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How metaverse can enhance customer awareness, interest, engagement and experience: A practical study

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A B S T R A C T

The future of the Internet lies in the utilization of contemporary virtual technology, the metaverse is a virtual ecosystem for communication and interaction. This study aims to determine how the metaverse can enhance customer awareness, interest, engagement and experience. The study population consists of customers of retail clothing stores. A questionnaire was developed to collect study data and distribute it electronically. The number of respondents reached (77) customers. Using path coefficients, the results indicate that metaverse can enhance customer awareness, interest, engagement and experience.

1. Introduction

In recent years, there have been significant advancements in technology, technical sciences, and communication methods, leading to increased connectivity among individuals. These advancements refer to a new industrial revolution referred to as the "fourth industrial revolution", characterized by the merging of the physical and digital realms (Philbeck & Davis, 2018). The metaverse serves as a significant manifestation and illustration of the transition from modernity to postmodernism, as well as a crucial component in the phenomena of globalization and the change from the digital era to the virtual era (Wang et al., 2022). The metaverse can be defined as a tridimensional digital environment wherein individuals engage in interactions by use of virtual representations known as avatars (Lee et al., 2021; Wang et al., 2022). The metaverse is a huge social network that includes a combination of virtual reality (VR), augmented reality (AR), mixed reality (MR), and 3D environments in addition to artificial intelligence (AI) technologies that interact with it in real time, effectively and continuously (Nevelsteen, 2018). In the world of the metaverse, an unlimited number of people around the world participate, and it provides a real immersion environment for users, a real feeling, and real virtual communication in environments that are completely like environments, and various types of transactions such as communications, payment, etc. take place in it (Liew, 2021; Alshurideh et al., 2023). The metaverse is a virtual world, which is simply a computer-generated environment in which people interact with each other. In recent years, the metaverse has piqued the interest among international technology professionals, scientists, and strategists in business (Periyasami & Periyasamy, 2022). Park and Lim (2023) argue that the advent of the metaverse is expected to result in substantial changes across several sectors, fundamentally transforming business practices. The activities within the metaverse encompass a wide range of examples, such as engaging in cinematic viewing, participating

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in live musical performances, engaging in professional work within virtual office spaces, facilitating collaborative meetings within virtual halls and engaging in virtual commerce, exploring tourist destinations.

On the other hand, fostering customers' empowerment in terms of their awareness, interest, engagement and experience can be one of the positive consequences of Metaverse. In this regard, Golf-Papez et al. (2022) argue that the utilization of holograms enables clients to engage in holographic trials, which encompass product previews or virtual try-ons, in situations where the physical product is not present. This encounter facilitates the client's ability to see the appearance of a product or service within a designated space, such as furniture, wall paint, or interior design. Additionally, it allows the customer to envision the product or service being worn, such as cosmetics, eyewear, or new haircuts (Vasista and Zamil, 2023). Therefore, this study aims to examine how metaverse can enhance customer awareness, interest, engagement and experience.

2. Literature Review

2.1 Metaverse

The phrase “metaverse” is not commonly regarded as a contemporary concept, as its inception can be traced back to 1992 when Neal Stevenson presented it in his science fiction novel titled “Snow Crash” (Kelly, 2018; Evans et al., 2022; Joshua, 2017). The metaverse is considered in this novel as the final development of the Internet. The metaverse can be described as a virtual area that is physically constrained, wherein virtual avatars, digital social interactions, and games coexist. It is also considered a form of virtual reality, where each virtual activity has the potential to directly influence the physical world (Joshua, 2017). The term Metaverse consists of two words Meta, which means “beyond,” and Verse, which is derived from Universe, which means the universe. What is meant is to build a “virtual world parallel to our real world,” which is a three-dimensional virtual world that will transport us to a digital world in all its aspects (Dionisio et al., 2013). Therefore, many international companies are working to keep up with the requirements of the “Metaverse” to ensure that these companies are the worthiest of being able to adapt to these technologies, and to give their customers what distinguishes them among their competitors within their virtual spaces within this world. According to the Mena Tech website, estimates of the “Metaverse” market will reach $800 billion (Zhao et al., 2022). The term “metaverse” refers to a conceptual framework that encompasses a virtual realm whereby several persons have the potential to engage with one another inside a three-dimensional (3D) setting (Wang et al., 2022). The future of the Internet lies in the utilization of contemporary virtual technology. Therefore, the metaverse is a virtual world with a collective virtual shared space that brings together all the virtual worlds and the Internet, where the metaverse is an application of artificial intelligence. In this context, the metaverse is defined as “a series of virtual worlds that include countless interactions between users through each user’s avatars as a three-dimensional virtual character” (Lee et al., 2022; Ning et al., 2023). Metaverse technology is the latest advanced application of artificial intelligence and characterized as an “embodied Internet,” meaning “an Internet within which the individual is embodied instead of just looking at it” (Zhang et al., 2022). The metaverse consists of a network of three-dimensional virtual worlds that enable individuals to interact with others using virtual reality (VR) and augmented reality (AR) technologies for work, learning, and social communication (Popescu et al., 2022).

