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Is Metaverse Intended for Purchasing? An Empirical Investigation

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***Abstract*— The metaverse, a digitally accessed immersive virtual environment, has the capacity to transform online retail by providing consumers with distinctive product experiences. This study examines how consumers behave when using metaverse platforms for purchasing. It specifically looks at how trust and perceived enjoyment play a part in influencing their desire to make a purchase. A quantitative methodology was utilized, with a total of 483 undergraduate students taking part in an experiment that entailed engaging with a metaverse retail platform called Decentraland, as well as completing a questionnaire that they administered to themselves. The results of the structural equation modelling analysis showed that the consumer's attitude towards the metaverse platform had a substantial positive effect on trust (β = 0.53) and perceived enjoyment (β = 0.39). These factors, in turn, had a favorable impact on purchase intention (β = 0.42 and β = 0.62, respectively). Furthermore, it was discovered that trust (with an indirect effect of 0.223) and perceived enjoyment (with an indirect effect of 0.241) play a major role in mediating the connection between customer attitude and purchase intention. The results enhance our comprehension of consumer behavior within the metaverse framework, highlighting the significance of cultivating trust and enjoyment to stimulate positive purchase intentions. The paper examines the consequences of the study for both theoretical and managerial perspectives. It emphasizes the importance for creators of metaverse platforms and brands to prioritize methods that build trust and boost the perceived satisfaction of users through immersive, interactive, and engaging virtual experiences. Proposed future study directions aim to overcome restrictions and broaden the scope of investigation as the metaverse continues to develop.**

Keywords*— *Metaverse, consumer attitude, trust, purchase intention, perceived enjoyment

I. INTRODUCTION

"Metaverse" a term used to describe a shared, immersive virtual world that is accessed by users through digital devices, such as virtual reality headsets or computer screens. In metaverse, users can interact with each other and with computer-generated environments and objects as if they were in a physical space, often using customizable avatars. A novel "snow crash" described metaverse [50] for the first time as "where humans, as programmable avatars, interact with each other and software agents, in a three-dimensional virtual space that uses the metaphor of the real world."

Facebook a leading social media platform changed its name to "Meta" to demonstrate the necessity of metaverse in future path of the planet's interaction through internet. According to a report [2], metaverse will be a part of people's life for at least one hour a day for digital footprints such as shopping, interaction and entertainment. Virtual Reality(VR) technologies, Mixed reality (MR) and Augment Reality(AR) technologies, are responsible for creating a sense of immersion in the user. In recent years, these technologies have seen significant advancements and have gained increasing popularity in both consumer and enterprise markets. According to estimates, the combined market for VR, MR, and AR technologies is expected to reach a size of around USD 250 billion by 2028 [61]. It is uncertain how the metaverse will evolve in the future, but it is probable that media technologies will progress towards delivering more layers of sensory information to users, resulting in increased immersion. Scholars have referred to this as immersion, and it is expected that it will be a key feature of metaverse as it continues to develop [12].

Metaverse has the potential to revolutionise and change how communication is delivered and how consumers respond to it, challenging our current knowledge of these processes. This is suggested by the developments being made in immersive technologies and infrastructures [21]. Customers will probably be able to live and share their experiences in metaverse in a fashion that more or less mirrors their real-life experiences [9]. Users of AR, VR, and other visual-enabling technologies may already move around, interact with things and people virtually, and real-time sense stimulation [67]. Metaverse offers an exciting opportunity for retailers to provide customers with virtual product experiences that can help them evaluate products prior to making a purchase. Research has shown that direct product experiences are crucial in enabling customers to learn about product benefits and determine whether a product is a good fit for their needs [19, 59]. However, offering such experiences can be difficult in online retail, and this is where Metaverse could prove particularly useful.

With the advent of metaverse platforms, shoppers now have the ability to virtually experience products even when physical products are not available, which can help to set realistic expectations and increase their confidence in making

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a purchase [45]. In India, Flipkart launched a metaverse shopping platform called "flipverse" which provides a virtual 3D shopping experience to interact with selected brands [54]. In order to effectively incorporate immersive technology into virtual commerce applications, it is necessary to conduct numerous behavioural studies and use them as a model for application design research and development [9]. The consumer behaviour research on metaverse platforms assesses the impact of specific design artefacts on behavioural responses such as acceptance levels and purchase intention [7].

As a consumer, there is an uncertainty about the potential of metaverse technology to enhance the shopping experience in the online retail. While there is keen interest in this technology, limited research exists that demonstrates its tangible impact in real-world contexts. However, it is understood that in order for businesses to invest in this new technology, it is essential to comprehend its potential to increase revenues. If metaverse can help consumers to visualize products in their consumption contexts and reduce product fit uncertainty, they might be more inclined to make purchases through metaverse platforms. As such, consumers are open to exploring this new technology and interested to see how it can improve their shopping experience in the metaverse.

From the previous literature, very few studies have been focused on the consumer behaviour towards the adaptation of virtual reality (VR), Augment reality (AR) and extended reality (XR) platforms [1, 44, 9, 57, 48]. In the context of adaptation of metaverse platforms for shopping in online retail world there is a clear lack in literature. From the behavioural research perspective there is a lack of quantitative empirical research done on adaptation on metaverse platforms and consumer behaviour variables [51, 48].

