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Exploring the relationship between cognitive, affective, behavioral responses to Augmented Reality among customers in banking sector

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Abstract
This study explores the advantage of Augmented Reality (AR) based applications in banking industry. Augmented Reality (AR) offers banks an opportunity to present financial products and services through interactive, informative, immersive, and realistic digital experiences. Customers reactions to the AR based applications are taken into consideration. A quantitative research design was adopted to examine the proposed relationships. Data were collected from 402 customers of public and private banks using a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 3.0. Bootstrapping was employed to assess the significance of direct, and indirect relationships among the constructs. The findings showed that the Media usefulness and Choice confidence act as mediators between Product informativeness and Reality congruence leading to customers intention to purchase the banking products. The customers need information on the products and need to be confident enough while making financial decisions.
Keywords: Augmented Reality, AR banking, Customer experience, immersion, Enjoyment, Product liking, Media usefulness, Choice confidence, Purchase intention, Reuse intention.

1. Introduction
In today's era, the banking sector focused on creation of customer experiences rather than just focusing on marketing and selling of banking products. The online experiences will be effective if the physical separation between customers and products is less. The rapid advancement of various technologies and diffusion of mobile devices provided banks an option to present their products and increase experiences. Compared to conventional digital interfaces, Augmented Reality (AR) provides customers with interactive, immersive and realistic experiences that can create opportunities for banks to influence customer experiences and behavioral intentions. Banks have transformed from conventional banking to contemporary banking where customers expect interactive, convenient and personalized experiences through various digital touch points. Immersive technologies such as Augmented Realty provide different form of interaction by providing customers an interface to explore, visualize and interact with various financial products and services in more experiential environments. Mukerjee (2024) explored AR's influence on cognitive, emotional, and behavioral customer engagement and purchase intention among Indian e-banking customers. Butt et al. (2024) examined AR brand experience, satisfaction, enjoyment, continuous intention, and brand loyalty in the context of banking. Most of the AR evidence comes from retailing or e-commerce, rather than banking. Limited research explains how AR characteristics effect customers' cognitive and affective responses and how these influence purchase intention and reuse intention in banking.

1.1.Theoretical Framework
Lemon and Verhoef (2016) defined customer journey as a dynamic and iterative process comprising of pre-purchase, purchase and post-purchase stages. During this journey, customer interact with various touchpoints viz., Mobile banking applications, Banking websites, AR-enabled interfaces, virtual

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branches, virtual financial advisors and avatars as well as metaverse environment.AR has a potential to become a core touchpoint where customers receive information, evaluate various alternatives, interact with various services and develop either the usage or purchase intentions.AR can act as an enhancement for the marketing mix as follows: Product: By visualizing and demonstration of various banking services/products Price: By interactively presenting the fees, rates, various charges and financial costs.
Place: By providing immersive access to various banking services and virtual branches Promotion: By communication of banking services/products in an immersive and interactive manner. According to EHM (Experiential/Hedonic Consumption model), customers not only depend on the functional characteristics in evaluating a product but also derive the value from the experiences that surround the consumption (Holbrook &Hirschman,1982). The EHM model describes that environmental or customer inputs are managed by intervening response system. The cognitive, affective and behavioral responses are elicited by these inputs thereby further leading to real usage or purchase intentions. Within the proposed conceptual framework, immersion (IM), enjoyment (ENJ), and product liking (PL) represent the affective dimensions, while Media Usefulness (MU) and choice confidence (CC) reflect the cognitive dimensions. Purchase intention (PU) and reuse intention (RI) represent the behavioral responses. The AR characteristics are Interactivity (INT), system quality (SQ), product informativeness (PI) and Reality Congruence (RC).

2. Literature Review

2.1.Interactivity (INT)

Immersion and enjoyment are the emotional responses that consumers experience due to interactivity in AR-based product presentations. Immersion is defined to an extent to which customers are absorbed temporarily in AR created virtual product experiences (Palmer, 1995; Yim et al., 2017). Enjoyment is defined as an experience where customers perceive the usage of AR as pleasurable and satisfying experience but not because of any expected benefits or outcomes (Davis et al., 1992). These two experiences are related to the concept of flow which states that customers focus completely on an interaction with particular medium while irrelevant stimuli are being filtered out (Hoffman etal.,, 1996). Yim et al. (2017) explored that interactivity positively influences immersion in the context of Augmented Realty (AR). Higher levels of interactivity in AR product presentations can enhance customers sense of immersion. The customers can enjoy the virtual product experiences if they have an option to examine the particular products and customise the presentations effectively (Li, Daugherty, and Biocca (2001)). Based on previous inferences, we can notice that customers enjoyment of AR related experiences can be positively influenced by interactivity. Product liking is defined as customers affective or emotional evaluation of a particular product. Favourable product evaluations can be created by encouraging psychological ownership and imagining ownership (Kamleitneret al., 2015). Interactive AR experiences enhance customers familiarity with the product and encourages favourable attitudes leading to overall product liking.