Nevertheless, it is imperative to acknowledge that there exist two primary concerns that must be taken into consideration in order to enhance the degree of acceptability and implementation of metaverse technology. One primary concern pertains to privacy matters, since customers exhibit a lack of willingness to disclose their personal information on the internet (Wedel and Kannan, 2016). Another challenge is in the lack of knowledge with this emerging technology (Wedel and Kannan, 2016). Unfamiliarity can potentially result in consumers encountering poor experiences.

2.2 The role of metaverse in enhancing customer awareness, interest, engagement and experience

The world of “metaverse” has come to dominate the strategies of major companies that have redesigned their plans to design their products based on it, amid questions about what the term is, and the reasons behind its invocation by many institutions. The metaverse is well recognized as a prominent tool within the realm of electronic marketing, effectively rapidly changing the way businesses operate, ultimately affecting customer awareness, interest, engagement, and experience (Kim, 2021). As evidence interest of consumer values on blockchain-based metaverse platforms grows, it becomes crucial to comprehend the potential effects of augmented reality purchasing tools and digitized retail products in virtual malls on customers (Gadekallu et al., 2022; Narin 2021). However, in the literature, limited studies examined how metaverse affect customers.

Users can express themselves and highlight their economic, commercial, and social status within the confines of a digital world through the use of avatars, which paves the way for the introduction of intangible virtual products connected to the "metaverse" located in the virtual world. Avatars represent a different world that transfers many of the characteristics of the real world to the virtual world. (Choi & Kim, 2017; AlHamad et al., 2022).

In this regard, Habil et al. (2023) believe that when products are exhibited using three-dimensional visuals rather than traditional photographs, customers can virtually experience the product and evaluate its suitability in terms of their individual shape, size, and measurements. This is because customers are able to virtually experience the quality of the product. As a result, it has a substantial impact on consumers' overall experience, attitudes, online purchasing behavior, and their opinions about retailers (Pantano et al., 2017; Wang et al., 2021). In this context, Buhalis et al. (2022) found that Metaverse is a

significant driver for the experience of hospitality customers. Furthermore, Flavián et al. (2010) found that when compared to desktop computers and mobile phones, virtual reality head-mounted displays enable customers of potential tourist locations to have more immersive experiences, higher levels of sensory stimulation, greater levels of engagement, and higher levels of behavioral intentions toward the destination.

Utilizing the metaverse as a strategic tool to enhance brand recognition can effectively also stimulate interest in a brand's offerings and engage potential customers who were previously unfamiliar with them, through the provision of immersive experiences that are aligned with the brand (Golf-Papez et al., 2022). Furthermore, the proliferation of digital spaces, in particular the metaverse, is causing traditional marketing methods to undergo a profound transformation, which in turn has an impact on the level of customer engagement being achieved. In this regard, Rathore (2017) finds that the use of artificial intelligence technology can result in a better understanding of fashion consumers, which in turn creates opportunities for tailored experiences and unique brand promotions. This integration contributes to the advancement of the fashion marketing industry, particularly through the development of one-of-a-kind engagement tactics and the promotion of brand innovation inside the metaverse.

2.3 Metaverse and customer Awareness

The initial phase in the customer journey is customer awareness, and if a seller's brand hopes to succeed in methods that drive business growth, then it must receive particular attention. “Customer awareness” refers to the degree to which a potential customer is aware of their problems, their pain points, possible solutions, seller product, and how seller product can solve their problems. In other words, if a customer does not know they have a problem, they will not buy the product.