The questions raised by the present study are:

1. Are the Indian consumers ready to adapt metaverse platforms for shopping?
2. Does the attitude of Indian consumers towards metaverse platforms influence behavioural variable?
3. Is there any mediating relationship between consumer attitude towards metaverse and behavioural variables?

The aim of this paper is to conduct empirical research on consumer behaviour towards metaverse applications, with a specific focus on purchase intention as the desired behaviour outcome. The reason for choosing purchase intention is because it is a widely studied consumer response in existing research [7]. The second objective of the study is to find the influence of trust and perceived enjoyment mediating between consumer attitude towards metaverse and purchase intentions.

II. Theoretical Model

The study has adopted consumer purchase model to get a solid understanding of consumer behaviour. The classical model consists of five stages, commonly used to describe consumer purchase decisions, despite undergoing refinement over period of time, it remains a strong theoretical foundation [43]. Furthermore, this approach has been extensively embraced in the field of information systems to examine consumer behaviors in the realm of electronic commerce [8, 25]. The purchase decision stage is considered as the most crucial stage among the five stages of consumer decision-making process [23]. This stage signifies the consumer's readiness to make a purchase, and hence, it holds great significance in the actual purchase process. To measure the purchase decision, purchase intention is commonly used [16, 23]. Purchase intention refers to the level of willingness of a consumer to buy a specific product or service, from a particular brand [3]. It is important to recognize that the decision on purchase can be affected by the actions and variables at every stage of the customer decision-making process [29]. Consumers may not necessarily follow the sequential order of the stages during a purchase, various factors and activities might also impact their final decision [43].

Stimulus organism response model (SOR) is adopted in the study due to its wide implication in consumer behaviour research [42]. In a commerce research platform SOR model is considered as the response [8]. Researchers have investigated the impact of genuine experience on consumer's evaluation on virtual tourism promotion to analyse cognitive and affective responses [35]. In online purchase consumers get over exposed to available information and cause unusual purchase behaviour [23]. Impulsive purchase can also be adopted due to the factors contributing to SOR model [14, 47]. A comprehensive knowledge of individual consumer purchases in virtual commerce is made possible by the merging of the SOR model and the classical model of consumer decision-making. The characteristics of virtual commerce, categorized as immersive technology or consumer behaviors, can be understood as the stimulus or organism, while the decisions made regarding purchases can be understood as the reaction [7].

III. Review Of Literature

A. Consumer attitude towards metaverse

The consumer response to commerce in virtual world is believed to have multiple factors such as attitudes, trust and enjoyment [27]. The perceived telepresence and social presence through VR and AR platforms have a two-way relationship with consumer attitude and trust. Specifically, the level of trust a consumer has in a shopping experience can be influenced by their attitudes towards shopping, as well as their perception on the level of social and technological presence in the shopping environment [41]. Consumer attitude towards the richness of the platform is highly influenced by the involvement of consumer towards their shopping experience [24]. Consumer attitudes in virtual shopping were influenced by consumer's cognitive elaboration and the platform interactivity and their goal to search for a specific product [26]. When interacting with 3D visual products, customers can feel a psychological and emotional state of flow that is comparable to their views toward virtual experiences [67]. The way that consumers feel about immersive technologies is comparable to how they feel about the quality of 3D information in their product attitude model [7]. The implementation of AR technologies in laboratories to study the attitudes of student towards the lab resulted in improved skill among the students [11]. Consumer perception of an organization to be more transparent in their communication leads to have positive

attitude towards it [6], so if a platform with more transparency can generate the same attitude towards it. Consumer attitude towards the technology are shaped by their knowledge of the technology, previous experiences and perception of expected benefits [51].

B. Purchase intention in Metaverse

The purchase decision may not always result in an actual purchase, but it is the most accurate indicator of a consumer's behavioural intention [23, 16, 29]. The effects of pleasure and arousal factors on user satisfaction, buy intention, and choice confidence were examined in a study done on a virtual furniture retailing store. The study revealed that the impacts of hedonic value and user engagement were comparable [44]. Stereo VR technology has the potential to significantly enhance the consumer's purchase intention by providing them with more interactive and immersive product experience in a stereoscopic environment [28]. VR shopping technology can be utilized to create an environment where customers can engage with the product in a better tangible way, allowing them to visualize and explore its features and benefits in a more realistic and three-dimensional manner [58]. By allowing customers to virtually try on clothing items and accessories, virtual fitting rooms provide a more interactive and personalized shopping experience that can enhance customer engagement and lead to purchase intention [8]. Researchers conducted a comparative study with conventional online e-commerce sites and found AR has been touted as a promising technology for enhancing the shopping experience by allowing consumers to visualize products in a more interactive and immersive way that improved the effectiveness of AR on consumer's purchase intention [25, 51, 55, 64]. In virtual commerce, branding plays a crucial role in nurturing consumer purchase intention because a strong sense of presence and brand recall are important factors that contribute to purchase intention in VR shopping [15].

