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AR'S MAGIC: ELEVATING PERCEIVED VALUE VIA ATTITUDE & SOCIAL INFLUENCE

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AI Declaration

During the preparation of this work, the Author used Jenni AI in order to check grammar and correcting the mistaking like wording selection. After, using this tool, the Author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

Abstract

This study examines how augmented reality (AR) can alter consumer perceived value by emphasizing on how it affects consumer attitudes and the moderating power of social influence, particularly in collectivist nations like Pakistan. The study emphasizes how augmented reality (AR) may close the gap between digital and physical product representations, creating real-world, immersive experiences. The study finds a significant relationship between customer attitudes, perceived value, and AR-driven experience quality found through the Theory of Planned Behavior. The study supports the significance of customer attitudes and the moderating effect of social influence in strengthening the value of AR experiences by analyzing a sample of 200 Pakistani millennials using SPSS and PLS-SEM. These findings highlight the importance of stimulating positive customer attitudes and studying the impact of social dynamics when implementing augmented reality to successfully improve customer experience in an environment where digital trends are altering. They also have implications for marketing.

Keywords: Augmented reality; Customer Attitude, social Influence; Perceived value; theory of Planned behavior

INTRODUCTION

Augmented Reality (AR) has grown in popularity in recent years because of its capacity to augment our experience of the physical world by superimposing digital information, objects, or animations onto our real environment. Through interactive gaming and immersive storytelling to practical applications in industry, healthcare, and education, augmented reality has developed to offer richer experiences. Thanks to its potential to enhance our reality with dynamic definitions, contextual information, and interactive

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features, it has become a disruptive technology with many opportunities for innovation and engagement. In addition, within the industries, there has been a much growing interest in incorporating augmented reality (AR) into a business and marketing field among academics and professionals (Rauschnabel et al., 2022). According to Yakut (2022), technology and innovation have shifted the customer market (Customer behavior, values, attitude) and changed it rapidly toward more digital than ever before. It not only takes place and reduces the gap with customers but also eases customers to evaluate multiple brands simultaneously from any location(Chylinski, et al., 2020), which leads to a highly competitive environment. However, according to online e-commerce websites' reviews, most customers seem unsatisfied with brand features and product looks due to differences in online pics and reality (Gatter et al., 2022). However, Augmented reality or virtual reality entirely changes the business and customer experience in a way anyone can imagine in life (Shin, 2018). Although VR and AR are in the infancy stage, using visual sensors to attract customers, these systems might be effective instruments for recording and understanding the complexity of human sensory experience (Crofton et al., 2019). In addition, using sensory visual virtual augmented can help marketers to change the customer perception of brand features by showing the product (Wang & Wang, 2022). Big firms like Nike, Amazon, IKEA, and others are working on augmented reality, which has the potential to transform business and customer experience completely.

Day by day, Customers are shifting to digital Platforms, which creates a problem for marketers to retain their customers because the customers don't get an actual touch but rather a pic that increases the prior Expectations of the actual product (Gatter et al., 2022). Augmented reality technologies not only play a key role in giving customers an actual view of products and brands with highlighted features but also help organizations to create a visual feature of their brand over digital platforms more accurately, like its features in the real world (McLean & Wilson, 2019). However, Pakistan is still in the initial stage of adopting this technology. AR can majorly help marketers give customers an actual touch on the brand and meet their expectations (Thomas, 2021) while advertising products more effectively than ever before (Yang, 2020). because it requires high hardware cost, high expertise in the field of programming, design, and coordination to create a prototype, and a lack of accessibility and affordability from a customer perspective, especially in Pakistan (Jamil, 2021). However, according to Valuates report (2019), AR and VR would like to grow from $11.35 billion to $571.42 billion by the end of 2025, even with the prevailing issues.