- H1a) Interactivity positively influences immersion.
- H1b) Interactivity positively influences enjoyment
- H1c) Interactivity positively influences product liking.

2.2.System Quality (SQ)

Within a virtual environment, the quality of experience can be influenced by user experience and service quality. The Service quality comprises of system's technical characteristics such as response speed, reliability, system errors, and latency (Hamam, Eid, El Saddik, & Georganas, 2008). The effectiveness of the products presentation in AR context is dependent on ability of the system to operate smoothly and consistently. A well-functioning AR system can provide consumers with a seamless interaction which further increase the engagement of virtual product experience. Hence, there is a positive influence of system quality on customer immersion. Media Usefulness is seen as a cognitive outcome of the quality of an innovative technological system (Yang et al., 2016; Kowalczuk et al., 2018). Media Usefulness is defined as which consumers perceive AR technology to improve

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shopping process which includes product searching, product assessment and purchase decision making and further reducing the effort and time involved.

Customers[1] perceive the technology to be useful when the AR technology functions accurately, reliably and uninterrupted. The system quality, information quality and service quality contributes to Media Usefulness positively in AR environments (Kim et al.,2016).

- H2a) System quality positively influences immersion.
- H2b) System quality positively influences media usefulness[2].

2.3.Product informativeness (PI)

Customers perceive AR applications to be useful if they provide relevant and valuable information on various products (Olsson et al.,2013). The quality of information in AR applications positively contributes to consumers' perceived usefulness (Kim, Hwang, Zo, & Lee, 2016; Pantano et al., 2017; Kim & Hyun, 2016). The determinants of media usefulness are providing consumers with relevant and useful information[3].

- H3) Product informativeness positively influences media usefulness.

2.4.Reality Congruence (RC)

The effectiveness of customers visualization and evaluation of augmented products are influenced by the extent of realism in AR product presentations. The customer perceptions in using AR technology can be strengthened if the presentations are realistic.

Media Usefulness is influenced by vividness (Yim et al.,2017). Vividness indicates visual richness of a product representation and characteristics includes clarity, sharpness, resolution and level of detail. Customers perceptions of Media Usefulness is enhanced by higher reality congruence. Choice confidence is defined as customers understanding of their preferences and how they consider those to be reliable and accurate (Andrews, 2013). By using the AR technology, consumers not only can image product but can visualize and interact virtually before purchasing the same thereby reducing the uncertainty of the products. The 3-D presentation of products can improve consumers' certainty during online shopping by enabling them to assess products more effectively. Thus, a higher degree of reality congruence in AR product presentations is expected to positively influence consumers' choice confidence[4].

- H4a) Reality congruence positively influences media usefulness.
- H4b) Reality congruence positively influences choice confidence[5].
- Customers who are involved in an activity may not experience emotions during immersion stage instead develop positive emotions at the end (Mainemelis, 2001; Mainemelis et al., 2015). Immersion tends to have a positive effect on customers enjoyment of AR experiences.
- H5) Immersion positively affects enjoyment.
- Previous studies suggest that enjoyment plays a crucial role by encouraging both the technology adoption and reuse intention. Enjoyment has an ability to influence customers intention to use AR in a direct or indirect fashion by providing a favourable attitude toward the technology (Spreer et al., 2014; Pantano et al., 2017; Yim et al., 2017). By creating pleasurable AR experiences, it can strengthen the customers willing to use the technology again[6 -10].
- H6) Enjoyment positively affects reuse intention.
- Based on the Uses and Gratifications theory, customers tend to use and choose media so that they expect medium to satisfy the needs and benefits (Katz et al.,1973). Media Usefulness is a form of cognitive gratification that encourage customers in using a particular medium (Rauschnabel et al.,2018). Previous studies in AR research shows that perceived usefulness is a determinant of customers intention to adopt as well as continue using AR applications (Kim et al., 2016; Pantano et al., 2017; Rese et al., 2014, 2017). Thus, when consumers acknowledge AR as useful for achieving their goals related to shopping, they develop a stronger intention to reuse the technology[11 – 20].

Due to increasing number of products online, the product evaluation as well as purchase decision has become complicated due to limited time and need to

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process a lot of information.AR can overcome these challenges by providing customers to examine products in a virtual environment and process the relevant information. Decision support tools which are interactive in nature can increase the confidence of the customers in making their choices. Higher levels of media usefulness will significantly influence choice confidence[21 – 25].

- H7a) Media usefulness positively influences reuse intention.
- H7b) Media usefulness positively influences choice confidence.

