

# Exploring the Impact of Metaverse based Shopping on Purchase Intention: A Study of Lenskart's VR Platform among Assam University Students

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**ABSTRACT-** The integration of Virtual Reality (VR) technology in e-commerce platforms has revolutionized the consumer shopping experience, particularly in sectors requiring physical trial and examination of products. This study investigates the impact of VR usage on purchase intention through Lenskart's metaverse platform among Assam University students. Using a stratified random sampling approach across 10 educational blocks/schools within the university, data was collected from 384 respondents to examine the relationship between VR usage, perceived ease of use, and purchase intention for eyewear products. The study used a quantitative approach using a structured questionnaire and carried out statistical analysis including t-tests to test the hypotheses. Findings show that VR use has a strong effect on purchase intention and that perceived ease of use is central for adopting VR to buy eyewear. The results indicate that virtual reality, as a new way of visual communication, can increase the consumer confidence during online eyeglasses shopping in addition to authentic product demonstration and virtual try-on. This study yields implications for understanding VR technology adoption in niche e-markets and for retailers using metaverse platforms.

**KEYWORDS-** Virtual Reality, Purchase Intention, Metaverse, Lenskart, E-commerce, Consumer Behaviour, Technology Adoption, Eyewear Industry

## I. INTRODUCTION

The internet has a profound effect on retail and customer behaviour in this age of digitization. One of the most cutting-edge features that an e-commerce platform may provide in the modern world is virtual reality (VR), which is a component of metaverse-based shopping [10]. Customers' inability to touch and feel items before making a purchase was once one of the biggest gaps in the internet market, but this significant problem has been fixed since the invention of virtual reality. **Error! Reference source not found..** The eyewear industry is also plagued by this issue. When buying eyeglasses, people take into account a number of important factors, including fitting, comfort, and aesthetics [4]. One of the biggest retailers of eyewear in India, Lenskart, was a pioneer in incorporating virtual

reality (VR) technology into their metaverse platform, which allows users to virtually put on glasses and view merchandise in a completely immersive setting [21]. They set themselves apart from the conventional internet buying approach by enabling clients to imagine how eyeglasses might feel and look, all without having to physically visit the retail locations [18]. Marketing literature extensively examines the idea of buy intention, which is the extent to which a product purchase is expected [1]. A number of elements, including user experience, acceptability of the technology, and perceived value of the virtual reality experience, influence purchase intention in VR-involved e-commerce [6]. A theoretical foundation for comprehending the impact of perceived utility and perceived ease of use on technology acceptance and ensuing behavioural intentions is provided by the Technology Acceptance Model (TAM) [24]. Due to the increasing usage of screens and digital devices that affect eyesight quality, university students are one of the largest markets for the eyewear business [19].

Assam University students, who come from a wide range of ethnic backgrounds, particularly those from the northeastern region of India, can be used as a sample in this case because they can be thought of as being helpful in examining VR adoption patterns and user purchase intentions in developing economies [3]. This study aids in investigating how virtual reality technology can be used practically in the retail industry and how it may affect customers' decisions to buy. Vision-related issues are getting more and more common as screen time and digital gadget use rise daily. [19]. The group of Assam University students is a good sample for examining VR adoption behaviours and buying intention in developing nations [3]. The university's interdisciplinary framework makes it feasible to investigate technological acceptability across a wide range of occupations and populations. This is significant because it offers information on how virtual reality (VR) might be applied in specific retail industries and how it can affect consumers' decision-making. In order to learn how adaptable consumers are to technology and how they may use this technology to facilitate a customer's choice to buy, retailers are taking into account immersive technologies and Metaverse platforms [13].