Despite the growing trend of AR in high-tech companies (like Apple recently advertised Apple 15 through augmented reality), there is less literature available on the topic. Furthermore, many researchers have been conducted in the past in developed and individualist countries (Alimamy & Al-Imamy, 2021). However, there is a huge gap for collectivist nations due to cultural factors. According to Kurniati et al. (2020), collectivist people live together and make collective decisions, or one's decision is affected by peers or members of his circle. On the other hand, there is a significant knowledge gap in the literature regarding collectivist nations, where social influence is a strong predictor and

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plays a key role in predicting a person's behavior (so-called collectivist countries) (Alimamy & Al-Imamy, 2021). Additionally, this research is based on a Pakistani perspective, and Pakistan is perceived as a collectivist nation where social influence plays a significant impact on behavior (Pakistan, 2022). This study will highlight the importance of AR in changing customers' perceptions digitally through social influence as a moderator variable from a Pakistani perspective. To explain the model in a better way, the "Theory of Planned Behavior" was adopted (Ajzen, 1991).

This will majorly help marketers to know the importance of AR as a marketing tool to create proper positioning regarding their brand, which has been affected due to digital advancement and high expectations customers have from pictures posted on e-stores (Altarteer & Charissis, 2019). In addition, it can also help the organization to see whether adopting technology has strong significance over their figures (Tan et al., 2022). In addition, previous research has been conducted but neglects the main factor, which is social influence (including peer pressure, society, and community influence on a person's action) on customer perception, which shapes perceived value for a brand. So, this study will also be incorporating the social influence factor to reveal "how social influence can play a vital role in attracting new customers through AR marketing strategies?". In addition, this study also highlights the importance of AR technology to create a prototype for a customer as well.

LITERATURE REVIEW

Augmented Reality (AR) and Customer Experience

Augmented reality (AR) is gaining much fame as it can create a digital customer experience (Rompapas et al., 2019). It enables real-time, contextual material to deliver a rich experience inside the real world by having the capacity to overlay digital aspects onto the actual world (Sprenger et al., 2019). Since its development, AR has shown fascinating experiences, giving technology due to the nature of changing objects and making the environment like the real world (Hoyer et al., 2020). In addition, according to Yung and Khoo-Lattimore (2019), Augmented reality is becoming more realistic than ever before. AR involves the superimposition of digital content on the physical world, allowing individuals to interact with virtual elements in a real-time, immersive way. Many businesses have started to use AR in their marketing efforts, as it has the potential to enhance customer experiences and increase engagement with brands due to fast development in the field of virtual and augmented reality, especially in smartphones (Digital Capital, 2018), and virtual headsets (Qiu et al., 2023), glasses (Zuidhof et al., 2021) and 3D holographic billboard (de Ruyter et al., 2020). It is essential for businesses to carefully consider the potential benefits and challenges of using AR and to aim to create high-quality AR experiences that are tailored to the needs and preferences of their customers.

Authenticity, interactivity, and presence are three characteristics that make up the construct known as experience quality. The degree to which an experience is viewed as authentic or not a replica is called authenticity (Grayson & Martinec., 2004). Authenticity,

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initially centered on physical items, is now recognized as a component of high-quality experiences, with the ability to influence perceptions through engaging in certain activities or experiences (Wei et al., 2019). The term "presence" describes the user's perception of being in a specific location or environment or their subjective perception of being in another place (Sheridan, 1992, pp. 120-126). When users feel immersed in an environment, presence connected to learning, engagement, and participative behavior can enhance the subjective assessment of experience quality (Caldas et al., 2022). Since good experiences frequently entail interactions between different actors, the quality of interactions is another crucial factor (Witell et al., 2022). In addition, according to Zhong & Moon (2020), high experience quality is linked to more positive value perceptions in past literature.