According to feelings-as-information theory, customers while developing judgements and beliefs rely on the emotional reactions of particular object (Schwarz, 2012). The choice confidence emanates from consumer's personal reasoning, subjective inferences, and intuitive judgments (Andrews, 2013). The emotional responses that are positive for a product generate beliefs that are in line with the feelings (Verhagen & Bloemers, 2018). Hence, stronger product liking can significantly increase confidence of the customers in their product selection. The VR has the potential to provide a realistic understanding of the product due to enhanced visualisation and its assessment of potential in real life settings (Oh et al., 2008). This capability is extended by AR by providing, visualising and evaluating products in a real-life setting thereby enhancing the certainty of the product selection and strengthening the confidence in final purchase decision[26].

- H8) Product liking positively affects choice confidence.
- H9) Choice confidence positively affects purchase intention.

2.5.Mediating effects

As discussed in the preceding sections, the characteristics of augmented reality (AR) are expected to shape customer's affective and cognitive responses, which subsequently influence their behavioral intentions. Within the proposed conceptual framework, immersion, enjoyment, and product liking represent the affective dimensions, while media usefulness and choice confidence reflect the cognitive dimensions. These variables are positioned as mediators that explain the relationship between AR characteristics and consumers' behavioral responses. Thus, the proposed model assumes that the influence of AR characteristics on reuse intention and purchase intention occurs through these emotional and cognitive mechanisms. Based on this framework, the following mediation effects are proposed:

- H10a) The relationship between interactivity and reuse intention is mediated by immersion and enjoyment.
- H10b) The relationship between interactivity and reuse intention is mediated by enjoyment.
- H10c) The relationship between interactivity and purchase intention is mediated by product liking and choice confidence.
- H11a) The relationship between system quality and reuse intention is mediated by immersion and enjoyment.
- H11b) The relationship between system quality and reuse intention is mediated by media usefulness.
- H11c) The relationship between system quality and purchase intention is mediated by media usefulness and choice confidence.
- H12a) The relationship between product informativeness and reuse intention is mediated by media usefulness.
- H12b) The relationship between product informativeness and purchase intention is mediated by media usefulness and choice confidence. cu
- H13a) The relationship between reality congruence and reuse intention is mediated by media usefulness.
- H13b) The relationship between reality congruence and purchase intention is mediated by media usefulness and choice confidence.
- H13c) The relationship between reality congruence and purchase intention is mediated by choice confidence.

3. Method

3.1.Sampling and Data Collection

A judgemental sampling method was used to collect the responses from the customers by asking the mode

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of financial transaction they use for their transactions. A question related to the type of bank and mode of transaction usage was asked at the beginning of the questionnaire to make sure that instrument meet its goal. The questionnaire was distributed among the customers of both public and private sector banks. Respondents belonging to various banks such as ICICI,AXIS,HDFC,SBI,UBI and City Union Bank.

3.2.Demographic Statistics

From Table 1, We can notice that the highest number of respondents are between the age group of 25-35 years(n=130) followed by 35-50 years(n=105),15-25 years(n=104) and greater than 50 years(n=64). The gender distribution shows that about 284 respondents belong to male category and 119 were female. About, 225 respondents belong to private bank and 178 respondents belong to public bank.

3.3.Data Analysis

Descriptive statistics is calculated using SPSS 22. To validate the measurement mode, Confirmatory Factor Analysis (CFA) is used.PLS-SEM was calculated using SmartPLS 3 to test the hypothesized relationships. As shown in Table1 Descriptive Statistics.

3.4.Tables

Table1 Descriptive Statistics

Variable	Category	Frequency	Percentage (%)
Age Group(in years)	15-25	104	25.80%
	25-35	130	32.30%
	35-50	105	26.10%
	Above 50	64	15.90%
Total		403	100.00%
Gender	Male	284	70.50%
	Female	119	29.5
Total		403	100.00%
Bank Type	Private	225	55.80%
	Public	178	44.20%
Total		403	100.00%

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Table 2 Measurement Model

	CC	ENJ	IM	INT		PI	PL	PU	RC	RI	SQ	VIF
CC1	0.756											1.218
CC2	0.843											2.164
CC3	0.849											2.130
ENJ1		0.862										1.900
ENJ2		0.867										2.066
ENJ3		0.865										1.830
IM1			0.890									1.830
IM2			0.821									2.157
IM3			0.852									1.787
INT1				0.802								2.111
INT2				0.867								2.683
INT3				0.881								2.525
INT4				0.877								2.269
MU1					0.892							2.334
MU2					0.920							2.877
MU3					0.886							2.391
PI1						0.897						2.130
PI2						0.871						2.135
PI3						0.877						2.182
PL1							0.833					1.959
PL2							0.848					2.126
PL3							0.744					1.219
PU1								0.914				3.029
PU2								0.922				3.115
PU3								0.719				1.352
RC1									0.891			2.660
RC2									0.928			3.063
RC3									0.882			2.179
RI1										0.910		2.328
RI2										0.853		2.073
RI3										0.888		2.200
SQ1											0.776	2.299
SQ2											0.833	2.221
SQ3											0.780	2.465
SQ4											0.872	2.619
SQ5											0.831	1.956