### A. Literature Review

The amount of study on virtual reality (VR) technology in e-commerce has increased significantly as a result of researchers' investigation into a wide range of virtual shopping experiences and their impact on customer behaviour. Pantano et al. [17] conducted innovative study on the application of virtual reality in retail settings. Immersion experiences were found to significantly boost customer engagement and satisfaction. The foundation for our understanding of how VR technology alters our purchasing habits was established by their research. Kim and Forsythe [14] investigated the relationship between purchase intention and product experience. They discovered that displaying products in a realistic manner with virtual reality technology increases customer confidence and likelihood of purchase. Their study examined how crucial it is to engage your senses in virtual settings and how that influences actual purchasing decisions. In light of the aforementioned data, Rese et al. [20] looked at the use of AR and VR in retail settings and found that immersive technologies improve customer happiness, giving them a competitive advantage. Using the Technology Acceptance Model, VR adoption has been thoroughly examined in a range of scenarios. The Technology Acceptance Model has been widely used to study VR uptake in a range of scenarios. They found that perceived ease of use and perceived usefulness were the main factors that made people want to use it. Their research showed that VR interfaces that are easy to use have a big effect on how willing customers are to use new technology [11].

Virtual try-ons increase purchasing confidence and decrease uncertainty, according to study by Beck and Crié [2] on the effect of VR on customers' fashion retail purchase behaviour. Their study found that users of VR technology reported higher levels of satisfaction and repurchase intentions than did regular web buyers. In a similar vein, Javornik [12] investigated the impact of augmented reality advertising on consumer engagement and demonstrated that interactive virtual worlds enhance the emotional connections that consumers have with products. More recent studies have focused on the VR application and the eyewear industry. When Konarzewski & Reiner [5] looked into virtual try-on technology for glasses, they discovered that realistic rendering and precise fit prediction have a big impact on customer decisions. Their study demonstrated how crucial technical quality is to VR implementations and how user acceptability is directly impacted by it. Additionally, cultural and demographic considerations have a big impact on VR acceptance. Younger people and tech-savvy groups are more likely to adopt VR technology, according to Shadiev et al.'s study on cross-cultural differences in VR technology adoption [16]. These findings facilitate an understanding of university student groups and their embrace of technology.

Numerous studies have examined the role that virtual environments play as a mediator between VR experience and purchase intention. Steuer [23] defined presence as the perceived feeling of being present in a virtual environment, whereas Witmer and Singer [26] created measures of presence in virtual settings. Increased visibility in virtual reality retail settings is favorably connected with brand attitude and purchase intention, according to recent research by Chin and Swatman [8]. The trust and security issues surrounding VR e-commerce have been the subject of

numerous scholarly investigations. Zhuang [25] investigated consumer trust in VR retail websites and determined the factors that support the development of trust in virtual worlds. Their study made clear how crucial platform stability, data security, and user privacy are when deciding whether to adopt VR. The metaverse concept has garnered significant attention in contemporary literature, with authors exploring its potential implications for retail and consumer behaviour. While Erensoy et al. [22] thoroughly examined metaverse use in retail, Yu et al. [15] looked into consumer acceptance of metaverse shopping experiences. These studies offer valuable context that aids in understanding Lenskart's metaverse platform and its potential impact on consumer behaviour.

### B. Research Objectives

The aim of this study is to examine the usage of VR in Lenskart's metaverse platform and its impact on purchase intention among Assam University students. The objectives are:

- To evaluate the influence of VR usage on purchase intention for eyewear through Lenskart.
- To assess the role of perceived ease of use in adopting VR for eyewear purchases.

### C. Research Hypotheses

The proposed hypotheses for this study are as follows:

