“How personalized Augmented Reality experiences influence consumer trust and repurchase intention: Evidence from Tabuk, Saudi Arabia”

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HOW PERSONALIZED AUGMENTED REALITY EXPERIENCES INFLUENCE CONSUMER TRUST AND REPURCHASE INTENTION: EVIDENCE FROM TABUK, SAUDI ARABIA

Abstract

Augmented Reality has emerged as a powerful marketing tool that is transforming online shopping by making products more tangible and engaging; however, there remains limited empirical evidence of understanding its personalized effects on consumer trust and repurchase intention. This study investigates how personalized augmented reality experiences influence consumer trust and repurchase intention among consumers in Tabuk, Saudi Arabia, proposing consumer trust as a mediating variable. Data were collected through an online survey conducted between September and October 2025, using random sampling techniques to select 152 consumers in Tabuk who are familiar with mobile shopping and augmented reality applications through diverse platforms such as Instagram, Snapchat, TikTok, WhatsApp, and shopping centers, to ensure heterogeneity and consistency. Analytical methods included path analysis, correlation analysis, and bootstrapping techniques. The findings revealed that personalized augmented reality experiences significantly enhance consumer trust ($R^2 = 0.573$) and positively influence repurchase intention ($\beta = 0.331$, $p < .001$). Furthermore, consumer trust proved a strong predictor of repurchase intention ($R^2 = 0.691$), indicating that consumer trust is a powerful driver of repurchase intention. Finally, the mediation model confirmed that consumer trust partially mediates the relationship between personalized augmented reality and repurchase intention, with the overall model explaining 74.9% of the variance. Theoretically, this study extends Stimulus-Organism-Response theory by integrating personalization, consumer trust, and repurchase intention into one holistic model. Practically, it offers actionable insights to retailers, marketers, and augmented reality developers in Saudi Arabia by identifying how to balance customization to foster trust and loyalty.

Keywords Augmented Reality, personalized experience, customer trust, repurchase intention, customer loyalty, online retail

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INTRODUCTION

Augmented Reality (AR) is transitioning from research settings into retail, becoming a multibillion-dollar market with major firms adopting AR services (Guo & Zhang, 2024; KBV Research, 2021). Forecasts and user estimates indicate rapid market growth and broad consumer engagement with AR during online shopping (KBV Research, 2021; Sokolovsky, 2020). Empirical work shows AR quality enhances consumer trust in digital offerings and encourages loyalty and repeat purchases (Shi et al., 2025). Despite these findings, the specific role of personalized AR experiences in building trust and repurchase intention is insufficiently examined, particularly in non-Western contexts like Saudi Arabia (Fakhiratunisa et al., 2025; Chen et al., 2022; Moreira, 2024). Guided by Vision 2030, Saudi Arabia is undergoing a significant

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digital transformation, marked by an increase in e-commerce users from 18 million in 2017 to over 33 million (Annual Report-Vision 2030, 2024). Concurrently, Tabuk is witnessing remarkable development through giga-projects such as NEOM, fostering rapid sectoral growth and technological advancement. Positioned as a hyper-connected hub, the region serves as a testbed for augmented and virtual reality applications in retail and tourism (Invest Saudi, 2023), yet empirical AR marketing research remains a critical underexplored area, particularly regarding the effect of personalized AR experiences on consumer trust (CT) and repurchase intention (RPI), however, few studies have examined the role of CT as a mediator between personalized AR and repurchase intention. The key contributions of this paper, it supplies Saudi Arabia-specific evidence under Vision 2030, with managerial guidance and recommendations, and enhances AR theory by defining personalization as a multidimensional stimulus (accuracy, adaptivity, control) that can be empirically distinguished from interactivity. Besides, the integration of user-friendly Augmented Reality (AR) applications holds significant potential for enhancing customer engagement and cultivating enduring loyalty.

1. LITERATURE REVIEW AND HYPOTHESES

Augmented Reality (AR) represents a transformative advancement in digital marketing, enabling retailers to superimpose computer-generated content onto consumers' real-world environments and create immersive shopping experiences (Rauschnabel et al., 2022). Within beauty and cosmetics retail, AR technologies enhance product visualization, interactive engagement, and consumer decision-making (Du et al., 2022; Poushneh & Vasquez-Parraga, 2024). The evolution from generic AR to personalized AR — customized interfaces adapting content and virtual try-on features to individual consumer characteristics and preferences — constitutes a qualitatively distinct advancement (Moreira, 2024). Leading platforms such as Sephora's Virtual Artist and L'Oréal's Modi Face exemplify this approach by tailoring virtual experiences to unique aesthetic preferences, skin tones, and facial features (Santoso et al., 2022). This personalization proves particularly effective among Generation Z consumers who demonstrate heightened expectations for individualized digital interactions (Razak, 2024). Evidence indicates that personalized AR environments significantly enhance engagement through contextually relevant content, improved utility perceptions, and strengthened brand connections (Rauschnabel et al., 2022). These technologies most effectively influence purchase decisions when perceived as useful, novel, and accessible (Chen et al., 2022; Yoo, 2023).