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Table 3 Construct validity and Reliability

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CC	0.751	0.749	0.858	0.668
ENJ	0.832	0.835	0.899	0.748
IM	0.826	0.891	0.89	0.731
INT	0.881	0.903	0.917	0.735
MU	0.882	0.884	0.927	0.809
PI	0.858	0.868	0.913	0.778
PL	0.737	0.735	0.851	0.656
PU	0.815	0.848	0.891	0.735
RC	0.884	0.893	0.928	0.812
RI	0.861	0.881	0.915	0.781
SQ	0.885	0.91	0.911	0.671

Table 4 Fornell-Larcker Criterion

CC	ENJ	IM	INT	MU	PI	PL	PU	RC	RI	SQ
0.817										
0.115	0.865									
0.042	-0.071	0.855								
-0.031	-0.076	0.129	0.857							
0.596	0.039	0.102	0.085	0.900						
0.389	0.052	0.312	0.211	0.418	0.882					
0.133	-0.064	0.002	0.210	0.121	0.201	0.810				
0.665	0.065	0.078	0.028	0.451	0.498	0.221	0.857			
0.356	0.017	0.490	0.248	0.437	0.655	0.204	0.428	0.901		
0.132	0.633	-0.026	-0.048	0.052	0.037	-0.035	0.056	0.048	0.884	
-0.018	-0.016	-0.071	0.074	-0.008	-0.001	0.014	-0.009	0.021	0.053	0.819

INT-Interactivity SQ-Service Quality PI-Product Informativeness,RC-Reality Congruence,IM-Immersion,ENJ-Enjoyment,PL-ProductLiking,MU-Media Usefulness,CC-Choice Confidence, RI-Reuse intention,PI-Purchase Intention

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Table 5 Heterotrait-Monotrait Ratio

Constructs	CC	ENJ	IM	INT	MU	PI	PL	PU	RC	RI	SQ
CC											
ENJ	0.152										
IM	0.057	0.088									
INT	0.061	0.090	0.132								
MU	0.706	0.067	0.124	0.094							
PI	0.484	0.073	0.368	0.242	0.476						
PL	0.176	0.090	0.075	0.255	0.149	0.247					
PU	0.847	0.091	0.123	0.061	0.550	0.610	0.294				
RC	0.433	0.068	0.568	0.277	0.490	0.749	0.246	0.526			
RI	0.169	0.734	0.060	0.059	0.061	0.070	0.098	0.069	0.077		
SQ	0.034	0.040	0.067	0.097	0.031	0.032	0.045	0.041	0.041	0.079	

Table 6 Direct effects

		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Result
H1a	**INT -> IM**	0.135	0.138	0.067	2.02	0.043	Accepted
H1b	**INT -> ENJ**	-0.068	-0.069	0.05	1.351	0.177	Rejected
H1c	**INT -> PL**	0.21	0.213	0.062	3.379	0.001	Accepted
H2a	**SQ -> IM**	-0.081	-0.083	0.069	1.177	0.239	Rejected
H2b	**SQ -> MU**	-0.013	-0.007	0.056	0.239	0.811	Rejected
H3	**PI -> MU**	0.231	0.227	0.076	3.022	0.003	Accepted
H4a	**RC -> MU**	0.286	0.286	0.07	4.075	0	Accepted
H4b	**RC -> CC**	0.11	0.11	0.048	2.27	0.023	Accepted
H5	**IM -> ENJ**	-0.062	-0.062	0.052	1.204	0.229	Rejected
H6	**ENJ -> RI**	0.632	0.633	0.041	15.326	0	Accepted
H7a	**MU -> RI**	0.027	0.027	0.038	0.712	0.477	Rejected

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H7b	**MU -> CC**	0.543	0.541	0.051	10.587	0	Accepted
H8	**PL -> CC**	0.045	0.047	0.042	1.075	0.283	Rejected
H9	**CC -> PU**	0.665	0.665	0.046	14.341	0	Accepted

INT-Interactivity SQ-Service Quality PI-Product Informativeness,RC-Reality Congruence,IM-Immersion,ENJ-Enjoyment,PL-ProductLiking,MU-Media Usefulness,CC-Choice Confidence,RI-Reuse intention,PI-Purchase Intention As shown in Figure 1 Research Model Source.Kowalczuk et al.,(2021).