**H<sub>11</sub>:** VR usage has a significant influence on purchase intention for eyewear through Lenskart.

**H<sub>12</sub>:** Perceived ease of use has a significant role in adopting VR for eyewear purchases.

### D. Significance of the Study

This research paper is of significant importance for numerous stakeholders in the retail and technology sectors. Especially for academicians, this study is of great value as it adds to the growing body of literature related to Virtual Reality (VR) adoption, consumers' attitude towards it and practical implications of VR adoption in metaverse based environments. The empirical data provides evidence related to immersive technology and its ability to impact consumer behaviour in a broad scale. This study is important in the context of technological shift on the face of traditionally done physical product interaction as this research offers insight for retailers using VR and immersive metaverse platforms. For, Lenskart also, this study will definitely provide them an idea on effectiveness of their VR platform in a key demographic region of India where still mainstream technological advancements are lagging. This research fills a major research gap related to VR adoption by concentrating on university students of a key demographic area and thus understanding technology acceptance pattern and buying behaviour of these students is crucial in long term strategic planning of eyewear sector industries. Additionally, this research adds to the idea of VR adoption patterns in emerging markets, specifically in the northeastern region of India. This geographic focus provides insights into technology acceptance pattern in culturally diverse contexts and helps to understand regional variations in consumer behaviour and technology acceptance.

## II. RESEARCH METHODOLOGY

### A. Research Design

A quantitative research approach and cross-sectional survey strategy was used in this research to investigate the relationship between usage of virtual reality and purchase intention, on the other hand perceived ease of use and VR adoption among university students, who are early adopters of technology. In order to facilitate statistical hypothesis testing and offer measurable insights into the relationships among study variables, a quantitative approach was employed.

### B. Sampling Method and Sample Size

The study employed stratified random sampling to guarantee that various academic fields at Assam University were adequately represented in the participation. The university's ten educational blocks/schools acted as levels, with departments within each school symbolizing sub-levels. This method guaranteed proportional representation from diverse academic fields such as sciences, humanities, social sciences, engineering, and management areas. To determine the minimum required sample size, Cochran's formula for an infinite population was initially employed, as it is widely accepted for estimating sample size in survey-based research. Thus, the preliminary required sample size for an infinite population is approximately 384. In the next step, this was adjusted using the finite population correction formula based on the actual student population size of Assam University (5732), resulting in a final sample size of approximately 360.

### C. Data Collection Instrument

A structured questionnaire was developed based on established scales from technology acceptance research and consumer behaviour literature. The instrument consisted of four main sections:

- **Demographic Information:** Age, gender, academic discipline, year of study, and previous VR experience

- **VR Usage Scale:** Adapted from Huang and Liao [11], measuring frequency and extent of VR usage for shopping purposes
- **Perceived Ease of Use Scale:** Based on Davis's Technology Acceptance Model (TAM) [6], measuring perceptions of VR technology usability
- **Purchase Intention Scale:** Adapted from Dodds et al. [9], measuring likelihood of purchasing eyewear through Lenskart's VR platform

All scales used 5-point Likert scales ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was pilot tested with 30 respondents to ensure clarity and reliability before full-scale data collection.

### D. Data Collection Procedure

Data collection was conducted over a six-week period through a combination of online and offline survey methods. Digital questionnaires were distributed through emails and student portals, while paper-based surveys were administered in high-traffic campus locations to ensure broader participation. Research assistants from each educational block facilitated data collection to maximize response rates and ensure proper representation across all strata.

### E. Data Analysis Methods

Software called SPSS 28.0 was used to do the statistical analysis. To comprehend the sample features and variable distributions, descriptive statistics were computed for every variable. Cronbach's alpha reliability analysis was used to evaluate the measurement scales' internal consistency. The research hypotheses were tested using independent sample t-tests, which looked at mean differences within categories according to perceived ease of use ratings and VR usage levels.

### F. Conceptual Framework

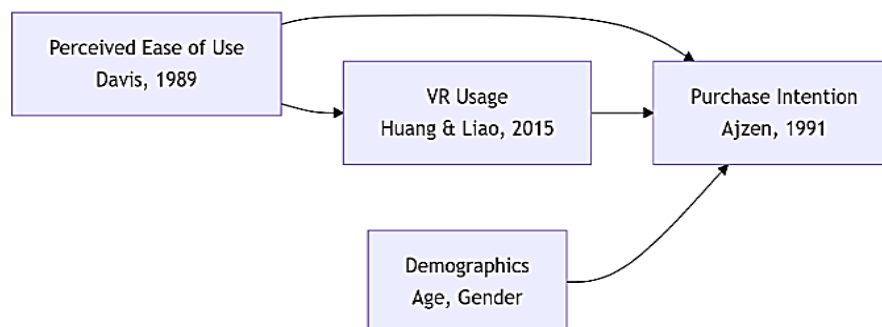


Figure 1: Conceptual Framework (*Source: Authors own work*)

