a positive significant impact of presence on the economic value (H_{1c} : $\beta = .617$, $t = 13.521$, $p < .001$). Thus Hypothesis 1 was fully supported.

4.3.2 Effect of perceived value on purchase intention (H2)

In order to verify the impact of perceived emotional value factors on purchase intention, the results of a regression analysis in which perceived value factors were set as independent variables and purchase intention was set as a dependent variable showed that the perceived emotional value of avatar virtual fashion (H_{2a} : $\beta=.505$, $t=11.723$, $p<.001$), visual authority value (H_{2b} : $\beta=.494$, $t=11.816$, $p<.001$), and economic value (H_{2c} : $\beta=.509$, $t=11.266$, $p<.001$) were all confirmed to have a significant favorable influence on purchase intention. The results provided full support for Hypothesis 2.

4.3.3 Mediating effect of perceived value on the relationship between presence and purchase intention (H3)

Lastly, to analyze the mediating effect that perceived emotional value has on the impact of the presence of the Metaverse platform on purchase intention, we conducted a three-stage regression analysis suggested by Baron and Kenny [40]. As appeared in Table 1, the third stage is the result of a regression analysis to determine whether the independent variables of presence and pleasure value affect the dependent variable, purchase intention. In the effect of presence on purchase intention (dependent variable), the β value was .388 and statistically significant. Regarding the effect of enjoyment value on purchase intention, the beta value was .505, which was statistically significant. In other words, since the β value of the independent variable in step 3 decreased statistically significantly compared to step 2, it was confirmed that the pleasure value between presence and purchase intention had a partial mediating effect. This supported Hypothesis 3a.

Table 1. Mediating effect of emotional value between sense of presence and purchase intention

Steps	Variables	β	t	VIF	adj.R2	F
I: IV→MV	Sense of Presence → Emotional Value	.579	12.265***	1.000	.333	150.438***
II: IV→DV	Sense of Presence → Purchase Intention	.681	16.036***	1.000	.461	257.154***
III: IV/MV→DV	Sense of Presence → Purchase Intention	.388	8.994***	1.505	.631	256.149***
	Emotional Value → Purchase Intention	.505	11.723***	1.505		

* $p<.05$, ** $p<0.01$, *** $p<.001$

In addition, to determine whether visual authority value plays a mediating role in the influence of presence on purchase intention, the mediation effect was tested using Baron & Kenny's three-stage regression analysis [40]. As seen in Table 2, in the first step, the standard coefficient, the beta value, is .544 and is statistically significant with a significance probability of $p<.001$. In the second step, the resulting β is .681 and is statistically significant. The third stage is the result of a regression analysis to determine whether the independent variables of presence and visual authority value affect the dependent variable, purchase intention. In the effect of sense of presence on purchase intention (dependent variable), the β value was .412, which was statistically significant. In the effect of visual authority value on purchase intention, the beta value was .494, which was statistically significant. The results supported Hypothesis 3b.

Table 2. Mediating effect of visual authority value between sense of presence and purchase intention

Steps	Variables	β	T	VIF	adj.R2	F
I: IV→MV	Sense of Presence → Visual Authority Value	.544	11.181***	1.000	.298	125.015***
II: IV→DV	Sense of Presence → Purchase Intention	.681	16.036***	1.000	.461	257.154***
III: IV/MV→DV	Sense of Presence → Purchase Intention	.412	9.868***	1.420	.632	258.200***
	Visual Authority Value → Purchase Intention	.494	11.816***	1.420		

*p<.05, **p<0.01, ***p<.001

Lastly, to determine whether economic value is mediating the influence of presence on purchase intention, the mediating effect was tested using Baron & Kenny's three-stage regression analysis (Table 3). The third step is the result of a regression analysis to determine whether the sense of presence and perceived economic value affect purchase intention. In the results, the effect of sense of presence has a β value of .367 on purchase intention. The effect of economic value on purchase intention has a β value of .509. The economic value between presence and purchase intention partially mediates. The results provided support for Hypothesis 3c. Summarizing the above, Hypothesis 3 was supported.