In the context of virtual reality applications such as the Metaverse, these applications replace traditional marketing methods, which may be reflected in enhancing the customer’s awareness of his problem and the need to buy the product. Virtual reality applications work to send the right message to the right person at the right time. Virtual reality provides a unique opportunity for businesses to differentiate themselves from their competitors by providing an unforgettable and immersive experience. By leveraging this technology, businesses can create a strong emotional connection with their target audience, leading to increased brand awareness and customer loyalty.

2.4 Metaverse and Customer Interest

Customer Interest refers to what drives the interaction and ultimate fulfillment of customers. People typically purchase things in which they are interested or find valuable. They are making a payment for something they find comfortable, regardless of this worth or interest.

In the metaverse, by providing a live-stream shopping event where customers can sit next to brand ambassadors and instantly enter a virtual dressing room where they may try items on, add items to their carts, and check out, businesses can personalize the shopping interest for their customers.

2.5 Metaverse and Customer Engagement

Customer engagement is the active involvement of customers in various parts of a company's business, such as product development, marketing, and customer service. It involves talking to customers to learn about their needs, preferences, and expectations so that products and services that best meet their needs can be offered. Customer engagement can take many forms, such as providing feedback about products and services, participating in focus groups or surveys, or even co-creating or co-designing products with the company. By fostering a sense of partnership and ownership between the customer and the company, the main goal of customer engagement is to increase customer satisfaction and loyalty.

Using virtual reality applications such as Metaverse, these applications allow customers to interact with the brand more compared to traditional marketing, and this is reflected in better customer engagement. In virtual reality applications, all customer feedback about their interactions with goods and services is reflected in better future offers.

2.6 Metaverse and Customer Experience

Customer experience is about how a customer feels about a particular brand over time. It is the result of multiple interactions customers have with the merchant across different teams and touchpoints. Providing customers with a unified experience in all their interactions with a brand is an effective way to improve the customer experience, differentiate the brand from competitors, and encourage repeat purchases.

Virtual reality allows potential customers to see the product in action and understand its features and benefits, which may reflect positively on the customer experience.

According to the discussion above, the researcher develops the following hypotheses:

H_1: *Metaverse significantly positively related to customer awareness.*

H_2: *Metaverse significantly positively related to customer interest.*

H_3: *Metaverse significantly positively related to customer engagement.*

H_4: *Metaverse significantly positively related to customer experience.*

3. Methodology

The scientific method is a specific way of thinking and acting that the researcher employs in order to arrange his ideas, examine them, and present them in a manner that allows him to arrive at plausible results and facts regarding the phenomenon that is being investigated.

Epistemology is the study of beliefs on the origin of knowledge and the process by which it is produced. According to Crotty (1998) and Lather (2006), this philosophical presumption is one of the factors that scientists use to choose which techniques and methodologies they consider to be appropriate. The epistemology of an individual has an impact on each stage of the research process, including the formation of hypotheses, research questions, and study designs (Pallas, 2001; Collins, 1990). This includes implicit presumptions about what is already known during the research process.

The descriptive analytical research approach will serve as the foundation for this study, with the goal of fulfilling whatever objectives it has set for itself. In order to accommodate the circumstances of the investigation, this approach will be utilized. This approach provides an objective description of the phenomenon by making use of the data that was gathered via the application of the instruments and methods that are utilized in scientific research (Nayeri & Aghajani, 2010).

3.1 Population and Data Collection

This study aims to examine the effect of Metaverse on customer awareness, interest, engagement and experience. The study population consists of customers of retail clothing stores. A questionnaire was developed to collect study data and distribute it electronically. The number of respondents reached (77) customers.

3.2 Study Instrument

In this study, a survey of the published literature related to the topic in question is conducted, and previous studies related to the research topic are used to develop study instruments. A field survey is conducted for the study sample individuals through the questionnaire developed for this purpose. A questionnaire is, by definition, a list of printed questions that the researcher addresses to the respondent and asks him or her to complete and return to the researcher. It uses questionnaires to make it possible to collect data consistently, allowing results to be extrapolated to the entire population when data is collected from a representative sample of a defined group (Rattray & Jones, 2007).