C. Role of trust and perceived enjoyment in Metaverse

The immersive and interactive nature of VR can lead to more positive attitude towards a brand or product, as consumers have more engaging and personalized shopping experience that enhances their enjoyment [58, 17]. Additionally, VR provide a greater level of transparency and credibility, which can enhance trust in the buying process [52]. By allowing consumers to explore and interact with products in a virtual environment before making a purchase, VR provide a unique opportunity for businesses to improve customer experience and increase consumer responses to their products or services. When consumers perceive the virtual environment as realistic and immersive, they are more likely to trust the shopping process and engage with the environment to achieve their goals [52, 41]. Additionally, when the virtual environment allows for social interaction, consumers feel more connected to the shopping experience, which can further enhance trust. To establish trust in online transactions, sellers should provide customer service experience in a virtual environment that closely mimics the physical one through interactive tools, detailed product descriptions, high-quality images, and customer reviews [43]. As consumers become more aware of the potential risks associated with sharing their personal data, they are less likely to trust sellers who fail to demonstrate a strong commitment to protecting their privacy in the online commerce [59]. When consumers develop a positive attitude towards a company because they trust it, they are more likely to view the company's communication as transparent, as trust is built on a foundation of transparency and honesty, which can ultimately lead to increased sales and profitability [6]. Establishing clear guidelines, protocols, and information on identity verification, secure data storage, and transparent communication is crucial to build consumer trust and confidence in remote collaborative Augmented Reality, leading to increased adoption and engagement over time [62, 47, 46, 40, 22].From the above literature it is seen that trust plays significant role when consumer interacts with immersive technologies like VR and AR, but when it comes to Metaverse shopping where human interact with machine made environment for shopping there is clear lack in literature. To test influence of consumer attitude towards the metaverse platform on trust and purchase intention, the study proposes the following hypotheses.

H1: Consumer attitude influence the consumer trust towards Metaverse platform

H2: Trust towards metaverse platform influences consumer purchase intention.

H3: Trust significantly mediates between consumer attitude and purchase intention in metaverse platform.

As a consumer in an interactive store setting, their attitude towards the store and its features can greatly influence their enjoyment of the shopping experience [56]. Factors such as ease of use, perceived quality assurance, and store layout can all contribute to a positive or negative attitude, ultimately affecting their level of engagement and satisfaction as a shopper [29]. In a virtual platform, consumers' attitude towards a product or service can be significantly influenced by factors such as telepresence and perceived social presence, where telepresence affects their engagement and investment in product interactions and immersion, and perceived social presence impacts their enjoyment and purchase intention [52, 53, 37, 31]. Consumers' attitudes towards AR can significantly impact their enjoyment experience of the technology, particularly in regards to its immersion effect, where a positive attitude combined with a strong immersion effect can lead to a highly engaging and enjoyable experience [21, 65]. Consumer perceive immersive platforms to be enjoyable and willing to adopt those that enhances the mental state of engagement [67, 64]. The quality and richness of an interactive platform has an influence over the enjoyment and behavioural intention [24]. While making purchase decision, consumers are often faced with a level of uncertainty about the product or service they are considering [16]. This uncertainty can make it difficult for them to make confident decision. However, positive affect, which includes feelings of enjoyment and favourable evaluations of the product, this can help to reduce uncertainty [34]. The literature suggests that perceived enjoyment plays a significant role in shaping consumer interactions with immersive technologies like VR and AR. However, currently there is lack of research on how enjoyment is influenced by consumer attitudes towards the Metaverse, a machine-made

environment for shopping. To address this gap, the study proposes following hypotheses to test the relationship between consumer attitudes towards the Metaverse platform, perceived enjoyment, and purchase intention.

H4: Consumer attitude influences perceived enjoyment of using metaverse platform

H5: Perceived enjoyment of using metaverse platform influences purchase intention of consumers.

H6: Perceived enjoyment significantly mediates between consumer attitude and purchase intention in metaverse platform.

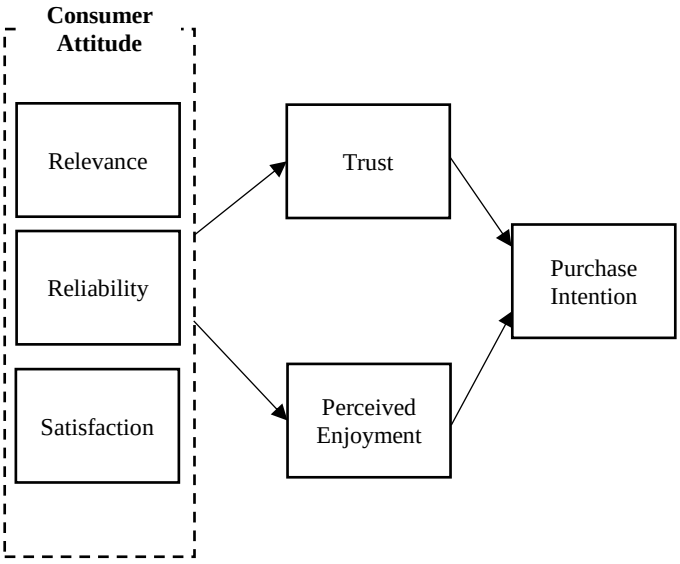

FIG. 1. CONCEPTUAL MODEL OF THE PROPOSED STUDY

IV. METHODOLOGY

A. Data collection and sampling procedure

The current study aims to investigate the parallel mediation of trust and perceived enjoyment between consumer attitude towards metaverse platforms and purchase intention. The study involved in a quantitative methodology. Authors circulated a self-administered, online questionnaire to the participants. This questionnaire was completed by the participants after interacting with metaverse platform which enables the participants to create avatar, explore the virtual environment and buy products. The participants were allowed to interact with the platform for 30 minutes to understand the actual functioning of metaverse shopping.