This conceptual diagram (see Figure 1) illustrates a theoretical model where Perceived Ease of Use [6] directly influences both VR Usage [11] and Purchase Intention [1], while VR Usage further directly impacts Purchase Intention; additionally, Demographics (Age, Gender) exert a direct influence on Purchase Intention, collectively framing a mediated pathway where technology adoption drivers and user characteristics shape behavioural outcomes.

## III. OBJECTIVE WISE ANALYSIS OF THE DATA

### A. Descriptive Statistics

The descriptive analysis (see Table 1) provides insights into the sample characteristics and variable distributions. The majority of respondents (62.5%) were between 19-22 years of age, representing typical undergraduate demographics. Gender distribution was balanced with 52.8% female and 47.2% male participants. Academic

background diversity was achieved with representation from all 10 educational blocks, ranging from 8.4% to

11.3% participation per block.

Table 1: Descriptive Statistics for Study Variables

Variable	N	Mean	Std. Deviation	Minimum	Maximum
VR Usage	360	3.42	0.87	1.20	5.00
Perceived Ease of Use	360	3.68	0.79	1.40	5.00
Purchase Intention	360	3.35	0.92	1.00	5.00
Age	360	20.64	1.52	18.00	24.00

All of the measured variables had moderate to high levels, according to the descriptive statistics. With a mean score of 3.42 (SD = 0.87), VR Usage indicates that respondents' use of VR technology is above average. With the highest mean score of 3.68 (SD = 0.79), perceived ease of use indicated that students usually find VR technology easy to use. The average purchase intention was 3.35 (SD = 0.92), suggesting a moderate inclination to buy eyewear via [Table 2](#) was conducted to compare purchase intention means between these groups.

Table 2: T-test Results for VR Usage and Purchase Intention

Group	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)
High VR Usage	162	3.74	0.83	4.83	318	0.000
Low VR Usage	158	2.94	0.91			

There is a statistically significant difference in intention to buy between the groups with high and low VR usage, according to the results of the t-test ( $t = 4.83$ ,  $p < 0.001$ ). The buying intention of students who used VR more frequently was substantially higher ( $M = 3.74$ ,  $SD = 0.83$ ) than that of students who used VR less frequently ( $M = 2.94$ ,  $SD = 0.91$ ). A medium to great practical significance is indicated by the effect size (Cohen's  $d = 0.54$ ). These results demonstrate that VR usage strongly influences Assam University students' propensity to purchase eyewear through Lenskart, supporting the rejection of null

### virtual reality platforms. **Objective 1: Influence of VR Usage on Purchase Intention**

To evaluate the influence of VR usage on purchase intention for eyewear through Lenskart, respondents were categorized into high VR usage (scores above median) and low VR usage (scores below median) groups. Independent sample t-test analysis ([see](#)

hypothesis  $H_{01}$  and acceptance of alternative hypothesis  $H_{11}$ .

### **B. Objective 2: Role of Perceived Ease of Use in VR Adoption**

The second objective examined the role of perceived ease of use in adopting VR for eyewear purchases. Similar to the first analysis, respondents were categorized into high perceived ease of use and low perceived ease of use groups based on median scores, with VR adoption serving as the dependent variable.

Table 3: T-test Results for Perceived Ease of Use and VR Adoption

Group	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)
High Perceived Ease of Use	168	3.89	0.76	5.21	318	0.000
Low Perceived Ease of Use	152	2.91	0.88			

The results (see [Table 3](#)) show that groups with varying degrees of perceived ease of use adopted VR in significantly different ways ( $t = 5.21$ ,  $p < 0.001$ ). The adoption rates of VR technology were considerably higher among students who thought it was easier to use ( $M = 3.89$ ,  $SD = 0.76$ ), than among those who thought it was harder to use ( $M = 2.91$ ,  $SD = 0.88$ ).