The researcher administered and collected the surveys from the respondents using google forms. Respondents were to provide the most accurate responses possible to all of the open-ended and closed-ended questions in the questionnaire. The questionnaire includes metaverse (independent variable) and Customer Awareness, Interest, Engagement and Experience (dependent variable). The researcher also relies on Likert's five-fold grading for the dimensions of the study as follows:

Strongly Agree (5) Agree (4) Neutral (3) Disagree (2) Strongly Disagree (1).

4. Results

This section presents the results of the study that reached using analysis the study data in SPSS.26. The first section presents the descriptive statistics of demographic data for respondents and the second section presents the test of study hypotheses that conducted using simple linear regression>

4.1 Demographic data for respondents

The following table shows the descriptive statistics of demographic data for respondents including the frequency and percentage for each of them:

Table 1
Descriptive statistics of demographic data for respondents

Variable		Frequency	Percent (%)
Gender	Male	32	41.6
	Female	45	58.4
	Total	**77**	**100.0**
Age	Less than 25 years	12	15.6
	25 – less than 35 years	52	67.5
	More than 35 years	13	16.9
	Total	**77**	**100.0**

The results presented in the above table show that, the males in the study sample were (41.6%) of total respondents, while the females were (58.4%) of total respondents in the study sample. With regard to the age of respondents, the largest percent of study samples were in the age group (25 – less than 35 years) as they reached (67.5) of the total study sample. The other respondents of the study sample were in the age group less than 25 years (frequency =12, Percent = 15.6%) and more than 35 years (frequency = 13, Percent = 16.9).

4.2 Internal Consistency of Reliability

Internal consistency of reliability is the extent to which all parts of a given scale measure a concept (Sun et al., 2007). In organizational research, Cronbach's alpha coefficient and composite reliability coefficient are a widely used index in estimating the internal consistency of reliability of a scale, especially those containing multiple items (Peterson & Kim, 2013). Thus, to ascertain internal consistency of adapted measures in this study, composite reliability coefficient was preferred over Cronbach's alpha coefficient for some reasons. Research scholars (Götz, Liehr-Gobbers & Krafft, 2010) argues that in composite reliability coefficient, there is much less biased estimate of reliability than in Cronbach's alpha coefficient, because the assumptions of Cronbach's alpha coefficient are that all indicators simultaneously contribute to their mother construct, without giving credence to individual contributions of each of the items. Further, as against composite reliability, there is a possibility of under-estimation or over-estimation of scale reliability in Cronbach's alpha, whereas composite reliability recognizes the differences in item loadings in a model, which can be interpreted just as Cronbach's alpha. Table 1, and Fig. 1, composite reliability coefficients of the study's constructs indicated that the internal consistency of the latent variables in this study is adequate because they all exceed the minimum acceptable level of .70.

Table 1
Reliability and internal consistency results

Factor	Item Name	Factor Loading	AVE **>.5**	Composite Reliability (Cr) **>.7**	Cronbach's Alpha **>.7**
Awareness	Awareness 1	0.794	0.552	0.890	0.770
	Awareness 2	0.707			
	Awareness 3	0.725			
Engagement	Engagment1	0.706	0.527	0.874	0.810
	Engagment2	0.717			
	Engagment3	0.754			
Experience	Experience1	0.768	0.652	0.942	0.847
	Experience2	0.777			
	Experience3	0.873			
Interest	Intrest1	0.736	0.531	0.877	0.776
	Intrest2	0.7			
	Intrest3	0.749			
Metaverse	Metaverse1	0.753	0.563	0.896	0.761
	Metaverse2	0.703			
	Metaverse3	0.822			
	Metaverse4	0.718			

4.3 Discriminant Validity

Discriminant validity is the type of validity that indicates the measurement model of a construct is free from redundant items in which a construct is truly distinct from other constructs by empirical standards (Fornell & Larcker, 1981). For that measurement purpose, there are types of criteria that were applied in Smart-PLS to evaluate the discriminant validity of the measurement model, Fornell and Larcker is one of the most popular methods, this method will be discussed in the next section.

4.4 Variable correlation using the Fornell–Larcker criterion

Table 2 represents the results of variable correlation using the Fornell-Larcker approach to assess the discriminant validity of the measurement model. According to Fornell & Bookstein (1982), in the variable's correlation method, the discriminant validity occurs when the calculation of square root of AVE is greater than the correlation between the factors making for each pair. In other words, the value should be higher than the other off-diagonal elements in the rows and columns, which was the case in the correlation matrix of this study. This demonstrated the discriminant validity of the measurements used.