Quality of experience (QoE) and customer perceived value

Quality of Experience (QoE) and Perceived Value have become essential concepts in the field of consumer behavior (Haji et al., 2021), particularly in research on physical environments (Kim et al., 2013). QoE refers to the overall quality or value of an experience that an individual has with a product or service (Laghari & Connelly, 2012), while Perceived Value refers to the value that an individual perceives in a product or service based on their evaluation and comparison to alternatives (Chen, 2010; Kao et al., 2008 & Chen Dubinsky, 2003). Currently, the mechanisms put in place by the business, whose job has shifted to merely presenting value-propositions and assisting the value-creation process of the customer, are integrated with the customers' competencies and skills, or operant resources (Åkesson et al., 2016). Sometimes, high perceived value takes place because of the co-creation process done by customers (Syah & Olivia, 2020). Additionally, the role of co-creation in the value-creation process may also be an essential consideration, as previous research has suggested that customers who are actively involved in the co-creation process may be more likely to perceive the value of a product (Balaji & Roy, 2017) or service (Solakis et al., 2022) by allowing customers to customize or tailor it to their specific needs and preferences (Xie et al., 2020). it can make the product or service relatively more valuable and relevant to the individual customer (Payne et al., 2021). Previous literature supports that quality of experience through different leads to high perceived value for the brand (Patna et al., 2020.

According to Zhang et al. (2020), attitudes are a significant factor in determining high perceived value, which leads to a high willingness to pay for a product. Additionally, studies have demonstrated that consumer sentiments might affect perceived value and loyalty (Servera-Francés & Piqueras-Tomás, 2019; Hwang & Choi, 2020). In addition, attitudes can impact perceived value and initial and repeat purchasing behavior (Sharma & Klein, 2020; Özkan et al., 2019). Customers' attitudes are directly tied to the quality of an experience since they are more likely to have favorable attitudes toward service providers whose experiences (Alimamy & Al-Imamy, 2021). According to Van et al. (2017), customers believe in having a high Perceived value because customers may get a more realistic and accurate idea of the value they might anticipate from a good or service from high-quality experiences. In addition, Lee et al. (2020) found that the

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effectiveness of virtual and augmented reality encounters can influence consumer customer perception favorably and result in behavioral intentions. (Lee et al., 2020).

Similarly, Jung et al. (2015) discovered that the quality of an AR experience's system and content could affect users' pleasure and referrals to a park in Korea (Jung et al., 2015). The relationship between an AR experience and the consumer's Perceived value can be strengthened by customer attitude. So, the research proposes a hypothesis:

H1: there is an AR Quality Experience relationship between perceived Value

Attitude as Mediating variables

Quality of experience can strongly influence the customer to have a positive attitude toward a particular brand (Sheng & Teo, 2012). In addition, Shimul et al. (2022) stated that Attitude is perceived as a strong motivator for customers in their buying intentions. According to the Theory of Planned Behavior, a customer's Attitude is based on the evaluation and environmental analysis that the customer does to act as a brand (Amoako et al., 2020). In addition, customers' attitudes are crucial because when they use online food platform services, they will simultaneously consider how the platform may result in both benefits and losses (Chen et al., 2020). As a result, they will estimate the value of the online meal delivery service before using it (Chen et al., 2020). Some research has found that Attitude mediates this relationship, such that positive AR Quality Experiences lead to more positive Attitudes, which in turn lead to higher levels of Perceived Value (Lee et al., 2018). However, other research has suggested that Attitude may not always fully mediate this relationship and that other factors, such as the perceived usefulness or usability of the AR technology, may also play a role (Fan et al., 2020)

H2: there is an AR Quality Experience relationship between Attitude

H3: there is an attitude relationship between perceived Value

H4: Attitude mediates relationship AR Quality Experience between perceived Value

Social Influence as Moderator

Experience quality and perceived benefit are critical factors influencing consumers' satisfaction with a product or service (Kusumawati & Rahayu, 2020). While experience quality refers to the objective characteristics of an experience, perceived benefit refers to the subjective value that individuals attach to an experience (Han et al., 2022). However, the relationship between experience quality and perceived benefit is only sometimes straightforward, and several factors can moderate this relationship (Hu et al.,2019). One such factor is peer pressure and social influence. Peer pressure refers to the influence that an individual's peers have on their behaviors and decisions (Park et al., 2020), while social influence refers to the impact that the presence of others has on an individual's perceptions and behaviors (Sahu et al., 2020). Both peer pressure and social influence can significantly shape individuals' perceptions of the benefit they derive from an experience (Lee et al., 2018).