Grounded in a theoretical foundation, The Stimulus-Organism-Response (S-O-R) framework, originally conceptualized by Mehrabian and Russell (1974) and adapted for digital consumer behavior, provides a theoretical lens for examining how personalized AR influences psychological states and behavioral outcomes. Within this framework, environmental stimuli — personalized AR features — trigger internal organismic responses such as trust, which subsequently determine behavioral responses including repurchase intention (Du et al., 2022). This model proves particularly applicable to technology-mediated retail environments where external technological stimuli interact with consumer cognitive processes to shape decision-making behaviors.

Consumer trust, defined as willingness to be vulnerable based on expectations that another party will perform important actions (Mayer et al., 1995), constitutes a fundamental determinant of digital commerce success. Within personalized AR contexts, trust manifests through consumers' confidence in virtual representation accuracy, personal data security, and product information reliability. Empirical investigations establish substantive positive associations between AR technologies and trust formation. Nguyen et al. (2025) documented that AR significantly enhances trust by reducing information asymmetry and providing experiential product knowledge approximating physical retail interactions. Complementarily, Bleier and Eisenbeiss (2015) demonstrated that transparent and effective personalization strategies engender elevated trust levels within digital environments. This trust-building mechanism operates through multiple pathways: personalized AR reduces perceived risk by enabling virtual product trials that minimize purchase uncertainty

(Moreira, 2024); customization signals retailer attentiveness to individual needs, fostering relationship investment perceptions (Razak, 2024); and accurate personalization enhances perceived system competence and reliability, foundational trust dimensions (Romano et al., 2021). Applying the S-O-R framework, personalized AR serves as an environmental stimulus activating cognitive processing, whereby consumers evaluate customized content's utility, accuracy, and relevance (Du et al., 2022). When personalization algorithms successfully align virtual results with consumers' preferences and characteristics, trust emerges as an organismic response — a psychological state characterized by reduced skepticism and increased confidence in both technology and retailer (Poushneh & Vasquez-Parraga, 2017). This theoretical framework supports the positive impact of personalized augmented reality experiences on consumer trust.

Repurchase intention, operationalized as consumers' subjective probability of continuing patronage relationships with specific brands (Hellier et al., 2003), represents a critical loyalty metric and indicator of long-term commercial viability. Within technology-enhanced retail, repurchase intention reflects confidence in digital shopping interfaces' reliability and value proposition (Fakhiratunisa et al., 2025). Personalized AR contributes to repurchase intention through multiple mechanisms. Customized virtual try-on capabilities substantially reduce pre-purchase uncertainty by enabling visualization of product fit, color matching, and aesthetic compatibility (Santoso et al., 2022). This uncertainty reduction proves particularly consequential in beauty categories where individual variations in skin tone, facial features, and style preferences necessitate highly individualized assessments (Zadegan et al., 2022). Furthermore, personalized AR generates memorable experiential engagement transcending functional utility, creating hedonic value through enjoyable interactions (Yoo, 2023). This experiential dimension fosters emotional attachment to technology and brand, strengthening behavioral loyalty (Rauschnabel et al., 2022). Additionally, effective personalization creates switching costs; once consumers invest time calibrating AR applications to their preferences and experience satisfactory outcomes, transitioning to competitors necessitates repeating this process, thereby increasing retention (Chen et al., 2022). Theoretically, the S-O-R framework positions personalized AR as a technological stimulus influencing internal states including satisfaction, perceived value, and self-congruity, which collectively determine repurchase behavioral intentions (Du et al., 2022; Yoo, 2023). Empirical evidence corroborates this proposition. Fakhiratunisa et al. (2025) documented significant positive effects of AR personalization on repurchase intentions within beauty retail. Accordingly, the study hypothesis is that personalized AR experiences positively influence repurchase intention.

The relationship between consumer trust and repurchase intention constitutes one of relationship marketing's most robustly established associations (Morgan & Hunt, 1994). Trust functions as a psychological mechanism mitigating perceived risks inherent in exchange relationships, particularly within digital commerce characterized by temporal and spatial separation between transactions and consumption (Gefen et al., 2003). Within technology-mediated retail, trust assumes heightened significance due to digital interactions' intangible nature and vulnerability associated with sharing personal information for personalization (Bleier & Eisenbeiss, 2015). When consumers trust that AR platforms accurately represent products, protect privacy, and reliably deliver promised experiences, their willingness to engage in repeat transactions increases substantially (Moreira, 2024). Although extensive AR research has concentrated on functional outcomes such as interactivity and telepresence (Chen et al., 2022; Yoo, 2023), trust's role as a direct behavioral determinant has received limited explicit examination. Nonetheless, emerging qualitative evidence underscores its criticality. Romano et al. (2021) identified that absent psychological reassurance, risks associated with AR representations can exacerbate post-purchase dissonance, undermining retention. Moreira (2024) demonstrated that personalization accuracy enhances trust, which subsequently stimulates repurchase intentions. From relational exchange theory, trust reduces transaction costs associated with monitoring and verification, thereby facilitating efficient repeat exchanges (Rousseau et al., 1998). In digital retail, trust substitutes for tangible product evaluation and interpersonal interaction are available in physical stores, serving as a heuristic simplifying repurchase decisions (Gefen

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et al., 2003). Therefore, this paper hypothesizes consumer trust positively influences repurchase intention.