Table 3. Mediating effect of economic value between sense of presence and purchase intention

Steps	Variables	β	T	VIF	adj.R2	F
I: IV→MV	Sense of Presence → Economic Value	.617	13.521***	1.000	.378	182.806***
II: IV→DV	Sense of Presence → Purchase Intention	.681	16.036***	1.000	.461	257.154***
III: IV/MV→DV	Sense of Presence → Purchase Intention	.367	8.111***	1.613	.621	246.360***
	Economic Value → Purchase Intention	.509	11.266***	1.613		

*p<.05, **p<0.01, ***p<.001

5. Conclusion

With the explosive growth of the use of Metaverse platforms, virtual fashion marketing through avatars is also expected to expand in various directions. However, research on fashion-related industries in this newly emerging virtual world still needs to be completed. This study sought to identify the relationship between the characteristics of the Metaverse platform and the factors affecting how the perceived value of virtual fashion products affects purchase intention. The empirical results and this study's hypotheses are as follows. First, the perceived sense of presence was found to have a significant effect on the emotional value, visual authority value, and economic value of the virtual avatar fashion perceived by the participants. Second, as a result of

examining whether the value of virtual fashion products on the Metaverse platform affects users' purchase intention, emotional value, visual authority value, and economic value were all found to have a significant favorable influence. In addition, all of these perceived value factors were confirmed to have a significant partial mediating effect on the effect of the realism of the Metaverse platform on purchase intention.

The academic significance gained from the research results is as follows. First, this study empirically confirmed that users' perceived sense of presence on Metaverse can positively impact their perception of the value of virtual fashion products of avatar. This study is first that examines users' perceived value of avatar virtual fashion products on the Metaverse platform through the three factors of value. Second, all hypotheses showed significant results in the relationship between the value factors of users' perceived virtual fashion products on the Metaverse platform and their influence on purchase intention. This result was consistent with previous research claiming that emotional value, self-expression value, and economic value significantly influenced purchase intention. Among the perceived values of game items, economic value, and the results were consistent with some of the results of previous research claiming that self-expression value has a significant impact on purchase intention. The results contribute to the growing literature of Metaverse marketing, adding to the theorization of Metaverse research by expanding the understanding of virtual fashion products' perceived value. In total, we empirically analyzed the causal relationship between the characteristics of the Metaverse platform and the virtual fashion experience using avatars - a topic that has yet to be covered. We formed new insights into virtual fashion consumption, providing primary data for related research streams. Our survey respondents consisted only of those with recent Metaverse experience, so the research results were highly effective.

The practical implications of this study are as follows. The survey was limited to users who had access to virtual fashion products through the newly emerged Metaverse platform and was significant in that all age groups participated in the survey evenly distributed. The reliability of the research results is high in that the study was conducted only with subjects who used and experienced virtual fashion products through the Metaverse platform, which aligns with the research topic on users' purchase intention for virtual fashion products on the Metaverse platform. This is possible, and the survey responses from all age groups have great significance as they allow us to understand the perception and intention of virtual fashion products from the perspective of users of various generations. The significance of this study is that by selecting Zepeto as a stimulus for the Metaverse platform where virtual fashion products can be used, the reliability of the study's results was further increased. This is a crucial reference for analyzing the current status of the Metaverse platform used to experience and consume virtual fashion products.

This study has limitations, which lead to the need for follow-up research. The context of this study is limited to avatar virtual fashion products, so procedures to verify the research results through research on various virtual fashion products are necessary. In addition, since the study was based on a limited sample of Korean consumers, it is necessary to review the facts discovered through research based on a broader sample that includes younger teenage consumers. Lastly, only partial mediating effects were confirmed for all factors of perceived value established in this study, so follow-up research is needed to identify more comprehensive avatar fashion experience value by considering additional mediating variables.