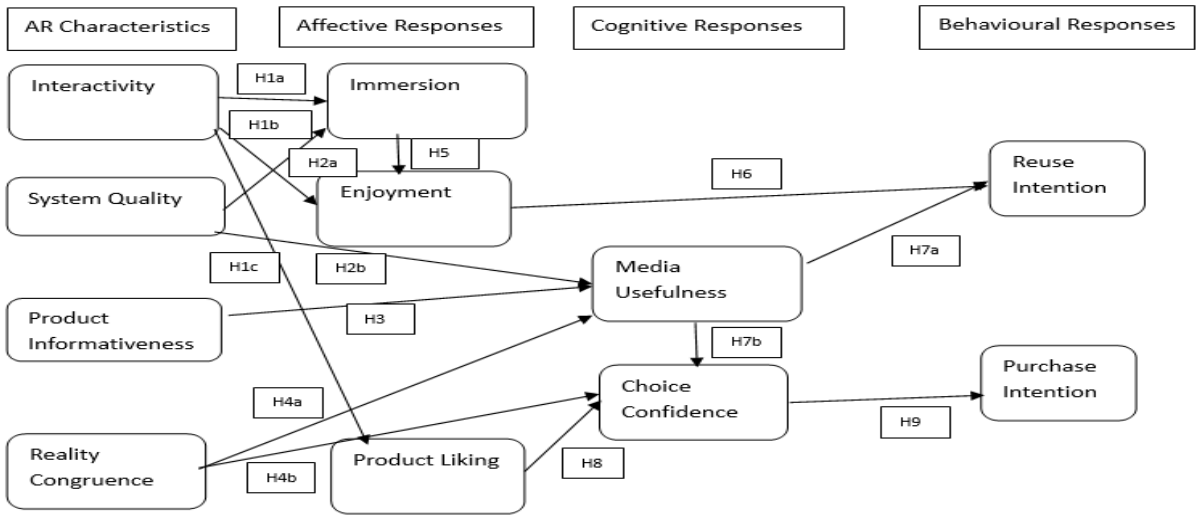

Figure 1 Research Model Source.Kowalczuk et al.,(2021)

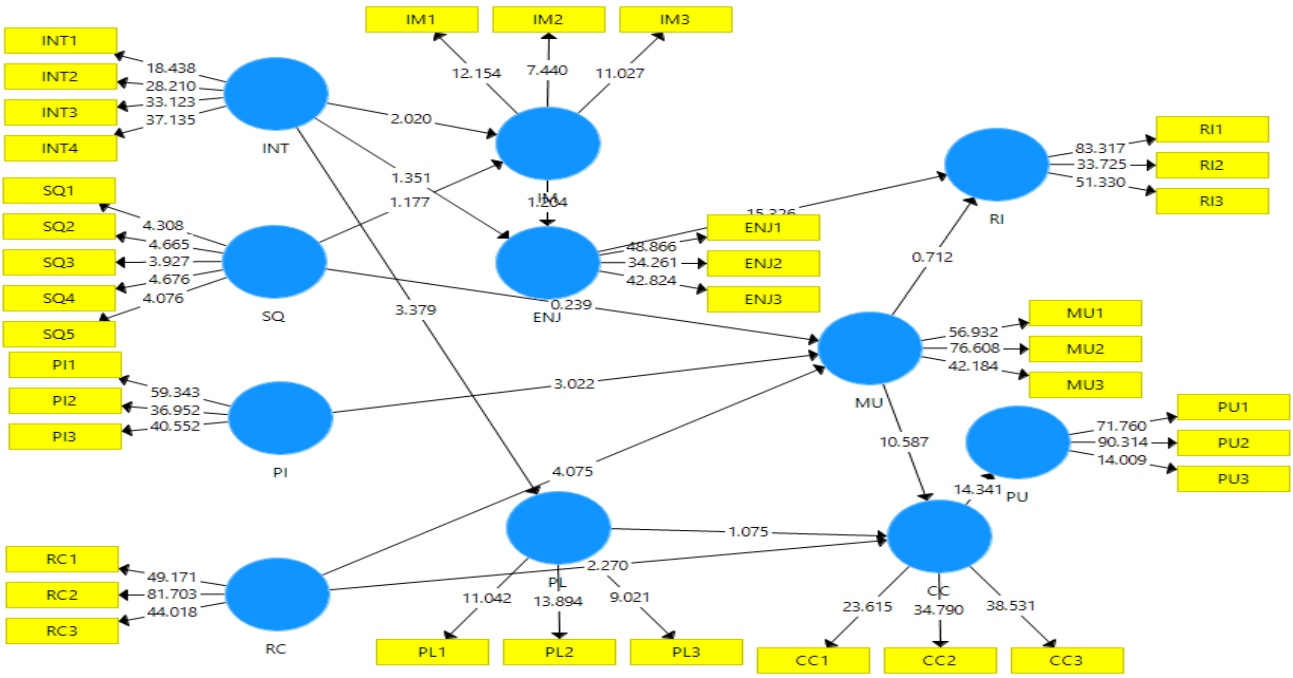

Figure 2 Structural Model

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4. Results

4.1.Outer Loadings

From Table2, we can notice that outer loadings ranged from 0.719 to 0.928 and all the indicators exceeded the minimum threshold of 0.70. In PLS-SEM, loadings above the minimum threshold or higher mean that the indicator is said to share substantial proportion of its variance with other latent constructs (Hair et al., 2022).