While direct effects of personalized AR on repurchase intention possess theoretical support, the psychological mechanisms through which technological stimuli influence behavioral outcomes warrant explicit examination. Mediation analysis unveils these underlying processes, offering richer explanatory power than direct-effect models alone (Hayes, 2017). Conceptually, consumer trust represents a critical psychological state through which personalized AR experiences translate into behavioral loyalty. When consumers perceive that personalization accurately reflects preferences, respects privacy, and delivers genuine value, trust emerges as a cognitive-affective response (Poushneh & Vasquez-Parraga, 2017). This trust reduces perceived risk and increases confidence in future transactions, thereby motivating repurchase behavior. Empirical investigations substantiate trust's mediating role in technology-behavior relationships. Chen et al. (2022) documented that technological features influence purchase intentions indirectly through trust formation. Romano et al. (2021) established that psychological reassurance mechanisms mediate relationships between AR attributes and satisfaction. Trust's mediating role proves particularly salient within Saudi Arabia's cultural context, where privacy sensitivities and data security concerns significantly influence digital technology adoption (Du et al., 2022). Saudi consumers exhibit heightened caution regarding personal information sharing, rooted in cultural values emphasizing privacy (Hofstede, 2001). Consequently, personalized AR experiences successfully building trust through transparent practices may overcome adoption barriers more effectively than technological sophistication alone. Despite trust's theoretical centrality, existing AR literature exhibits notable gaps in empirically testing trust mediation. Gulf region research remains scarce and conceptually limited. Hilal and Saud's (2023) survey of 812 Saudi consumers examined AR attributes but omitted personalization and trust constructs entirely. Poushneh and Vasquez-Parraga (2017) identified perceived control as a satisfaction determinant yet found AR's novelty insufficient for sustained adoption — implicitly underscoring trust's importance without directly testing it. Yoo (2023) investigated interactivity in mobile commerce but failed to integrate personalization or trust dimensions. Therefore, this study hypothesizes consumer trust mediates the relationship between personalized AR experiences and repurchase intention.

Systematic literature synthesis reveals three critical deficiencies. First, personalization remains conceptually underdeveloped and inadequately operationalized as a distinct AR construct (Chen et al., 2022; Du et al., 2022). Second, despite theoretical centrality, AR research has afforded trust surprisingly limited explicit examination (Moreira, 2024; Romano et al., 2021). Third, contextual validity remains constrained, as Gulf region empirical evidence exhibits conceptual omissions and fails to examine personalization-trust linkages (Alkadi & Abed, 2025; Hilal & Saud, 2023). Addressing these gaps, this study investigates how personalized AR experiences influence consumer trust and repurchase intention among consumers in Tabuk, Saudi Arabia, with consumer trust proposed as a mediating mechanism. By explicitly operationalizing personalized AR, formally modeling trust's mediating role, and testing relationships within an underexamined cultural context, this research extends S-O-R framework applications while providing empirical evidence from a Gulf market characterized by distinct cultural values.

Accordingly, this study aims to investigate how personalized augmented reality experiences influence consumer trust and repurchase intention among consumers in Tabuk, Saudi Arabia, proposing consumer trust as a mediating variable.

Based on the literature review, the following hypotheses were formulated to assess the validity of the information identified, which can then be validated through rigorous statistical analysis:

H1: Personalized AR experiences positively influence consumer trust.

H2: Personalized AR experiences positively influence repurchase intention.

H3: Consumer trust positively influences repurchase intention.

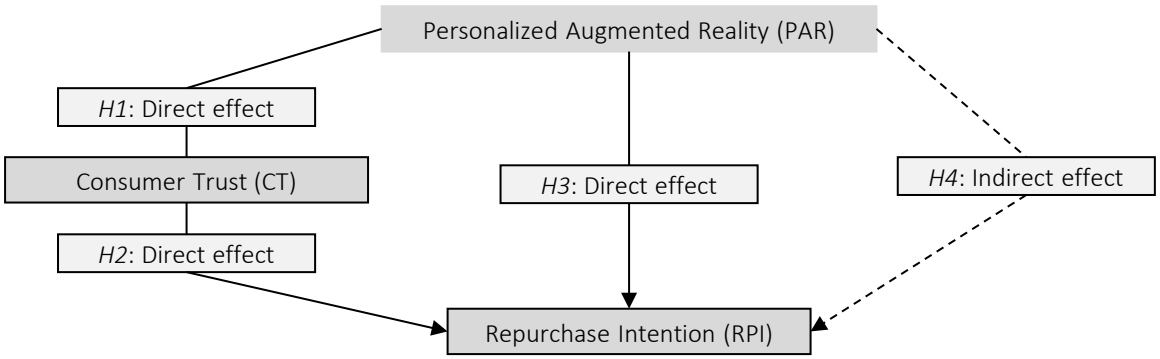

Figure 1. Conceptual framework

H4: Consumer trust mediates the relationship between personalized AR experiences and repurchase intention.

The conceptual model guiding the analysis is shown in Figure 1.