Table 2
Reliability and internal consistency results (continuation)

	Awareness	Engagement	Experience	Metaverse	interest
Awareness	0.743				
Engagement	0.365	0.726			
Experience	0.486	0.518	0.807		
Metaverse	0.448	0.481	0.598	0.750	
Interest	0.633	0.528	0.615	0.513	0.729

4.5 Hypotheses Testing (Path Coefficient)

This section discussed the findings of the path coefficient used to test research hypotheses. The finding of direct effect hypotheses of the Metaverse on the supply chain (Awareness, Engagement, Experience and interest) (H1, H2, H3, H4), presented in Fig. 1, and Table 3.

Table 3
Hypothesis testing of model

	original sample(O)	sample mean	STDEV	T statistic	P value	
META → INTER	0.421	0.416	0.088	4.771	0.00	Supported
META → ENG	0.349	0.365	0.112	3.129	0.002	Supported
META → EXPE	0.277	0.286	0.151	1.832	0.047	Supported
META → AWAR	0.174	0.177	0.098	1.776	0.036	Supported

Notes: Significant level at α=0.05,

Table 3 shows the assessment of the full model. The result of the study confirms four direct effect hypotheses which are; H1 which is related to the impact of the Metaverse on the AWAR (beta =0.174, P= 0.036), H2 which formalized to examine the impact of Metaverse on the the Engagement (beta =0.349, P= 0.002) and H3 which is related to the impact of Metaverse on the Experience (beta =0.277, P= 0.047), while the result of the study support H4 which is related to the impact of Metaverse on the interest (beta =0.421, P= 0.000).

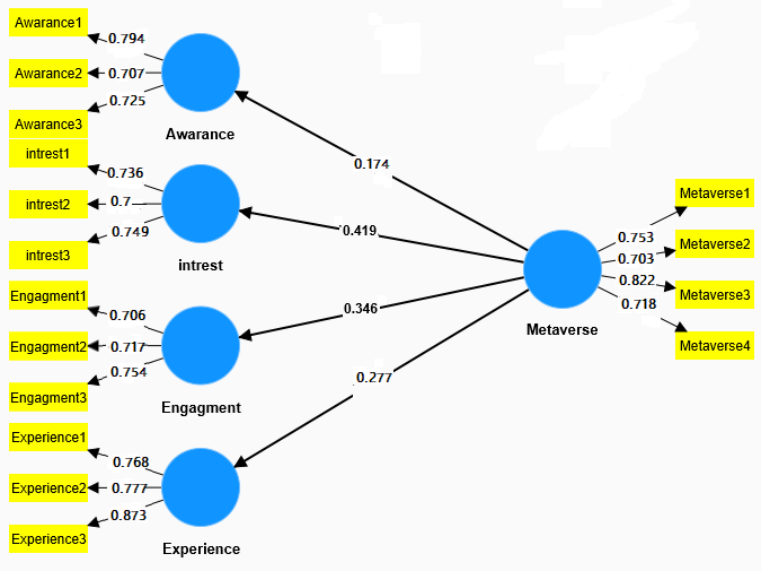

Fig. 1. Path analysis for the research model

5. Conclusion

Virtual reality plays a crucial role in digital marketing by providing interactive and personalized experiences to customers. Virtual reality technologies, including the metaverse, help achieve exceptional experiences for customers, as they can experience products and services through amazing and interactive virtual worlds. The use of virtual reality technologies has many benefits for the merchant and the consumer. These technologies help improve customer experience, increase sales, enhance brand awareness and loyalty, and improve marketing strategies based on data and analytics. Despite the challenges facing the use of these technologies, they provide a great opportunity to improve customer experience and increase the attractiveness of products and services in the digital marketing market. The metaverse is one of the most important examples of virtual worlds, as the metaverse integrates entities from the real world through their digital twins into three-dimensional digital worlds using virtual reality technologies and avatars. Using a sample of 77 consumers, the results of this study showed the importance and role of metaverse technology in improving customer awareness, interest, engagement and experience. This finding suggests that the metaverse opens up new avenues for product exploration and discovery, facilitates the meaningful fusion of physical and virtual product experiences, and fosters human-brand relationships through AI-powered bots, all of which have a variety of positive effects on customers.

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