References

- [1] K. G. Barrera and D. Shah, "Marketing in the Metaverse: Conceptual Understanding, Framework, and Research Agenda," *Journal of Business Research*, Vol. 155, Vol. 1, 113420, 2023. DOI: <https://doi.org/10.1016/j.jbusres.2022.113420>

- [2] M. Wedel, E. Bigné, and J. Zhang, "Virtual and Augmented Reality: Advancing Research in Consumer Marketing," *International Journal of Research in Marketing*, Vol. 37, No. 3, pp. 443-465, 2020. DOI: <https://doi.org/10.1016/j.ijresmar.2020.04.004>
- [3] M. Yeom, S. Lee, Y. Park, and K. Han, "Augmented Reality Game of Experiential Metaverse based on Landmark," *The Journal of The Institute of Internet, Broadcasting and Communication (IIBC)*, Vol. 23, No. 6, pp.109-117, December 2023. DOI: <https://doi.org/10.7236/IIBC.2023.23.6.109>
- [4] S. Hwang. and S. Shin, "The Effects of the Virtual Avatar Fitting Models for Apparel E-Commerce in Consumer's Purchasing Behavior: Comparing Traditional Model with Virtual Avatar Model," *Journal of Fashion Business*, Vol. 17, No. 5, pp. 57-69, 2013. DOI: <http://dx.doi.org/10.12940/jfb.2013.17.5.57>
- [5] S. Periyasami and A. P. Periyasamy, "Metaverse as Future Promising Platform Business Model: Case Study on Fashion Value Chain," *Businesses*, Vol. 2, No. 4, pp. 527-545, 2022. DOI: <https://doi.org/10.3390/businesses2040033>
- [6] J. N. Sheth, I. N. Bruce, and L. G. Barbara, "*Consumption Value and Market Choice: Theory and Applications*, South-western Publishing Co., pp.216-221, 1991.
- [7] J. D. N. Dionisio, W. G. Burns III, and R. Gilbert, "3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities," *ACM Computing Surveys (CSUR)*, Vol. 45, No. 3, pp. 1-38, 2013. DOI: <https://doi.org/10.1145/2480741.2480751>
- [8] Z. Ghali, R. A. Rather, and I. Khan, "Investigating Metaverse Marketing-enabled Consumers' Social Presence, Attachment, Engagement and (Re)Visit Intentions," *Journal of Retailing and Consumer Services*, Vol. 77, 103671, March 2024. DOI: <https://doi.org/10.1016/j.jretconser.2023.103671>
- [9] A. Mehrotra, R. Agarwal, A. Khalil, A. A. Alzeiby, and V. Agarwal, "Nitty-gritties of Customer Experience in Metaverse Retailing", *Journal of Retailing and Consumer Services*, Vol. 79, 103876, July 2024. DOI: <https://doi.org/10.1016/j.jretconser.2024.103876>
- [10] E. B. Nash, G. W. Edwards, J. A. Thompson, and W. Barfield, "A Review of Presence and Performance in Virtual Environments," *International Journal of Human-Computer Interaction*, Vol. 12, No. 1, pp. 1-41, 2000. DOI: https://doi.org/10.1207/S15327590IJHC1201_1