2. METHODOLOGY

This research adopted a quantitative field design to examine the relationships between personalized augmented reality experiences, consumer trust and repurchase intention among consumers in Tabuk, Saudi Arabia, considering consumer trust as a mediating variable. Data collection took place between September and October 2025 across all retail consumers residing in Tabuk, Saudi Arabia as a target population. Tabuk was selected as the study context because it represents a distinctive demographic and cultural segment, offering a relevant context for examining personalized Augmented Reality (AR) experiences, particularly in relation to consumer trust and repurchase intention. The sample frame included: Visitors to major shopping malls (e.g. Tabuk Park Mall), customers at fashion and cosmetics outlets offering AR features, and social media users in Tabuk through diverse platforms such as Instagram, Snapchat, TikTok, WhatsApp (These platforms were selected due to their accessibility and relevance to the AR context within fashion and cosmetics retail sectors). To ensure adequate representation, the sample included gender, age cohorts (e.g., Gen Z, Millennials, and older consumers) considering the differential familiarity with AR technology. This method aligns with prior marketing and technology adoption studies that have examined emerging consumer technologies in specific geographic settings (Hair et al., 2014; Pantano et al., 2017; Javornik, 2016). To achieve a balanced and representative sample, random sampling technique was applied.

A structured questionnaire served as the primary data collection tool. A pilot study with 30 participants assessed the clarity and comprehensibility of the questionnaire, resulting in minor refinements before full-scale distribution. Participation was voluntary and anonymous, ensuring confidentiality and ethical compliance. The finalized version was distributed through both digital and physical channels to increase participation rates each participant was allowed to respond once. No repeated measures were taken. The Local Research Ethics Committee (LREC) approved the study under the following details:

- Approval No.: UT-715-320-2025
- Approval date: 25-09-2025
- Review type: fast-track

All participants received detailed information about the study's objectives, confidentiality protections, and voluntary nature. Respondents were assured that they could withdraw at any point without penalty. No personal identifiers were recorded, and responses were stored securely in password-protected files accessible only to the principal investigator

The questionnaire comprising 18 items, were carefully selected from previous studies because of their relevance to the study variables and their suitability for accurately measuring the responses of the study sample, each measured on a five-point Likert scale (1 = strongly disagree; 5 =

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Table 1. Measurement items and constructs source

Variables	Items	Source
Personalized AR Experience (PAR)	7	Herliana et al. (2024) Moreira (2024), Yoo (2023), Razak (2024), Chen et al. (2022), Hilal and Saud (2023), Jiawei (2025)
Consumer Trust (CT)	6	Poushneh and Vasquez-Parraga (2017), Hilal and Saud (2023), Yoo (2023), Du et al. (2022), Razak (2024), Moreira (2024)
Repurchase Intention (RPI)	5	Fakhiratunisa et al. (2025), Chen et al. (2022), Santoso et al. (2022), Yoo (2023), Hilal and Saud (2023), Moreira (2024)

strongly agree). Three constructs were included, Personalized AR Experience, Consumer Trust (CT), and Repurchase Intention (RPI), all of which adapted from previous studies (see Table 1).

The data analysis was performed using SPSS and AMOS version 28 (Thakkar, 2020). A systematic, multi-stage approach was employed to ensure both the reliability of the measurement instruments and the validity of the structural model. Descriptive statistics were first applied to summarize the demographic characteristics of the sample. The survey questionnaire contained four demographics questions and three questions related to using AR techniques during shopping as shown in Table 2.

Table 2. Demographic and behavioral characteristics of respondents

Category	Classification	Percentage of respondents
Age	<18	0.7
	18-24	44.7
	25-34	23.0
	35-44	20.4
	45+	11.2
Gender	Male	55.9
	Female	44.1
Education level	High school	13.8
	Undergraduate	69.7
	Postgraduate	10.5
	Others	5.9
Income levels (SAR)	<5,000	58.6
	5,000-10,000	21.7
	10,000-15,000	13.2
	>15,000	6.6
AR shopping experience	Yes	64.5
	No	35.5
AR usage rate	Always	17.8
	Often	33.6
	Sometimes	36.8
	Rarely	11.8
Preferred AR products	Clothing and fashion	42.8
	Cosmetics	38.2
	Furniture and décor	11.2
	Other	7.9

The study sample comprised 152 respondents from Tabuk, Saudi Arabia, providing valuable insights into the demographic and behavioral characteristics of consumers engaging with PAR shopping experiences. As shown in Table 2, gender distribution was relatively balanced, with 55.9% female and 44.1% male participants. The majority were young adults, with 44.7% aged 18-24 years and 23.0% aged 25-34 years, while only 11.2% were aged 45 and above, reflecting a predominantly youthful consumer base for AR-enabled retail environments. Educational attainment was notably high, consistent with the target market's propensity for technological adoption: 69.7% were undergraduates, followed by 13.8% high school graduates and 10.5% postgraduates. Monthly income levels indicated that most participants fell within lower- to middle-income brackets, a key consideration when interpreting purchasing and repurchase behaviors. Specifically, 58.6% earned less than 5,000 SAR, 21.7% between 5,000-10,000 SAR, and only 6.6% above 15,000 SAR. Importantly, AR engagement was substantial, with 64.5% reporting prior experience using AR tools in shopping. Among these, 51.4% used AR "often" or "always," while 36.8% used it "sometimes," suggesting that AR has become an active and emerging component of consumer decision-making. Product preferences revealed that AR shopping was most popular in fashion (42.8%) and cosmetics (38.2%), highlighting its relevance for categories emphasizing style, fit, and personal appearance.

3. RESULTS

Regarding descriptive statistics of the study variables, the questionnaire included 18 items grouped into three variables based on a five-point Likert scale. Table 3 presents the descriptive statistics for all items measuring PAR, CT, and RPI.