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Previous research has suggested a positive relationship between attitude and perceived value, meaning that individuals with more positive attitudes tend to perceive higher levels of value in an object or concept (Smith et al., 2010). The relationship between these two constructs is only sometimes straightforward; sometimes, results are positively significant (Lin & Wu, 2010), and in other places, it is a weak relationship (Kumar & Pansari, 2012; Bauer & Grewal, 2005). Some moderating factors, including social influence, have been identified as playing a role in shaping the relationship between attitude and perceived value (Jones et al., 2012) to apply the model in collectivist countries, where social influence plays a vital role. In addition, according to social influence theory, people are significantly impacted by the opinions and behaviors of others, particularly when it comes to purchasing decisions (Vahdat et al., 2020). Peer pressure is a powerful influencer, making individuals more likely to purchase a particular brand if their peers also recommend or use it. While the influence of peer pressure and social influence may be less pronounced in digital environments where individuals are searching and evaluating products and brands on their own, it still plays a vital role in shaping purchase intentions and perceptions of ease of use in e-commerce contexts (Vahdat et al., 2020). In addition, in a collective nation, people tend to make more collective decisions by incorporating friends, family, and others (Saha & Ghosh, 2020). This collective decision can be due to the perceived knowledge and expertise of others, emotional attachments, and knowledge sharing.

Furthermore, according to Singh (2020), Users' satisfaction and propensity to refer to a mobile wallet service are significantly influenced by peer and social norms, as people are prone to trust and use services that conform to their social networks and prevailing norms, which in turn shapes their perception of their usefulness and dependability. Mobile wallet service providers must understand and take advantage of these social dynamics to succeed in a cutthroat industry. So our study proposes:

H5: Social influence moderate relationship AR Quality Experience between perceived Value

H6: Social influence moderate relationship Attitude between perceived Value

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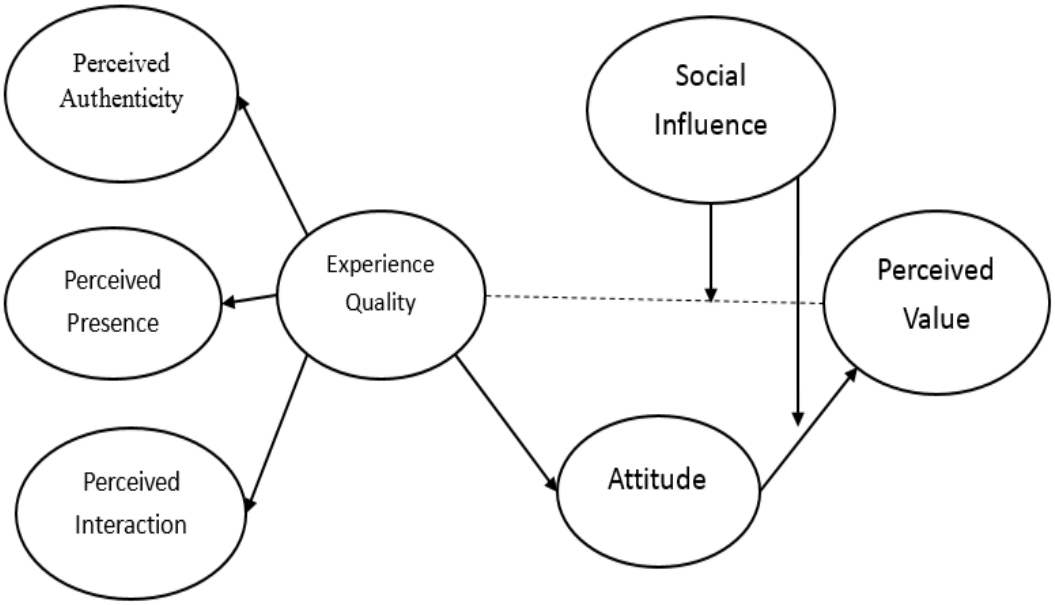
Theoretical Framework