- [11] J. Ming, Z. Jianqiu, M. Bilal, U. Akram, and M. Fan, "How Social Presence Influences Impulse Buying Behavior in Live Streaming Commerce? The Role of S-O-R Theory", *International Journal of Web Information Systems*, Vol. 17, No. 4, pp. 300-320, 2021. DOI: <https://doi.org/10.1108/IJWIS-02-2021-0012>
- [12] S. L. Han, M. An, J. J. Han, and J. Lee, "Telepresence, Time Distortion, and Consumer Traits of Virtual Reality Shopping," *Journal of Business Research*, Vol. 118, pp. 311-320, 2020. DOI: <https://doi.org/10.1016/j.jbusres.2020.06.056>
- [13] D. Freeman, S. Reeve, A. Robinson, A. Ehlers, D. Clark, B. Spanlang, and M. Slater, "Virtual Reality in the Assessment, Understanding, and Treatment of Mental Health Disorders," *Psychological Medicine*, Vol. 47, No. 14, pp. 2393-2400, 2017. DOI: <https://doi.org/10.1017/S003329171700040X>
- [14] Y. Zhao, A. Wang, and Y. Sun, "Technological Environment, Virtual Experience, and MOOC Continuance: A Stimulus-Organism-Response Perspective," *Computers & Education*, Vol. 144, 103721, January 2020. DOI: <https://doi.org/10.1016/j.compedu.2019.103721>
- [15] F. Tseng, T. Huang, T. Pham, T. Cheng, and C. Teng, "How Does Media Richness Foster Online Gamer Loyalty?" *International Journal of Information Management*, Vol. 62, 102439, February 2022. DOI: <https://doi.org/10.1016/j.ijinfomgt.2021.102439>
- [16] C. X. Ou, P. A. Pavlou, and R. M. Davison, "Swift Guanxi in Online Marketplaces: The Role of Computer-mediated Communication Technologies," *MIS Quarterly*, Vol. 38, No. 1, pp. 209-230, 2014.
- [17] R. A. Westbrook and W. C. Black, "A Motivation-based Shopper Typology," *Journal of Retailing*, Vol. 61, No. 1, pp. 78-103, 1985.
- [18] P. Nelson, "Information and Consumer Behavior," *Journal of Political Economy*, Vol. 78, No. 2, 311-329, 1970.
- [19] M. Rokeach, *The Nature of Human Values*, Free Press, pp. 103-112, 1973.
- [20] H. J. Park and N. J. Rabolt, "Cultural Value, Consumption Value, and Global Brand Image: A Cross-national Study," *Psychology & Marketing*, Vol. 26, No. 8, pp. 714-735, 2009. DOI: <https://doi.org/10.1002/mar.20296>
- [21] V. A. Zeithaml, "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence," *Journal of Marketing*, Vol. 52, No. 3, pp. 2-22, 1988. DOI: <https://doi.org/10.1177/002224298805200302>
- [22] Y. Park, E. Ko, and B. Do, "The Perceived Value of Digital Fashion Product and Purchase Intention: The Mediating Role of the Flow Experience in Metaverse Platforms", *Asia Pacific Journal of Marketing and Logistics*, Vol. 35 No. 11, pp. 2645-2665, 2023. DOI: <https://doi.org/10.1108/APJML-11-2022-0945>
- [23] J. Bae, S. Kim, and D. Gu, "Influence the Effect of Perceived Values of Game Items and Purchase Intention on