Table 3 indicates the descriptive statistics for all items measuring PAR, CT, and RPI. The results

Table 3. Descriptive statistics of scale items

Variables	Construct item	Mean	SD	Min	Max	N
PAR	Using Augmented Reality (AR) technology provides me benefits in selecting products.	3.86	0.98	1	5	152
	AR technology offered me useful suggestions tailored to my preferences in choosing products.	3.83	1.03	1	5	152
	I felt that the AR content was relevant to my personal needs.	3.82	0.98	1	5	152
	I have the ability to interact with the AR system to personalize my experience.	3.93	0.99	1	5	152
	The AR tool helped me visualize the product in a way that fits my needs.	3.93	0.98	1	5	152
	AR makes it easy to virtually try on many products before making a purchase decision.	3.89	1.01	1	5	152
	I feel excited when using AR to try different products.	3.88	1.06	1	5	152
CT	I trust the information provided about the product through AR technology.	3.61	1.04	1	5	152
	I believe the AR system is safe and reliable.	3.62	1.00	1	5	152
	I feel confident in using the AR tool to make product-related decisions.	3.70	1.01	1	5	152
	I trust that my personal data are protected when using AR technology.	3.66	1.05	1	5	152
	I trust that the AR experience accurately reflects the actual product.	3.74	0.97	1	5	152
	The AR feature increases my trust in the products I use.	3.72	1.01	1	5	152
RPI	I intend to repurchase these products after using AR technology.	3.82	0.92	1	5	152
	I am likely to use this AR experience again in the future.	3.95	0.84	1	5	152
	The AR experience has positively influenced my intention to purchase in the future.	3.90	0.91	1	5	152
	I will continue purchasing products that offer this type of AR experience.	3.87	0.93	1	5	152
	I will recommend others to try AR when purchasing products.	3.98	0.88	1	5	152

provide insights into participants' attitudes toward the use of Augmented Reality (AR) in fashion, cosmetics, furniture and décor shopping contexts.

Personalized AR Experience (PAR): respondents demonstrated positive perceptions toward the personalization of AR technologies. The item "I have the ability to interact with the AR system to personalize my experience" (M = 3.93, SD = 0.99) and "The AR tool helped me visualize the product in a way that fits my needs" (M = 3.93, SD = 0.98) achieved the highest mean scores among PAR items, reflecting users' appreciation of AR's interactive and adaptive functions. Similarly, items addressing the ability of AR to provide virtual trials (M = 3.89, SD = 1.01) and to stimulate excitement (M = 3.88, SD = 1.06) indicate strong engagement with AR experiences. By contrast, the item "I felt that the AR content was relevant to my personal needs" (M = 3.82, SD = 0.98) received the lowest mean in this category, though still above the scale midpoint, suggesting that while personalization is generally effective, some participants found room for improvement in content alignment with personal preferences.

Consumer Trust (CT): The analysis reveals moderate-to-high trust in AR systems. The item "I trust that the AR experience accurately reflects the actual product" achieved the highest mean score in this construct (M = 3.74, SD = 0.97), indicating participants' confidence in the reliability of AR product representations. This is followed by "The AR feature increases my trust in the fashion and cosmetic products I use" (M = 3.72, SD = 1.01) and "I feel confident in using the AR tool to make product-related decisions" (M = 3.70, SD = 1.01). On the other hand, the lowest ratings were observed for "I trust the information provided about the product through AR technology" (M = 3.61, SD = 1.04) and "I believe the AR system is safe and reliable" (M = 3.62, SD = 1.00). These results suggest that while consumers generally trust AR experiences, some concerns remain regarding data protection and system security, as reflected by "I trust that my personal data are protected when using AR technology" (M = 3.66, SD = 1.05).

Repurchase Intention (RPI): Participants expressed highly favorable attitudes toward repurchasing behaviors influenced by AR. The highest-rated item was "I will recommend others to try AR

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when purchasing products" (M = 3.98, SD = 0.88), indicating strong word-of-mouth potential generated by positive AR experiences. This was closely followed by "I am likely to use this AR experience again in the future" (M = 3.95, SD = 0.84). Moreover, items such as "The AR experience has positively influenced my intention to purchase in the future" (M = 3.90, SD = 0.91) and "I will continue purchasing products that offer this type of AR experience" (M = 3.87, SD = 0.93) further reinforce the significant impact of AR on consumer loyalty. The lowest in this dimension, though still positive, was "I intend to repurchase these products after using AR technology" (M = 3.82, SD = 0.92). Overall, these findings highlight the substantial influence of AR on both actual repurchase intentions and positive consumer advocacy.

Assessments of reliability and validity are performed to gauge the consistency and precision of questionnaire items. To ascertain reliability, Cronbach's Alpha was employed, yielding values ranging from zero to one (Salkind, 2017, Raykov, 1997). Table 4 displays the Cronbach's Alpha coefficient alongside the validity coefficient each variable included in the questionnaire.

Table 4 presents the descriptive statistics and reliability indices for the study variables. The results indicate that respondents reported relatively high mean scores across all constructs, suggesting generally positive evaluations. PAR recorded a mean of 3.88 (SD = 0.90), reflecting a favorable perception of augmented reality personalization. CT exhibited a mean of 3.67 (SD = 0.90), which indicates a moderately high level of trust among consumers toward AR-based shopping contexts. RPI showed the highest mean of 3.90 (SD = 0.80), suggesting a strong inclination among participants to engage in repeated purchases facilitated by AR experiences.