Research Design

This research study was conducted with 210 respondents, from which 200 samples were used for data analysis. In addition, the sample size was selected using random non-probability sampling from the millennial generation living in metropolitan cities in Sindh, Pakistan. However, 200 samples were used. The millennial generation, also known as those born between the early 1990s and the early 2000s, was chosen for this study due to their high adoption rate of new technologies and online shopping behaviors (Chattaraman et al., 2019; LiébanaCabanillas et al., 2014; Tuzovic & Paluch, 2018). According to e-marketer (2019), millennials are also more likely to use technology and engage in online shopping than older generations, which makes millennials highly potential and qualified participants for this kind of research related to technology.

Furthermore, The data for this study was collected through a primary data survey consisting of Likert scale questions. The survey was adapted from sources (Alimamy & Al-Imamy, 2021). Then, participants distributed it in both ways, traditional (printed) and modern (online Google form). Later, collected data was analyzed using both SPSS and Partial Least Squares Structural Equation Modelling (PLS-SEM) via the Smar tPLS 4.0 software. PLS-SEM is a suitable technique for research data analysis, especially when working with small to medium-sized datasets and in non-normality situations (Hair, Ringle, & Sarstedt, 2011). It was used to examine the multiple relationships among the research variables.

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The respondent sample for this study consisted primarily of students and professionals (especially those encountered by AR marketing strategies) from various institutes in Karachi, Hyderabad, Sukkur, and Larkana. The sample included 58.73% male and 41.27 females, all familiar with technology and had experience with online purchasing.

RESULTS

The respondents used a sample size of 200 participants, mainly Students and Professionals at different institutes in Karachi, Hyderabad, Sukkur, and Larkana. The Sample contains 57.5% male and 42.5% female from the millennial generation who were more familiar with technology and had online purchasing experience. Of those, 45% are professionals from various departments and sectors, and 55% are students from top universities in Sindh, Pakistan.

Composite Measurement was unidimensional and explained good reliability per Standard acceptance (Nunnally, 1978). Identified factors show strong Cronbach Alpha, Composite reliability (CR), and Average Extracted variance AVE showed excellent and strong as recommended equal or above 0.7 CR and 0.4 AVE. So, all factors had good internal consistency and high degrees of convergence, indicating that multiple-item scales are reliable and valid (Table 2) (Nunnally, 1978). In addition, Model Fitness is considered well because the Standard root mean square residual (SRMR) explains well as the saturated and estimated model SRMR is (0.113, 0.124), respectively, which is closer to zero than one, indicating a good fit of the model to the data. According to Ng et al. (n.d), a value of SRMR close to 0 indicates a good fit, while a value farther from 0 indicates a poorer fit. The d_ULS and d_G are measures of the residual variance in the model. (Ng et al., n.d.) A smaller value for either of these statistics indicates a better fit of the model to the data (Table 1).

Table 1: Fit Summary

	SRMR	d_ULS	d_G	NFI
Saturated model	0.113	0.156	1.249	0.424
Estimated model	0.124	0.175	1.327	0.418