4.2.Convergent Validity

From Table3, the constructs exhibited reliability and convergent validity. The values of Cronbach's Alpha ranged from .737 to .885, while rho_A values ranged between .735 to .910 exceeding the minimum threshold of 0.70 providing reliability and internal consistency among the constructs (Hair et al., 2022). Also, Composite reliability values ranged from .851 to .928 proving the reliability of the constructs. The Average Variance Extracted (AVE) values ranged from .656 to .812 exceeding the recommended minimum threshold value of .50 for all constructs. Each construct is able to explain more than 50% of variance in its respective indicators leading to providing evidence of convergent validity (Hair et al., 2022). The findings explain that there is good internal consistency, reliability and convergent validity among the constructs and all of the constructs are retained in the structural model[27].

4.3.Divergent Validity

From Table 4, the discriminant validity among the constructs is assessed using Fornell–Larcker criterion. The criterion is square root of AVE of each construct shown diagonally should be greater than correlations between the specific construct and other constructs (Fornell & Larcker, 1981). The square root of AVE ranged from 0.810 to 0.901 which are greater than inter -construct correlations. We can notice that Fornell–Larcker criterion was satisfied among all the constructs which indicates that each construct shares greater variance with its items rather than with other constructs. Also, Heterotrait-Monotrait ratio was calculated to assess the discriminant validity among the constructs. A HTMT value below 0.85 are commonly considered while a liberal threshold of 0.90 is used for similar constructs (Henseler et al., 2015). The HTMT values ranged from .031 to .847, which are below 0.85 establishing discriminant validity among the constructs.

4.4.Assessment of Collinearity

From Table 2, we can notice that collinearity was assessed using the variance inflation factor (VIF). The VIF values ranged from 1.218 to 3.115, with all values remaining below the recommended threshold of 5.00 (Hair et al., 2022). Hence, we can notice that multicollinearity among the constructs is not an issue in this model.

4.5.Structural Equational Modelling

4.5.1. Direct effects

The structural model was analysed for direct and indirect effects using the bootstrapping procedure by using 5000 subsamples. The results from Table 6 indicate that CC had a significant positive influence on PU ($\beta = .665$, $t = 14.459$, $p < .001$). Similarly, ENJ has a positive influence on RI ($\beta = .632$, $t = 15.200$, $p < .001$). MU also had a positive influence on CC ($\beta = .543$, $t = 10.579$, $p < .001$). Also, PI has a significant influence on MU ($\beta = .231$, $t = 3.059$, $p = .002$), while RC has a positive on MU ($\beta = .286$, $t = 4.090$, $p < .001$). RC also had a positive effect on CC ($\beta = .110$, $t = 2.246$, $p = .025$). In addition, INT has a positive effect on both IM ($\beta = .135$, $t = 2.001$, $p = .045$) as well as PL ($\beta = .210$, $t = 3.304$, $p = .001$). In contrast, IM has no significant effect on ENJ ($\beta = -.062$, $t = 1.204$, $p = .229$), and INT has no significant effect on ENJ ($\beta = -.068$, $t = 1.369$, $p = .171$). Similarly, MU has no significant effect on RI ($\beta = .027$, $t = 0.723$, $p = .470$), and PL has no significant effect on CC ($\beta = .045$, $t = 1.053$, $p = .293$). SQ has no significant effect on both IM ($\beta = -.081$, $t = 1.185$, $p = .236$) and MU ($\beta = -.013$, $t = 0.243$, $p = .808$).

4.5.2. Indirect effects

An indirect effect is statistically significant if the bootstrapped t statistic is higher than 1.96 and $p < .05$. From Table 7, we can notice that all the hypothesis other than H12b,H13b and H13c are found to be rejected. MU significantly mediated the relationship between PI and PU through CC ($\beta = .083$, $t = 2.734$, $p = .006$), while the indirect effect of RC on PU through MU and CC was also significant ($\beta = .103$, $t = 3.525$, $p < .001$). indicating that CC significantly mediates the relationship between MU and PU. There is a significant indirect effect of RC on PU through CC ($\beta = .073$, $t = 2.113$, $p = .035$). Also, the

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indirect effects of SQ through IM on ENJ, PL on CC and PU, and the sequential mediation paths involving INT, IM, ENJ, and RI was not significant. The indirect effects of PI and RC on RI through MU were also nonsignificant. Furthermore, the sequential mediation paths PI → MU → CC → PU and RC → MU → CC → PU were statistically significant. These findings indicate that MU and CC act as important mediating roles in transferring the effects of PI and RC toward the behavioral outcomes. In contrast, the remaining indirect effects were found to be statistically non-significant[28].