The internal consistency reliability of the scales was evaluated using Cronbach's alpha. All constructs demonstrated excellent reliability, with coefficients well above the commonly accepted threshold of 0.70 (Nunnally & Bernstein, 1994). Specifically, PAR achieved an α of 0.958, CT reported α = 0.946, and RPI obtained α = 0.937. These values confirm the robustness and reliability of the measurement instruments employed in this study. The high reliability coefficients further underscore the suitability of the scales for subsequent inferential analyses, ensuring that the constructs are measured consistently and without substantial error. The inter-construct correlations and discriminant validity are shown in Table 5.

Table 5. Inter-construct correlations and discriminant validity

Analysis	PAR	CT	RPI
Pearson correlation			
PAR	1		
CT	.721**	1	
RPI	.694**	.781**	1
Fornell-Larcker criterion			
PAR	0.872		
CT	0.721	0.885	
RPI	0.694	0.781	0.901
HTMT ratio			
CT	0.758		
RPI	0.728	0.843	

Note: **p < .001. Diagonal (bold) values in the Fornell-Larcker section are the square roots of the Average Variance Extracted (AVEs).

As shown in Table 5, all constructs are strongly and positively correlated at a significance level of *p* < .001. The strongest correlation exists between CT and RPI (*r* = .781), providing preliminary support for *H3*. The correlation between PAR and CT (*r* = .721) also initially supports *H1*.

The assessment of discriminant validity was conducted using two methods and confirmed that the constructs are empirically distinct. First, the Fornell-Larcker criterion (Fornell & Larcker, 1981) was met, as the square root of the Average Variance Extracted (AVE) for each construct (diagonal val-

Table 4. Descriptive statistics and scale reliability

Variables	Items	Mean	SD	Cronbach's α
Personalized AR Experience (PAR)	7	3.88	0.90	0.958
Consumer Trust (CT)	6	3.67	0.90	0.946
Repurchase Intention (RPI)	5	3.90	0.80	0.937

Note: N = 152. All variables measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). AVE = Average Variance Extracted.

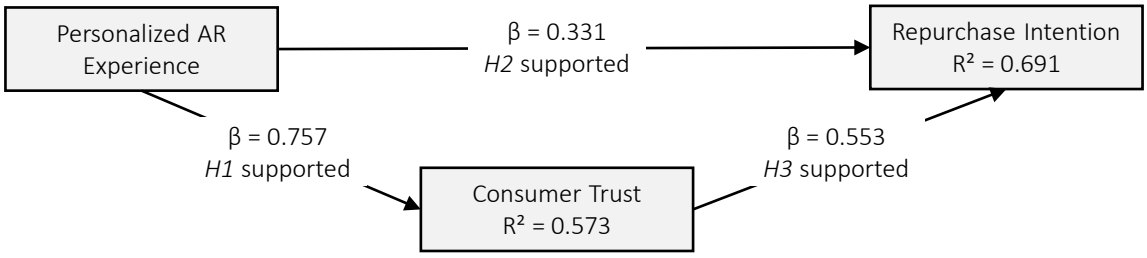

Figure 2. Structural model with path coefficients

Table 6. Results of hypothesis testing (path analysis)

Hypothesis and path	β	t-value	p-value	R^2	Support
H1: PAR → CT	0.757	14.202	< .001	0.573	Yes
H2: PAR → RPI (direct)	0.331	4.743	< .001		Yes
H3: CT → RPI	0.553	7.927	< .001	0.691	Yes

Note: The model for RPI includes both PAR and CT as predictors.

ues) is greater than its highest correlation with any other construct (off-diagonal values). This finding was further confirmed by a more conservative assessment using the Heterotrait-Monotrait (HTMT) ratio of correlations. All HTMT values were well below the recommended threshold of 0.85 (CT-PAR = 0.758; RPI-PAR = 0.728; RPI-CT = 0.843). This confirms that the respondents in this study clearly distinguished between the concepts of personalized augmented reality, consumer trust, and repurchase intention, affirming that these constructs are both theoretically and empirically distinct.

For testing the hypotheses, Structural Equation Modeling (SEM) was conducted in AMOS 28 to test the hypothesized relationships among the study variables. Path analysis was performed to examine direct effects, while the explanatory power of the model was evaluated using the coefficient of determination (R^2) and global model fit indices. The results are summarized in Table 6 and visualized in Figure 2.

Figure 2 presents the results of the hypothesis testing, showing the significant path coefficients and the variance explained (R^2) in the dependent constructs.

The results provide strong support for the first three hypotheses. *H1* is supported, indicating that Personalized AR experiences have a large, statistically significant positive effect on Consumer Trust ($\beta = 0.757$, $p < .001$). This means that when users perceive the AR tool as beneficial, useful, and customizable, their trust in the technology and the product information it provides increases substantially. This finding aligns with the Stimulus-Organism-Response framework, where the AR features (Stimulus) positively influence the internal state of trust (Organism). Furthermore, Personalized AR explains 57.3% of the variance in Consumer Trust ($R^2 = 0.573$), demonstrating a strong predictive power. *H2* is also supported, showing a significant direct effect of PAR on Repurchase Intention ($\beta = 0.331$, $p < .001$). This confirms that even without the mechanism of trust, a positive AR experience directly influences a consumer's decision to buy again. *H3* is supported with the strongest path coefficient in the model ($\beta = 0.553$, $p < .001$), underscoring that trust is a paramount and powerful driver of repurchase intention. Together, PAR and CT explain a remarkable 69.1% of the variance in Repurchase Intention ($R^2 = 0.691$), indicating a very robust model. Figure 3 decomposes the total effect of PAR on RPI into its direct and indirect (mediated through CT) components, confirming partial mediation. *H4* proposed that Consumer Trust mediates the relationship between Personalized AR and Repurchase Intention.