A medium to great practical significance is indicated by the effect size (Cohen's  $d = 0.58$ ). These findings validate

that perceived ease of use has a major impact on the research population's adoption of VR for eyeglass purchases, supporting the rejection of null hypothesis  $H_{02}$  and acceptance of alternative hypothesis  $H_{12}$ .

### **C. Correlation Analysis**

Table 4: Correlation Matrix for Study Variables

Variables	1	2	3	4
1. VR Usage	1.000			
2. Perceived Ease of Use	0.487***	1.000		
3. Purchase Intention	0.521***	0.456***	1.000	
4. Age	0.142*	0.089	0.167**	1.000

\*Note: \*\*\* $p < 0.001$ , \*\* $p < 0.01$ ,  $p < 0.05$

All of the important study variables have strong positive connections, according to the correlation analysis (see

[Table 4](#)). Purchase intention and VR usage have the largest link ( $r = 0.521$ ,  $p < 0.001$ ), while perceived ease of use and



VR usage have a moderate correlation ( $r = 0.487$ ,  $p < 0.001$ ). Purchase intention and perceived ease of use are significantly correlated ( $r = 0.456$ ,  $p < 0.001$ ). Weak but significant relationships between age and VR usage and

purchase intention suggest that somewhat older students in the sample may be more likely to adopt technology and make purchases.

#### D. Multiple Regression Analysis

Table 5: Multiple Regression Analysis - Predictors of Purchase Intention

Variable	B	SE B	$\beta$	t	Sig.	VIF
(Constant)	0.643	0.287	-	2.24	0.026	-
VR Usage	0.421	0.058	0.398	7.21	0.000	1.31
Perceived Ease of Use	0.333	0.064	0.286	5.18	0.000	1.31

Table 6: Model Summary for Multiple Regression Analysis

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change
1	0.585	0.342	0.338	0.748	0.342	82.47	2	317	0.000

**Predictors:** (Constant), VR Usage, Perceived Ease of Use **Dependent Variable:** Purchase Intention

Multiple regression analysis (see

Table 5) shows that VR use and perceived ease of use jointly account for 34.2% of the variance in purchase intention, according to the multiple regression analysis ( $R^2 = 0.342$ ,  $F = 82.47$ ,  $p < 0.001$ ). When compared to perceived ease of use ( $\beta = 0.286$ ,  $t = 5.18$ ,  $p < 0.001$ ), VR usage is the stronger predictor ( $\beta = 0.398$ ,  $t = 7.21$ ,  $p < 0.001$ ). There are no issues with multicollinearity between

the predictor variables when the variance inflation factor (VIF) is less than 2.0. With both factors contributing significantly and uniquely to the explanation of purchase intention variance, the model (see Table 6) exhibits strong predictive validity.

#### E. Hypothesis Testing Results

Table 7: Hypothesis Test Result

Sl. No.	Research Hypotheses	Result
01	H <sub>11</sub> : VR usage has a significant influence on purchase intention for eyewear through Lenskart.	Accepted
02	H <sub>12</sub> : Perceived ease of use has a significant role in adopting VR for eyewear purchases.	Accepted

The results of hypothesis testing (see Table 7) indicate that both virtual reality (VR) usage and perceived ease of use significantly influence consumer behaviour in the context of eyewear purchases through Lenskart. For H<sub>11</sub>, the independent sample t-test showed a statistically significant difference in purchase intention between high and low VR users ( $t = 4.83$ ,  $p < 0.001$ ), with higher VR users displaying greater intention to purchase ( $M = 3.74$  vs.  $M = 2.94$ ), leading to the acceptance of the alternative hypothesis and confirming that VR usage positively impacts purchase intention. Additionally, H<sub>12</sub> testing led to the acceptance of the alternative hypothesis, affirming that perceived ease of use significantly affects the adoption of VR for eyewear purchases, thereby reinforcing the importance of usability in promoting VR-based shopping experiences.