The participants were informed that they would be participating in a study to evaluate their opinions regarding the Metaverse platform for purchasing. The questionnaire included five sections: the first comprised questions on participant attitudes towards the platform; the second included questions relating to trust; the third focussed on perceived enjoyment; the fourth focussed on purchase intention from platform and fifth and final section comprised of sociodemographic questions.

In total, 502 undergraduate students participated in our study. Considering their uniformity, students are deemed suitable for doing research [5]. The participants were selected from eight courses using a convenience sampling method, and all of them participated voluntarily. In our efforts to manage the influence of the metaverse platform, respondents who had not exposed to the platform and did not hear about the platform were retained. Duration of data collection went up to a month because of the lab capacity and student availability. A total of 20 respondents were excluded either due to their failure to meet both criteria or because they supplied contradictory responses. The final sample consisted of 562 participants, with 46.7 percent being women and 53.3 percent being men. Additionally, 89.3 percent of the participants were between the ages of 18 and 24, 7.2 percent were between the ages of 25 and 34, and 3.5 percent were 35 years of age or older.

B. Experimental Procedure

Experiment was conducted in a laboratory set up where participants were gathered in a computer lab for interacting with the platform. The participants were introduced with metaverse platform Decentraland [4, 36] which allows them to create avatar, communicate with each other, explore virtual landscape and buy virtual space through cryptocurrency. The time span allocated for participants to interact with platform was for 30 minutes. In the first 10 minutes participants were trained to use the platform and instructions to use the platforms were provided during this period. The next 5 minutes were allocated for the participants to explore the platform and to clear the doubts that arises while playing. After this stage, Investigator explained the reason for gathering to the participants and clear explanation were provided to define the objectives behind the experiment. The final 15 minutes were given to the participants to explore the platform without any interruptions. Before going to the final step investigators ensured that participants had no doubts regarding the platform. After completion of 15 minutes, participants were shared with a structured questionnaire to measure the study variables.

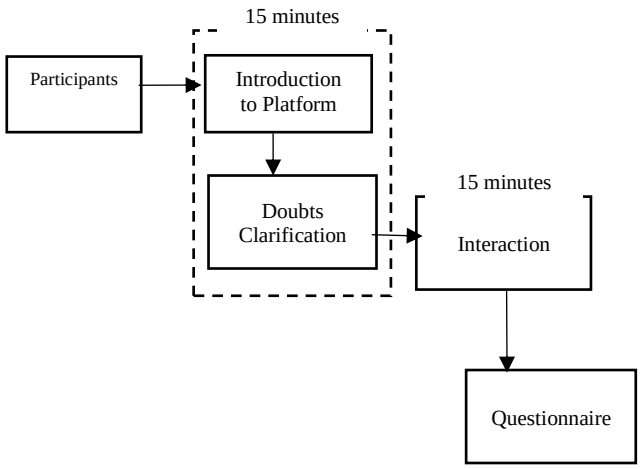

FIG. 2. OUTLINE OF THE EXPERIMENT PROCEDURE CONDUCTED

C. Measures and data analysis

The study adopted four standardized questionnaires for measuring the constructs. Consumer attitude towards metaverse application was measure using 23 item Augmented

Reality Application Attitude Scale (ARAAS) [11]. The scale has three sections (Relevance: 9 items; Satisfaction: 9 items; Reliability: 5 items). This scale was originally developed for educational purposes. Author modified the scale for shopping purpose and in relevant to metaverse application. Trust is measured using the 12-item scale [41]. The scale was developed for measuring Trust between people and automation. This scale was also altered based on this study's context by the author. Perceived enjoyment was measured using 3 item scale adopted in the study [27]. Purchase intention of consumers was measured using a 3-item scale adopted in the study [6].

The scales were initially devised for distinct objectives and subsequently adapted according to the specific research objectives. The measure items underwent exploratory factor analysis to assess the validity of the constructs. Items that exhibited inconsistent loadings were excluded from further analysis based on the results of EFA. The ARAAS scale saw removal of two items, specifically in the Relevance dimension and the Satisfaction dimension. The first ARAAS scale consisted of 23 items, but after undergoing exploratory factor analysis (EFA), it now comprises a total of 19 items. The reliability and validity of the scales were evaluated by confirmatory factor analysis (CFA) and the structural model was tested using AMOS V18. The model suggested good fit indices with current items suggested by EFA.