The results of the mediation analysis are presented in Figure 3.

The analysis confirms partial mediation, thus supporting *H4*. The significant indirect effect (a*b =

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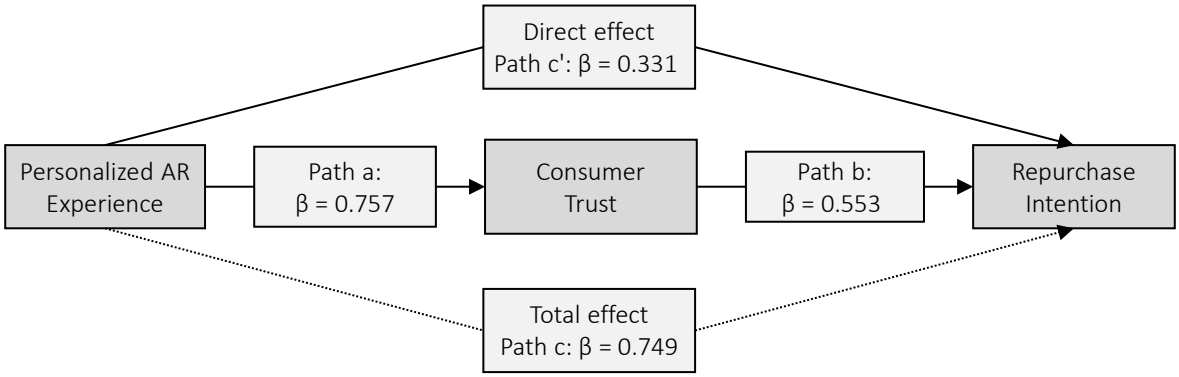

Figure 3. Mediation model (direct and indirect effects)

0.757 × 0.553 = 0.418) confirms that Personalized AR builds Repurchase Intention by first building Consumer Trust. This is a key mechanistic insight: AR technology is not just a fun gadget; it is a tool that fosters credibility and reliability, which are fundamental to securing future business. The fact that the direct effect (c = 0.331) remains significant even when accounting for the mediator suggests that other factors not included in this model also play a role. For instance, factors like perceived enjoyment, flow, or unique value offered by the AR experience might also directly influence a user's intention to repurchase. The total effect of PAR on RPI (c = 0.749) is the sum of the direct and indirect effects, demonstrating the overall substantial impact of personalized AR experiences on fostering customer loyalty.

In conclusion, the data robustly support all four hypotheses, painting a clear picture: PAR experiences in the retail sector are a powerful tool for directly driving RPI and, more importantly, for building CT that is essential for long-term customer relationships. The noted issue with discriminant validity between trust and RPI calls for further research but also highlights their profound interconnectedness in this context.

4. DISCUSSION

The results of this research generally affirm the proposed research model. The outcomes agree with several prior studies, having been implemented in a distinct market sector and geographical area. However, some findings diverge from earlier research, contributing new insights for future investigations, thereby enhancing the theoretical framework within the research domain. The findings lend robust support to the four hypotheses. Hypothesis 1 is validated, demonstrating that PAR experiences exert a significant positive impact on CT. This indicates that when users view the AR tool as advantageous, functional, and tailored to their needs, their trust in both the technology and the product information it delivers markedly increases. Such an enriched experience allows consumers to obtain realistic and engaging information, thereby improving their overall satisfaction with the service or product. This observation is consistent with (Du et al., 2022; Razak, 2024; Moreira, 2024; Nguyen et al., 2025) who established a positive link between AR and trust but did not consider PAR experiences in their studies. Hypothesis 2 is further substantiated, demonstrating a notable direct impact of PAR on Repurchase Intention. This indicates that even in the absence of trust mechanisms, a favorable AR experience directly affects a consumer's choice to make a repeat purchase. This result is consistent with the assertions made by Fakhiratunisa et al. (2025), Santoso et al. (2022), and Zadegan et al. (2022), who argue that PAR has led to greater confidence in product choice, thereby increasing the likelihood of repeat purchases. Hypothesis 3 is also validated by the most significant path coefficient within the model, highlighting that trust serves as a crucial and influential factor in driving repurchase intention. This result corroborates the findings of Romano et al. (2021) and Moreira (2024), who identified that the precision of personalization boosts trust, which in turn fosters repurchase intentions. Ultimately, the analysis substantiates the notion of partial mediation, thereby supporting Hypothesis 4, which

posits a mediated relationship. It affirms that PAR enhances RPI by initially fostering CT. This represents a crucial mechanistic insight: AR technology transcends being merely an entertaining device; it serves as a mechanism that cultivates credibility and reliability, both of which are essential for securing future business engagements. This perspective diverges from the findings of Hilal and Saud (2023) and Alkadi and Abed (2025), who demonstrated that customer satisfaction served as a mediator for the influence of AR on repurchase intention, even in the absence of trust within their framework. Expanding upon this rationale, trust can act as a relational mechanism that enables the transformation of personalized AR experiences into repeat purchasing behavior.