5. Discussion

We can notice that the above findings provided insights on how banking customers can experience AR based technologies in relation to the AR characteristics. Overall, the findings conclude the reliability and validity of the structural relationships and the measurement model. Customers responses to immersive banking environments are impacted by both experiential and influential factors even though some of the proposed relationships were not statistically significant. The analysis indicates that interactivity positively influences immersion (β = .135, t = 2.001, p = .045). Customers are likely to experience sense of involvement and immersion if they can interact with virtual banking environments, digital banking features in an active manner. Interactivity positively influences product liking (β = .210, t = 3.304, p = .001). Customers through interactive banking experiences such as interactive demonstrations, customised or personalised representations or virtual consultations creates easy understanding and increase favourable liking towards complex banking products. Interactivity has not influenced enjoyment (β = −.068, t = 1.369, p = .171). The main characteristic of interactivity is to enhance pleasurable experiences in virtual environments. In banking context, customers value functionality as it is associated with security, trust, usefulness, convenience, accuracy, confidentiality and financial decision making which indirectly is not a source of entertainment. There is a significant relationship between enjoyment and reuse intention (β = .632, t = 15.200, p < .001). customers who enjoy the immersive AR environment are more likely to use it again.Also,the findings conclude that there exists a positive relationship between the choice confidence and purchase intention (β = .665, t = 14.459, p < .001).This is highly relevant in banking context as customers has to make complex choices while choosing financial products. Immersive technologies such as AR support the choice confidence of the customers by exploring the products, evaluating alternatives and obtain virtual assistance before making a decision. After feeling confident on the selected choices, customers develop an intention to purchase the products. There exists a significant relationship between media usefulness and choice confidence (β = .543, t = 10.579, p < .001). When the customers perceive the AR technology or media environment useful in evaluating the complex financial products, their choice confidence will be high. Product informativeness has a significant effect on media usefulness (β = .231, t = 3.059, p = .002). Instead of creating a visually interactive virtual environment, the finding focuses on the importance of integration of financial product information into immersive environment that is accurate, reliable and understandable. The analysis shows that reality congruence positively influences the media usefulness (β = .286, t = 4.090, p < .001). Customers tend to find the immersive baking technology useful if the representation of product or services reflect the real-world banking experiences. Reality congruence has a significant effect on choice confidence (β = .110, t = 2.246, p = .025). customers choice confidence is contributed by the realistic and credible product presentations where the customers will not take decisions if the technology appears unrealistic compared to actual banking services. There is no significant influence of product liking on choice confidence (β = .045, t = 1.053, p = .293). In the banking context, even though customers like the financial products but require sufficient information, credible technology to become confident enough in choosing a product. The results show that system quality do not have significant impact on immersion (β = −.081, t = 1.185, p = .236) and (β = −.013, t = .243, p = .808) which suggests that system quality solely cannot generate immersive or useful experiences in the banking sector. Apart from the system quality, customers might require technical quality features viz., responsiveness, accessibility

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and reliability.

6. Mediation Discussion

Customers will not necessarily become confident due to the availability of information or either due to realistic virtual environment instead customers must use the medium for processing and application of information.The financial content that is informative leads to purchase intention through the sequential mediation of Media Usefulness and choice confidence (β = .083, t = 2.734, p = .006). Also, realistic representation leads to purchase intention through the sequential mediation of Media Usefulness and Choice Confidence (β = .103, t = 3.525, p < .001). In banking context, the path (PI/RC->MU->CC->PI) shows that customers require information as well as confidence while making financial decisions.

Conclusion

The study concludes that interactive and immersive technologies can play an important role in transforming customer experiences in banking and financial services. However, their effectiveness depends not merely on technological sophistication but on their ability to provide customers with meaningful information, realistic experiences, useful media environments, and confidence in their financial choices. The study therefore provides evidence that immersive banking can move beyond being a technological novelty and become a customer decision-support mechanism. Banks that successfully combine technological capabilities with informative and confidence-enhancing customer experiences may be better positioned to increase customers' purchase intention and encourage their continued use of immersive banking services.

References

[1]. Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research, 9*(2), 132–140. https://doi.org/10.1086/208906

[2]. Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*, 382–388. https://doi.org/10.2307/3150980

[3]. Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *The Public Opinion Quarterly, 37*(4), 509–523.

[4]. Hoffman, D. L., & Novak, T. P. (1996). Marketing in hypermedia computer-mediated environments: Conceptual foundations. *Journal of Marketing, 60*(3), 50–68.

[5]. Palmer, M. T. (1995). Interpersonal communication and virtual reality: Mediating interpersonal relationships. In F. Biocca & M. R. Levy (Eds.), *Communication in the age of virtual reality* (pp. 277–302). Erlbaum.