V. Results

A. Reliability and validity

The results presented in Table I indicate that the Cronbach's α values range from 0.81 to 0.91, all of which exceed the required threshold level of 0.70 as suggested by pervious study [32]. The composite reliability indices range from 0.81 to 0.91, which above the minimum threshold of 0.70 required for measurement dependability [10]. In terms of convergent validity, all items in the model exhibit factor loadings that are statistically significant and exceed the threshold of 0.70, as established by study [10]. The average variances extracted (AVEs) range from 0.53 to 0.57, and all values are over 0.50, indicating satisfactory convergence [10].

TABLE 1. EXPLORATORY AND CONFIRMATORY FACTOR ANALYSIS RESULTS

Constructs	**λ EFA/CFA**	**AVE**	**α**
Consumer Attitude towards Metaverse		0.54	0.82
Relevance		0.51	0.81
Metaverse platform (AR, VR, XR) enhances my perception of the product when I'm purchasing (practical perspective)	0.87/0.77		
"I would like to use Metaverse platform (AR, VR, XR) applications for shopping."	0.86/0.72		
The utilization of 3D objects in the Metaverse platform (AR, VR, XR) apps elicits a sense of realness.	0.83/0.71		
I feel excited when I use Metaverse platform (AR, VR, XR) applications	0.82/0.73		
Buying the products is easier due to Metaverse platform (AR, VR, XR) applications	0.81/0.79		
Metaverse platform (AR, VR, XR) applications make my shopping process comfortable because they provide clarity	0.80/0.76		
The use of Metaverse platform (AR, VR, XR) applications in the shopping is a time efficient process.	0.79/0.72		
Satisfaction		0.59	0.83
I experience enhanced concentration on the product when utilizing applications on the Metaverse platform, which includes AR, VR, XR.	0.88/0.81		
I do shopping with enthusiasm when Metaverse platform (AR, VR, XR) applications are used	0.81/0.79		
Using Metaverse platform (AR, VR, XR) motivates me to shop more than normal.	0.77/0.79		
I enjoy shopping with Metaverse platform (AR, VR, XR) applications	0.75/0.77		
Metaverse platform (AR, VR, XR) applications catches my attention	0.75/0.82		
Overall, I believe that the utilization of Metaverse platforms (AR, VR, XR) suggests that the consumer has a keen interest in shopping.	0.73/0.78		
Reliability		0.512	0.82
I think that the generalisation of this type of Metaverse platform (AR, VR, XR) initiatives would significantly improve the quality of shopping platforms.	0.71/0.72		
Utilizing the Metaverse platform (AR, VR, XR) for shopping enables me to communicate my ideas, opinions, and perspectives with my friends and coworkers.	0.70/0.71		
Shopping with Metaverse platform (AR, VR, XR) makes me to think critically and analyse about the product.	0.68/0.71		
Metaverse platform (AR, VR, XR) has changed my attitude as a shopper, not only in this environment, but generally in all shopping environments.	0.65/0.77		
Utilizing the Metaverse platform (AR, VR, XR) enhances my proficiency in many practical skills such as tool usage and information retrieval, hence influencing my purchase habits.	0.63/0.74		
Trust		0.55	0.91
Metaverse platform (AR, VR, XR) for shopping is deceptive.	0.83/0.79		
The Metaverse platform behaves in a underhanded manner.	0.82/0.76		
I'm suspicious of the platform's intent, action or output.	0.78/0.80		
I'm wary of the metaverse platform.	0.78/0.77		
The platform's action will have a harmful or injurious outcome.	0.77/0.76		
I'm confident in the Metaverse platform	0.75/0.82		
The Metaverse platform provides security	0.73/0.78		
The metaverse platform has integrity	0.71/0.74		
The metaverse platform is dependable	0.70/0.77		
The metaverse applications are reliable	0.67/0.72		
I can trust the metaverse applications.	0.66/0.71		
I'm familiar with the metaverse (AR, VR, XR) platforms.	0.64/0.70		
Perceived Enjoyment		0.57	0.80
I can access the Metaverse platform (AR, VR, XR) for shopping easily	0.74/0.80		
The Metaverse platform (AR, VR, XR) for shopping is user-friendly and easy to use	0.82/0.72		
Metaverse platform (AR, VR, XR) for shopping provides relevant information and useful functions for the course	0.85/0.74		
Purchase Intention		0.53	0.81
I would buy this product/brand from Metaverse platform (AR, VR, XR) rather than any other brands available in traditional ecommerce platform.	0.84/0.75		
I am willing to recommend that others buy this product/ brand from the Metaverse platforms	0.81/0.73		
I intend to purchase this product/brand from the metaverse platform in the future	0.75/0.70		

λ – Factor loadings, AVE – Average Variance Extracted, α – Cronbach's alpha

TABLE 2. DISCRIMINANT VALIDITY

	1	2	3	4
Consumer Attitude (1)	0.54			
Trust (2)	0.51	0.55		
Perceived enjoyment (3)	0.49	0.46	0.57	
Purchase intention (4)	0.42	0.45	0.41	0.53

Average variance extracted on-diagonal and squared correlations among constructs off-diagonal

The confirmation of discriminant validity is based on the absence of any squared correlation (off-diagonal value) that exceeds the average variance extracted (AVE) values (on-diagonal) as outlined by previous study [10] (see to Table II for details).