CONCLUSION

This study aimed to investigates how personalized augmented reality experiences influence consumer trust and repurchase intention among consumers in Tabuk, Saudi Arabia, proposing consumer trust as a mediating variable. The results of this study strongly corroborate all four hypotheses, illustrating a distinct narrative: Personalized Augmented Reality experiences within the retail sector serve as a significant mechanism for directly influencing repurchase intentions and crucially fostering consumer trust, which is vital for sustaining long-term customer relationships. The identified concern regarding discriminant validity between trust and repurchase intention necessitates additional investigation, yet it also underscores their deep interrelation in this context.

The findings of this study offer both theoretical and practical implications. Theoretically, the results offer new insights into how PAR affects CT and repeat purchase, including previously unexamined technological interactions. Additionally, the positive effects on customer attitude present practical recommendations for effectively leveraging these tools in the retail sector. The results of this study provide many practical applications for beneficiaries in applying augmented reality technologies, which will further improve consumer engagement and loyalty. Also, provide actionable insights for companies developing AR personalization strategies that need to reconcile relevance with privacy. Companies should focus on improving the accuracy and ease of use of their simulations to maximize consumer trust and purchase likelihood.

While this study offers significant insights, it also reveals limitations that indicate potential paths for additional research and development. This investigation utilizes a quantitative approach to explore the relationships among variables; subsequent studies might gain from employing qualitative or longitudinal methods. The sample size and demographic makeup of the study may restrict its applicability across various consumer segments and geographic areas. Future inquiries could involve larger and more varied samples to confirm findings across wider populations. Moreover, there is a need for deeper exploration into how emerging technologies such as AR, VR, and AI influence shopping experiences. These technologies are swiftly transforming consumer interactions, which may affect perceived value, trust, and satisfaction. Grasping these transformations is essential for retailers aiming to maintain competitiveness. These recommendations delineate specific pathways for future research to tackle existing limitations and enhance the knowledge base in this domain.

AUTHOR CONTRIBUTIONS

Conceptualization: Manal Edrees.
Data curation: Manal Edrees.
Formal analysis: Manal Edrees.
Funding acquisition: Manal Edrees.
Investigation: Manal Edrees.
Methodology: Manal Edrees.

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Project administration: Manal Edrees.
Resources: Manal Edrees.
Software: Manal Edrees.
Validation: Manal Edrees.
Visualization: Manal Edrees.
Writing – original draft: Manal Edrees.
Writing – review & editing: Manal Edrees.

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APPENDIX A

QUESTIONNAIRE

Title: How personalized AR experiences influence consumer trust and repurchase intention: Evidence from Tabuk, Saudi Arabia

Dear Sir/Madam,

The attached questionnaire aims to collect data for a scientific research study on: How personalized AR experiences influence consumer trust and repurchase intention: Evidence from Tabuk, Saudi Arabia. We greatly appreciate your assistance in completing this survey. Your participation is completely voluntary. We assure you that all the information you provide will be kept confidential and used only for research purposes. You have the right to withdraw at any point without any consequences.

Please place a check mark (✓) next to the option that best represents your opinion on the statement.

Table A1. Section one: general information about the individual

No	Variable	Category	✓
1	Gender	Male	
		Female	
2	Age	Less than 18	
		18-24	
		25-34	
		35-44	
		45+	
3	Education level	High school	
		Undergraduate	
		Postgraduate	
		Other	
4	Income level	Below 5,000 SAR	
		5,000-10,000 SAR	
		10,000-15,000 SAR	
		Above 15,000 SAR	
5	Have you ever used augmented reality technology while shopping?	Yes	
		No	
6	Augmented reality usage rate	Daily	
		Weekly	
		Monthly	
		Rarely	
7	What type of products do you prefer to purchase using augmented reality technology?	Fashion	
		Beauty	
		Electronics	
		Other	

Table A2. Section two: study variables

5-point Likert scale questions (1= strongly disagree, 5 = strongly agree)

No.	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Personalized AR Experience (PAR)						
1	The use of AR provides benefits for me in choosing cosmetic products					
2	The AR application provided suggestions tailored to my preferences.					
3	I felt the AR content was relevant to my personal needs.					
4	I was able to interact with the AR system to customize my experience.					
5	The AR tool helped me visualize the product in a way that matched my needs.					
6	AR makes it easier for me to try various fashion and cosmetic products before buying a product.					
7	I feel enthusiastic when using AR to try various fashion and cosmetic products.					
Consumer Trust (CT)						
8	I trust the product information provided through the AR application.					
9	I believe the AR system is secure and reliable.					
10	I feel confident in using the AR tool for product-related decisions.					
11	I trust that my personal data are protected when using the AR application.					
12	I believe the AR experience reflects the actual product accurately.					
13	The AR feature increases my trust in the fashion and cosmetic products I used.					
Repurchase Intention (RPI)						
14	I intend to repurchase these products after using the AR application.					
15	I am likely to use this AR experience again in the future.					
16	The AR experience positively influenced my likelihood of making future purchases.					
17	I will continue buying products that offer this type of AR experience.					
18	I will recommend this AR experience to others when buying products.					

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