Our study carefully evaluated essential constructs' measurement qualities using validated reliability and validity measures. Although the Average Variance Extracted (AVE) was only moderately high at 0.510, the construct of attitude showed high internal consistency with a Cronbach's Alpha of 0.935 and strong reliability as demonstrated by Composite Reliability scores of 0.971 (rho_a) and 0.945 (rho_c). Similar to Perceived Value, which demonstrated excellent dependability with Composite dependability scores of 0.874 (rho_a) and 0.873 (rho_c), good internal consistency, and a relatively robust AVE of 0.576. With a moderate AVE of 0.529, we discovered acceptable internal consistency for perceived presence (Cronbach's Alpha of 0.772) and good reliability (Composite Reliability scores of 0.852 rho_a and 0.780 rho_c). With a notable high AVE of 0.703, Quality Experience demonstrated good internal consistency (Cronbach's Alpha of 0.944) and strong reliability (Composite Reliability scores of 0.970 rho_a and 0.953 rho_c). Last,

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Social Influence showed a respectable AVE of 0.555, good internal consistency (Cronbach's Alpha of 0.858), and strong reliability (Composite Reliability scores of 0.863 rho_a and 0.862 rho_c). These findings add to the overall credibility of our research findings by demonstrating the reliability of our measurement tools.

Table 2:

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude	0.935	0.971	0.945	0.510
Perceived Value	0.869	0.874	0.873	0.576
Perceived presence	0.772	0.852	0.780	0.529
Quality Experience	0.944	0.970	0.953	0.703
Social Influence	0.858	0.863	0.862	0.555

Table 3: Path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Attitude -> Perceived Value	0.512	0.486	0.177	2.890	0.004
Quality Experience -> Attitude	0.833	0.811	0.117	7.115	0.000
Quality Experience -> Perceived Value	1.137	1.209	0.231	1.914	0.051
Quality Experience -> Attitude -> Perceived Value	0.884	0.885	0.016	2.316	0.025
Social Influence x Quality Experience -> Perceived Value	0.427	0.393	0.154	2.765	0.006
Social Influence x Attitude -> Perceived Value	0.624	0.612	0.098	6.394	0.000

The result from Table 3 suggests that the three parameters of AR, which lead to a quality experience system, are all significantly related to a positive attitude of customers, with a confidence level of 95% and a standard error of 5%. Furthermore, a study used structural equation modeling (SEM) to examine the relationship between experience quality with Augmented Reality (AR), customer attitudes toward using AR, and customer perceived value for understandable results. The study found that experience quality with AR is positively associated with customer attitudes towards using AR. Additionally, the study found that customer attitudes towards using AR positively predict customer perceived value. However, the study did not find a direct relationship between experience quality with AR and customer perceived value. The results are summarized in Table 3 and illustrated in Figure 1. The variance explained by the model for customer attitude is 88%, and for customer perceived value is 89%. The results show that experience quality with AR significantly positively affects customer attitudes ($B = 0.912$, $p < 0.05$), which supports Hypothesis 3. In addition, existing literature also supports the positive relationship between customer quality of experience and attitude in different contexts (Wu & Hsu, 2018). Moreover, customer attitude towards using AR was found to have a significant positive effect on customer perceived value ($B = 0.934$, $P < 0.000$), which supports

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Hypothesis 2, but experience quality did not have a significant effect on perceived value (B = 0.300, P > 0.05), which did not support Hypothesis 1.

Mediation Analysis

The mediation analysis performed in this study indicates a critical mediation mechanism in which customer attitudes toward using AR technology play a critical role in mediating the relationship between experience quality with AR and perceived value. Mediation results indicate that the effectiveness of an AR experience depends on its capacity to influence customers' views toward using AR in a good way. In addition, the analysis indicates a strong path coefficient of 0.934, which (T-statistics = 4.5, P-value = 0.000) between customer attitudes regarding AR usage and customer perceived value, demonstrating a positive and significant relationship between these two variables. This mediation analysis highlights the importance of stimulating positive consumer attitudes as a crucial component in successfully integrating AR technology into businesses to increase perceived value. The research reveals the complex relationship between experience quality, customer attitudes, and perceived value while providing insights into the psychological processes underlying technology-driven experiences and consumer perceptions.