B. Measurement model

We conducted a confirmatory factor analysis (CFA) using AMOS V18 to assess the suitability of the measurement models. The results demonstrate a strong correspondence between the model and the observed data. The measurement model's overall fit indices are as follows: The chi-square value is 481.28 with 216 degrees of freedom, resulting in a p-value of 0.00. The ratio of chi-square to degrees of freedom is 2.28. The NFI is 0.96 and the CFI is 0.97. The RMSEA is 0.08, with a 90% confidence interval of 0.07-0.09. Based on the criteria set by researchers [30] for CFI and NFI (with a threshold of 0.95), the suggested model demonstrates a good fit to the data, in addition to the $\chi 2$ tests. Nevertheless, the RMSEA value of 0.08 above the acceptable threshold of 0.07 [33]. In addition, the $\chi 2$ /df ratios are below 3, indicating a highly satisfactory [30].

C. Results of structural equation modelling analysis

Based on the provided conceptual framework the adequacy of the model was tested. The structural model's overall fit indices are deemed outstanding due to the fact that their values align precisely with those of the measurement model. The model accounts for 49.1% of the variance in consumer purchase intention on a metaverse platform.

TABLE 3. SUMMARY OF THE RESULTS OF STRUCTURAL EQUATION MODELLING ANALYSIS.

Hypothesis	**Path**	**Estimation**			
		Direct Effect	**Indirect Effect**	**SE**	**P-value**
H1	**CA→T**	0.53			0.001
H2	**T→PI**	0.42			0.001
H3	**CA→T→PI**	0.092	0.223	0.081	0.001
H4	**CA→PE**	0.39			0.001
H5	**PE→PI**	0.62			0.001
H6	**CA→PE→PI**	0.092	0.241	0.057	0.001

CA: Consumer attitude; T: Trust; PI: Purchase Intention; PE: Perceived Enjoyment

The structural equation modelling analysis provides valuable insights into the relationships between consumer attitude, trust, perceived enjoyment, and purchase intention in metaverse platform. Consumer attitude towards metaverse platform (CA) has a significant direct positive effect on trust (T), as evidenced by the path coefficients of 0.53 with p value less than 0.05. This supports hypothesis H1. Trust (T) has a positive direct effect on purchase intention (PI), as indicated by the path coefficient of 0.42 which supports out second hypothesis H2. Consumer attitude (CA) has a significant indirect effect on purchase intention (PI) through the mediating variable of trust (T), with an indirect effect of 0.223 and a p-value of 0.001, which is statistically significant. Hence hypothesis H3 is also accepted.

Consumer attitude (CA) has a positive direct effect on perceived enjoyment (PE), as shown by the path coefficient of 0.39 make our fourth hypothesis H4 also to be accepted. Perceived enjoyment (PE) has a positive direct effect on purchase intention (PI), with a path coefficient of 0.62, proves our fifth hypothesis H5. The consumer attitude (CA) has a significant indirect impact on purchase intention (PI) by means of the mediating variable of perceived enjoyment (PE), with an indirect effect size of 0.241 and a p-value of 0.001. This statistical significance supports hypothesis H6.

VI. DISCUSSIONS

The Study findings suggest that consumer attitude towards metaverse platform influences trust of consumer towards the platform. The favourable attitude of consumers towards the metaverse platform strengthens their commitment and boosts their positive experience, ultimately fostering trust in the platform [13]. When it comes to luxury brand attachment, there is consistently a favourable relationship between the alignment of a person's self-image and their experiences on immersive platforms [34]. This suggests that a consumer's positive attitude plays a role in establishing trust in the immersive environment. AR driven application experiences of luxury brands showed affective responses that enhance the trust and satisfaction of consumers towards the platform [18].

In online multiplayer virtual reality role-playing games, consumers enhance their sense of belonging to their community by purchasing virtual objects, driven by their developed trust and attachment [28]. Antecedents and consequences of AR marketing activities reveal their positive consumer experiences with innovative AR applications enhanced purchase intentions [60]. This suggests trust in utility of these metaverse-adjacent technologies drive purchase behaviour. This study contributes to the current body of literature on metaverses by asserting that confidence in these immersive platforms enhances consumers' likelihood of making purchases within the platform.

By finding the significant mediating role of trust between consumer attitude towards platform and purchase intention, this study stands in line with previous findings in metaverse literature. The metaverse features, such as interaction and vividness, had a beneficial impact on users' experience of telepresence, leading to a favourable attitude [52]. This, in turn, enhanced their perceived product knowledge and their intents to make purchases in metaverse stores [52]. Although not directly mentioned, trust in the metaverse experience is probably a mediating factor that connects positive sentiments towards the metaverse to intentions of making a purchase. E-service quality in VR stores emerged as the most dominant factor, suggesting that trust in the service quality of immersive VR stores mediates the relationship between positive consumer attitudes towards such environments and purchase intentions [49]. The utilization of virtual reality (VR) devices for the purpose of viewing soccer matches from the comfort

of one's own home. The findings demonstrated that perceived usefulness, and positive attitudes strongly influenced individuals' intentions to purchase and utilize the product [17]. Trust in the utility and enjoyment of the virtual reality (VR) experience appeared to play a mediating role in these interactions [17].