- Game Loyalty: Focused on the Relationship between Augmenting Products and Core Service," *Management Education Research*, Vol. 33, No. 1, pp. 385-404, 2018. DOI: <https://doi.org/10.23839/kabe.2018.33.1.385>
- [24] O. Turel, A. Serenko, and N. Bontis, "User Acceptance of Hedonic Digital Artifacts: A Theory of Consumption Values Perspective," *Information & Management*, Vol. 47, No. 1, pp. 53-59, 2010. DOI: <https://doi.org/10.1016/j.im.2009.10.002>
- [25] T. L. Childers, C. L. Carr, J. Peck, and S. Carson, "Hedonic and Utilitarian Motivations for Online Retail Shopping Behavior," *Journal of Retailing*, Vol. 77, No. 4, pp. 511-535, 2012. DOI: [https://doi.org/10.1016/S0022-4359\(01\)00056-2](https://doi.org/10.1016/S0022-4359(01)00056-2).
- [26] T. Tanjaya and L. Salim, "Character Identification, Game's Satisfaction, Visual Authority Value, Monetary Value, and Purchase Intention of Overwatch Game Item," *Fokus Ekonomi: Jurnal Ilmiah Ekonomi*, Vol. 17, No. 1, pp. 192-206, 2022. DOI: <https://doi.org/10.34152/fe.17.1.192-206>
- [27] B. Park and K. C. Lee, "Exploring the Value of Purchasing Online Game Items," *Computers in Human Behavior*, Vol. 27, No. 6, pp. 2178-2185, 2011. DOI: <https://doi.org/10.1016/j.chb.2011.06.013>
- [28] X. Wang, A. H. Butt, Q. Zhang, N. Shafique, and H. Ahmad, "Celebrity Avatar" Feasting on In-Game Items: A Gamers' Play Arena," *Sage Open*, Vol. 11, No. 2, 2021. DOI: <https://doi.org/10.1177/21582440211015716>
- [29] P. Vishwakarma, S. Mukherjee, and B. Datta, "Travelers' Intention to Adopt Virtual Reality: A Consumer Value Perspective," *Journal of Destination Marketing & Management*, Vol. 17, 100456, September 2020. DOI: <https://doi.org/10.1016/j.jdmm.2020.100456>
- [30] C. Chou and A. Kimsuwan, "Factors Affecting Purchase Intention of Online Game [repayment Card-Evidence from Thailand]," *Journal of Internet Banking and Commerce*, Vol. 18, No. 3, pp. 1-13, 2013.
- [31] R. Bénabou and J. Tirole, "Mindful Economics: The Production, Consumption, and Value of Beliefs," *Journal of Economic Perspectives*, Vol. 30, No. 3, pp. 141-164, 2016. DOI: <https://doi.org/10.1257/jep.30.3.141>
- [32] D. Zilberman and A. Heiman, "The Value of Economic Research," *American Journal of Agricultural Economics*, Vol. 79, No. 5, pp. 1539-1544, 1997. DOI: <https://doi.org/10.2307/1244378>
- [33] S. Han and M. Ahn, "Analysis of Remote Presence and Consumer Purchasing Behavior in A Virtual Reality Distribution Environment," *Distribution Research*, Vol. 24, No. 1, pp. 51-71, 2019.
- [34] T. Kim and F. Biocca, "Telepresence via Television: Two Dimensions of Telepresence May Have Different Connections to Memory and Persuasion," *Journal of Computer-mediated Communication*, Vol. 3, No. 2, JCMC325, 1997. DOI: <https://doi.org/10.1111/j.1083-6101.1997.tb00073.x>
- [35] I. Ajzen and M. Fishbein, "A Bayesian Analysis of Attribution Processes," *Psychological Bulletin*, Vol. 82, No. 2, pp. 261-277, 1975. DOI: <https://doi.org/10.1037/h0076477>
- [36] J. N. Sheth, "Measurement of Advertising Effectiveness: Some Theoretical Considerations," *Journal of Advertising*, Vol. 3, No. 1, pp. 6-11, 1974. DOI: <https://doi.org/10.1080/00913367.1974.10672505>
- [37] K. Cho and E. Park, "Comparative Study of Shopping Channels Focusing on TV Home Shopping, T-commerce, and Online Shopping," *Public Policy Research*, Vol. 38, No. 2, pp. 421-454, 2021.
- [38] K. P. Wiedmann, N. Hennigs, and A. Siebels, "Value-based Segmentation of Luxury Consumption Behavior," *Psychology & Marketing*, Vol. 26, No. 7, pp. 625-651, 2009. DOI: <https://doi.org/10.1002/mar.20292>
- [39] L. J. Cronbach, "Coefficient Alpha and the Internal Structure of Tests," *Psychometrika*, Vol. 16, pp. 297-334, 1951. DOI: <https://doi.org/10.1007/BF02310555>
- [40] R. M. Baron and D. A. Kenny, "The Moderator-mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology*, Vol. 51, No. 6, pp. 1173-1182, 1986. DOI: <https://doi.org/10.1037/0022-3514.51.6.1173>