[6]. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology, 22*(14), 1111–1132. https://doi.org/10.1111/j.1559-1816.1992.tb00945.x

[7]. Li, H., Daugherty, T., & Biocca, F. (2001). Characteristics of virtual experience in electronic commerce: A protocol analysis. *Journal of Interactive Marketing, 15*(3), 13–30. https://doi.org/10.1002/dir.1013

[8]. Hamam, A., Eid, M., El Saddik, A., & Georganas, N. D. (2008). A fuzzy logic system for evaluating quality of experience of haptic-based applications. In *International Conference on Human Haptic Sensing and Touch Enabled Computer Applications* (pp. 129–138). Springer.

[9]. Oh, H., Yoon, S. Y., & Shyu, C. R. (2008). How can virtual reality reshape furniture retailing? *Clothing and Textiles Research Journal, 26*(2), 143–163. https://doi.org/10.1177/0887302X08314789

[10]. Olsson, T., Lagerstam, E., Kärkkäinen, T., & Väänänen-Vainio-Mattila, K. (2013). Expected user experience of mobile augmented reality services: A user study in the context of shopping centres. *Personal and Ubiquitous Computing, 17*(2), 287–304.

[11]. Andrews, D. (2013). The interplay of information diagnosticity and need for cognitive closure in determining choice confidence. Psychology & Marketing, 30(9), 749–764. https://doi.org/10.1002/mar.20643

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 04 Issue: 08 August 2026
Page No: 5265 - 5278
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2026.0689

[12]. Spreer, P., & Kallweit, K. (2014). Augmented reality in retail: Assessing the acceptance and potential for multimedia product presentation at the PoS. Transactions on Marketing Research, 1(1), 20–35.

[13]. Rese, A., Schreiber, S., & Baier, D. (2014). Technology acceptance modeling of augmented reality at the point of sale: Can surveys be replaced by an analysis of online reviews? Journal of Retailing and Consumer Services, 21(5), 869–876. https://doi.org/10.1016/j.jretconser.2014.02.011

[14]. Park, E., Kim, H., & Ohm, J. Y. (2015). Understanding driver adoption of car navigation systems using the extended technology acceptance model. Behaviour & Information Technology, 34(7), 741–751. https://doi.org/10.1080/0144929X.2014.963672

[15]. Kamleitner, B., & Feuchtl, S. (2015). "As if it were mine": Imagery works by inducing psychological ownership. Journal of Marketing Theory and Practice, 23(2), 208–223.

[16]. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43, 115–135. https://doi.org/10.1007/s11747-014-0403-8

[17]. Kim, K., Hwang, J., Zo, H., & Lee, H. (2016). Understanding users' continuance intention toward smartphone augmented reality applications. Information Development, 32(2), 161–174. https://doi.org/10.1177/0266666914535119

[18]. Kim, H. C., & Hyun, M. Y. (2016). Predicting the use of smartphone-based augmented reality (AR): Does telepresence really help? Computers in Human Behavior, 59, 28–38. https://doi.org/10.1016/j.chb.2016.01.001

[19]. Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69–96. https://doi.org/10.1509/jm.15.0420

[20]. Pantano, E., Rese, A., & Baier, D. (2017). Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets. Journal of Retailing and Consumer Services, 38, 81–95. https://doi.org/10.1016/j.jretconser.2017.05.011

[21]. Yim, M. Y. C., Chu, S. C., & Sauer, P. L. (2017). Is augmented reality technology an effective tool for e-commerce? An interactivity and vividness perspective. Journal of Interactive Marketing, 39, 89–103. https://doi.org/10.1016/j.intmar.2017.04.001

[22]. Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. Technological Forecasting and Social Change, 124, 306–319. https://doi.org/10.1016/j.techfore.2016.10.010

[23]. Rauschnabel, P. A. (2018). Virtually enhancing the real world with holograms: An exploration of expected gratifications of using augmented reality smart glasses. Psychology & Marketing, 35(8), 557–572. https://doi.org/10.1002/mar.21106

[24]. Kowalczuk, P. (2018). Consumer acceptance of smart speakers: A mixed methods approach. Journal of Research in Interactive Marketing, 12(4), 418–431.

[25]. Kowalczuk, Pascal & Siepmann, Carolin & Adler, Jost. (2021). Cognitive, affective, and behavioral consumer responses to augmented reality in e-commerce: A comparative study. Journal of Business Research. 124. 357-373. 10.1016/j.jbusres.2020.10.050.

[26]. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM) (3rd ed.). Sage. https://doi.org/10.1007/978-3-030-80519-7

[27]. Mukerjee, K. (2024). Augmented reality and customer engagement in the context of e-banking. Journal of Financial Services Marketing, 29, 1559–1571.

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
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https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2026.0689

https://doi.org/10.1057/s41264-024-00284-6

[28]. Butt, A. H., Ahmad, H., & Muzaffar, A. (2024). Augmented reality is the new digital banking – AR brand experience impact on brand loyalty. International Journal of Bank Marketing. https://doi.org/10.1108/IJBM-11-2022-0522