## IV. FINDINGS AND DISCUSSIONS

This study offers the strong proof of the astonishing influence that virtual reality technology has on customer purchase patterns in the eyeglass market. The findings add fresh perspectives unique to the Indian higher education landscape and are consistent with research on technology inclusion and consumer behaviour. The study's main finding illustrates how VR-using platforms, such as Lenskart, outperformed their contemporaries who do not utilize it as

much. This finding confirms the theoretical expectations of the Technology Acceptance Model and extends previous research by Beck and Crié [2] and Altarteer & Charissis [7] into the specialty eyeglass store context. In the case of VR e-commerce, the surprising significance that perceived ease of use assumes in adopting VR serves to confirm the core ideas of the TAM theory. Students who find VR technology easy to use are more likely to utilize it for shopping, demonstrating the importance of interface design and user experience in technology deployment. This conclusion coincides with Huang and Liao's [11] work on the adoption of VR technology and offers platform developers useful information.

## V. THEORETICAL IMPLICATIONS

The study illustrates the practical use of the technology acceptance model in the retail industry. Taking into account the strong correlations between perceived ease of use, VR engagement, and intent to purchase further validates the model's expanding utility in terms of metaverse platforms and specialty retail categories. The results also provide strong proof of the influence of immersive technology on consumer choices, which advances our knowledge of consumer behaviour. The idea of experiential marketing is orchestrated by the relationship between a customer's VR encounter and their purchasing intent.

## VI. PRACTICAL IMPLICATIONS

The findings suggest that investing in the development and utilization of metaverse technologies can significantly influence consumer engagement and purchase intent for Lenskart and similar retailers. Emphasizing perceived ease of use indicates that during the creation of metaverse-based platforms, prioritizing user interface design and optimizing user experience is essential. The research highlights the importance of targeting tech-savvy individuals, particularly college students, who are very open to purchasing in the metaverse. This group is an essential focus for initiatives aimed at encouraging the use of VR platforms as they embody current users and possible market influencers.

## VII. CULTURAL AND DEMOGRAPHIC CONSIDERATIONS

The research emphasizes students at Assam University, highlighting the trends in virtual reality adoption in northeastern India, a region previously perceived as having limited exposure to advanced technologies. The positive findings suggest that cultural heritage and location may not influence technology adoption as much as once believed, particularly among educated young adults. The diverse academic backgrounds of the sample and balanced gender representation enhance the generalizability of the findings among different demographic groups within university populations.

## VIII. CONCLUSION

An efficient study of how VR usage influenced Assam University students' purchase intentions was conducted using Lenskart's metaverse platform, providing valuable insights into the adoption of technology and consumer behaviour in the eyewear industry. The study's findings support the research hypotheses by showing that VR use significantly influences purchase intention and that perceived usability plays a significant impact in influencing the intention to utilize VR to buy eyewear. Both the actual application of VR technology in retail and the advancement of the literature may benefit from this study. Thus, the study provides hypothetical confirmation of the TAM hypothesis. Practically speaking, the study offers useful data for merchants using VR and metaverse platforms. The significant impact that perceived ease of use has on VR adoption emphasizes how important intuitive user experience and user-friendly interface design are to the advancement of technology. The results clearly justify Lenskart's investment in VR technology and point to possible areas for targeted advertising and platform optimization. This study's application to other demographic groups is limited by its exclusive emphasis on the student body of one university. This study opens the door to future in-depth research on how people's purchasing patterns and VR usage patterns evolve as the technology gains traction. Future studies should also look into how variables like brand loyalty, peer pressure, or individual creativity could affect the relationship between VR use and purchase intention. There is ample evidence that VR technology alters how individuals purchase glasses, and this research supports the ongoing development and application of immersive shopping experiences. The results indicate that a significant increase in customer contact and sales

conversions may be anticipated if merchants made an investment in easy socio-telepresence.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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