Moderating Analysis

The study has also examined how social influence affects the relationship between experience quality in Augmented Reality, customer attitudes toward AR technology, and customer perceived value. The results indicate that social influence plays a significant role in strengthening the connection between experience quality with AR and customer perceived value (path coefficient = 0.427, T-statistics = 2.765, P-value = 0.006), as well as between customer attitudes towards using AR and customer perceived value (path coefficient = 0.624, T-statistics = 6.394, P-value = 0.000) according to Table-3 findings). These findings highlight that by considering social influence factors, both the impact of experience quality with AR on customers' perceived value and the impact of customers' attitudes toward utilizing AR is enhanced.

DISCUSSION AND CONCLUSION

This study's results provide insights into the correlation between consumer perceptions of augmented reality's value and experience quality and their attitudes toward its use. Our findings indicate that user perspectives on utilizing AR are directly impacted by the quality of their AR experience, particularly concerning authenticity, presence, and interactivity. The study aligns with earlier research in various fields that has found a link between experience quality and consumer attitudes (Sheng & Teo, 2012; Lee & Tsai, 2010). Additionally, we observed that customer beliefs about the value derived from using AR are positively influenced by their overall attitudes toward this technology.

Besides, our study discovered that customer attitudes about augmented reality (AR) moderate the relationship between customer experience quality and perceived value, indicating that customer attitudes indirectly mediate the impact of experience quality on

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perceived value. Our data also show that social impact significantly moderates the relationship between consumer perceived value and experience quality of AR and the relationship between customer attitudes about using AR. Results show that social impact enhances the link between the quality of the augmented reality experience, customer attitudes toward using augmented reality, and customer perceived value.

However, the study did not find a strong relationship between the customer's perception of value and the quality of the AR experience. Our reading of this is based on the adoption theory (Walden & Browne, 2009), which states that while using technology may boost attitudes toward a brand or product, doing so does not always translate into increased consumer value. This is consistent with the value-in-use theory based on the S-D logic, which holds that a customer's perceived value varies depending on the consumer (Vargo & Lusch, 2004)—inferring that only when the consumer has a favorable subjective attitude toward the experience can the customer experience be beneficial.

Overall, the study's findings emphasize the importance of experiences in determining customer attitudes and perceived value. Our findings have management ramifications for companies wishing to integrate augmented reality (AR) into their goods and services and theoretical consequences for the link between experience quality, consumer attitudes, and perceived value. According to the findings, improving consumer attitudes—which are influenced by both experience quality and social influence—may be more advantageous than concentrating only on experience quality. The mediation test's findings are presented in Table 3, which demonstrates that the impact of "Quality Experience on Attitude on Perceived Value" is significant with a P value less than 0.05.

Implication

The study has significant management and pragmatic ramifications. It demonstrates that factors influencing a high-quality AR experience considerably benefit consumers' sentiments, providing a strong basis for AR adoption. Businesses can improve customer perceptions by placing a strong emphasis on these criteria while using AR. The study also emphasizes the crucial role of customer attitudes as a mediator between experience quality and perceived value, recommending that businesses invest in strategies to favorably shape customer attitudes toward AR technology, thereby increasing perceived value and enhancing customer satisfaction and loyalty. The study also emphasizes the importance of social influence as a moderator, showing that taking social variables into account can enhance the influence of experience quality and consumer attitudes on perceived value.

Limitation of study

This study has several limitations that should be considered when interpreting the findings. First, the convenience sample used in this study might limit how broadly the results can be applied. Therefore, a larger representative sample should be used to duplicate these findings. Additionally, even though using the Amazon PLACE AR application is consistent with earlier studies, it would be advantageous to consider

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additional retail applications in future studies, such as Dulux, Macy's Furniture, Pottery Barn, and the Ray-Ban AR View program.

Furthermore, we only examined three dimensions of experience quality in this study—authenticity, presence, and interaction—which may not have covered all relevant factors. Other aspects of experience quality, such as personal participation, peer pressure, and time pressure, may be considered in future studies as potential moderators and mediators.

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