The present study asserts that the consumer's attitude towards the metaverse platform has an impact on their perceived enjoyment. The different attributes of metaverse platforms, such as telepresence, social interaction, and economic flow, had a notable impact on users' flow experience, which can be seen as a type of perceived enjoyment [66]. This implies that having a positive attitude towards the elements of the metaverse platform helps to increase the level of enjoyment obtained from the experience. The study investigated the impact of avatar appearance similarity on virtual goods purchase intention in the metaverse [37] . The results revealed that the similarity between an individual's look and their avatar increased their intention to purchase virtual products. This influence was mediated by factors such as self-congruence and flow [26, 37]. In this sense, "flow" refers to a feeling of enjoyment. It suggests that having positive attitudes about avatar representation in the metaverse contributes to the perception of enjoyment.

The emotional reactions, including feelings of pleasure, which may be seen as a type of perceived enjoyment, positively influenced behavioural reactions, such as the desire to make a purchase, in the context of augmented reality (AR) experiences for luxury brands in the metaverse [18]. In the context of an AR shopping app, purchase intention was significantly impacted by perceived enjoyment, one of the characteristics modified by augmented reality (AR) qualities [46, 62]. The increased sense of enjoyment experienced due to the increased immersion offered by augmented reality in e-commerce has a beneficial impact on the intention to make a purchase [40]. This finding further supports the hypothesis in the context of metaverse-related technologies.

The present study offers empirical evidence that perceived enjoyment, stemming from different elements of the metaverse platform, such as augmented reality experiences, immersive environments, and advertising, acts as a mediator between consumer attitudes towards these elements and purchase intention within the metaverse context. The flow experience, facilitated by augmented reality (AR), acts as a type of perceived enjoyment that mediates the connection between consumer attitudes towards AR and their level of involvement with AR apps. This engagement, in turn, might impact their intention to make purchases inside the metaverse setting [63, 65]. Affective responses, such as feelings of enjoyment and inspiration, have a direct impact on purchase intentions and word-of-mouth recommendations [64]. They also have an indirect influence through shaping attitudes towards the product or brand in the setting of an augmented reality (AR) product presentation [64]. This finding is particularly relevant in the context of the metaverse environment. The study examined the impact of escapism in AR mobile app advertising. The study discovered that experiences of escapism, which are linked to perceived enjoyment, have a beneficial impact on sharing content on social media, intentions to make purchases based on brand attitudes, and interaction with new brands through augmented reality mobile app advertising [21, 38]. This suggests that perceived enjoyment may play a mediating role in these effects.

Multiple studies highlight the importance of enjoyment and hedonic factors in driving metaverse adoption and engagement, aligning with the "Perceived Enjoyment" construct in the model of the current study [27, 40]. One study found that perceived enjoyment positively influences hedonic benefits, which in turn impacts continuance intention [66]. The role of trust is also supported, with a study finding that establishing initial trust among supply chain partners can drive behavioural intention regarding metaverse adoption [57]. Several studies emphasize the importance of perceived usefulness and utility, which aligns with the "Relevance" aspect of consumer attitude in the model [11, 46]. The "Satisfaction" component is supported by findings that flow experience (which often leads to satisfaction) positively influences attitudes and intentions [64].

While the model focuses on consumer attitudes, good number of studies highlight the importance of technological and platform characteristics in driving adoption and engagement [53, 44]. This suggests potentially expanding the model to include platform/technology factors. Some studies found direct effects of factors like perceived usefulness on behavioural intentions, rather than being fully mediated [20]. This indicates potential direct paths could be added to the model. Few studies emphasize the role of social factors, such as social presence and interaction [36, 65]. The model could potentially be expanded to include social dimensions. Risks and challenges associated with metaverse adoption are highlighted in some abstracts [32], suggesting perceived risk could be an additional factor to consider in the model.

VII. Implications

A. Theoretical Implications

The study is consistent with the Stimulus-Organism-Response (S-O-R) paradigm, which proposes that environmental stimuli, such as the qualities of the metaverse platform, have an impact on consumers' internal states, such as trust and perceived enjoyment [52]. These internal emotions, in turn, influence consumers' behavioural reactions, such as their intention to make a purchase [59]. This study enhances the theoretical comprehension of consumer behaviour in the metaverse context by utilizing the S-O-R model. It establishes a connection between environmental stimuli and customer behaviours by considering the mediating effects of trust and perceived. This study's findings enhance the current body of research by examining the functions of trust and perceived satisfaction within the metaverse platform. The established hypotheses (H1, H2, H3) emphasize the significance of trust as a mediator between customer attitude and purchase intention in the metaverse setting. This expands the comprehension of trust beyond conventional e-commerce environments and underscores its importance in the growing metaverse ecosystem [57].

The confirmed hypotheses emphasize the interaction between emotional variables (perceived enjoyment) and cognitive factors (trust) in influencing consumer behavior in the metaverse environment. This study enhances the existing literature by offering an in-depth understanding of the components that influence the adoption of the metaverse. Previous research [64, 63] has often examined either the emotional or cognitive aspects separately, whereas this study takes a more holistic approach. Through an analysis of the connections between customer attitude, perceived enjoyment, trust, and purchase intention within the metaverse, this study helps close the gap between online and offline consumer behaviour. Based on tested theories [15, 20], consumers' real-world purchase intents may be influenced by the metaverse environment, expanding our knowledge of consumer behaviour outside of traditional retail environments.

B. Managerial Implications

The study suggests that metaverse platform developers and brands operating in the metaverse should prioritize strategies to build and maintain consumer trust. This can be achieved by ensuring transparency, data privacy, and security measures, as well as delivering consistent and reliable experiences within the metaverse environment [39, 57]. The study also implies that metaverse platform developers and brands should focus on creating immersive, interactive, and engaging experiences that foster enjoyment among users. This can be achieved through gamification elements, social interactions, personalized content, and leveraging emerging technologies like augmented reality (AR) and virtual reality (VR) [64, 63]. Metaverse platform developers and brands should adopt a holistic approach by incorporating strategies that simultaneously cultivate trust and enhance perceived enjoyment through collaborative efforts between technology experts, user experience designers, and marketing professionals. Brands should leverage the metaverse to offer virtual product trials, immersive brand experiences, and personalized interactions with consumers. This can not only drive purchase intentions but also foster brand loyalty and advocacy. As the metaverse is an emerging and rapidly evolving ecosystem, it is essential for platform developers and brands to continuously monitor consumer behaviour, preferences, and trends within the metaverse environment. This will enable them to adapt their strategies promptly, address emerging challenges, and capitalize on new opportunities to enhance consumer trust, perceived enjoyment, and ultimately drive purchase intentions.

VIII. Limitations and Future scope

It is important to recognize the study's various shortcomings. First off, the findings' generalizability may be limited by the sample size of 483 college students, which may not be indicative of the larger consumer population. Furthermore, because the study was carried out in a particular area, cultural variables might have an impact on how customers feel and act regarding metaverse platforms. Additionally, since the study only examined one metaverse platform—Decentraland—customer views and behaviours may change among platforms that offer distinct features and user experiences. Since the metaverse is a new and quickly developing technology, as it develops and becomes more widely used, customer attitudes and behaviours may also change. Finally, the study concentrated on particular constructs like trust, perceived enjoyment, and purchase intention; therefore, it's possible that additional pertinent variables or constructs that affect customer behaviour in the metaverse setting were overlooked.

To improve the generalizability of the results, future study might examine customer attitudes and behaviours toward metaverse platforms across age groups, socioeconomic backgrounds, and cultural contexts. Similar research across a variety of metaverse platforms may yield insightful information about how user experiences and platform-specific features affect purchasing decisions. As the technology for the metaverse develops, longitudinal studies may be used to monitor shifts in the attitudes and behaviours of consumers. A more thorough understanding might be obtained by looking into other elements or structures, such as privacy concerns, social impact, or brand perceptions, that may affect customer behaviour in the metaverse setting. Incorporating qualitative methods like focus groups and interviews could provide more in-depth understanding of the underlying motives, attitudes, and experiences of users in the metaverse environment. Research conducted across cultural boundaries may provide insight into how cultural norms, values, and customs influence consumer views and actions regarding metaverse platforms. The findings of this study suffer from the low-quality visuals on the blockchain-based metaverse, Decentraland platform. Using platforms with more realistic images and virtual reality glasses' compatibility might greatly change the results in next experiments. Lastly, a way to close the gap between virtual and real-world consumer experiences could be to investigate the possible effects of consumer behaviour in the metaverse on real-world purchase decisions and consumption habits.

IX. Conclusion

The current study offers insightful information on how customers behave when they shop on metaverse platforms in an online retail setting. The results demonstrate how customer attitudes regarding metaverse platforms have a substantial impact on perceived enjoyment and trust, which in turn affects consumers' intentions to make purchases in these immersive virtual worlds. Notably, the study bridges the gap between consumer attitudes and purchase intentions in the setting of the metaverse by establishing trust and perceived enjoyment as critical mediating elements. The research adds to the growing body of knowledge on consumer behaviour in developing digital ecosystems by experimentally examining these links.

The study's conclusions have applications for companies and platform developers looking to make the most of this technology as the metaverse picks up steam and changes the online retail scene. Creating virtual worlds that are immersive, dynamic, and engaging can increase perceived satisfaction while also fostering consumer trust through transparency, data protection, and dependable experiences. These factors can encourage consumers to make positive purchase intents. Although the present study offers a basis for comprehending customer behaviour in metaverse shopping, additional

investigation is critical to tackle the constraints and broaden the range of investigation. Sustained research endeavours will be imperative in maintaining pace with the swift progressions of metaverse technologies and their influence on consumer conduct, ultimately steering enterprises and platform developers through this revolutionary digital frontier.

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AUTHORS` CONTRIBUTIONS

All authors have participated in drafting the manuscript. All authors read and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

DATA AVAILABILITY

The data supporting the findings of this study are available upon request from the authors.

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