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EFFECT OF AUGMENTED REALITY PRODUCT VISUALIZATION ON CONSUMER PURCHASE INTENTION IN BENIN CITY, EDO STATE NIGERIA: THE MEDIATING ROLE OF PERCEIVED PRODUCT DIAGNOSTICITY

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Abstract

Augmented reality (AR) product visualization is increasingly promoted as a means of enriching online shopping, yet most researches originates in high-income markets, and the cognitive mechanism through which AR shapes purchase intention remains underspecified, particularly in African contexts. This study examined the effect of AR product visualization on consumer purchase intention in Benin City, Edo State, Nigeria, and tested the mediating role of perceived product diagnosticity. Grounded in the Stimulus–Organism–Response framework, a quantitative, cross-sectional, stimulus-based survey was administered to 400 adult online consumers, each of whom interacted with a standardized AR product visualization demonstration before responding. Constructs were measured with validated multi-item scales, and the data were analysed using regression based path analysis with bootstrapped mediation (5,000 resamples). The measures were reliable and valid (Cronbach's $\alpha = 0.830\text{--}0.847$; composite reliability = $0.879\text{--}0.891$; AVE = $0.548\text{--}0.663$), and discriminant validity was confirmed. AR product visualization significantly increased both perceived product diagnosticity ($\beta = 0.596$, $p < 0.001$) and purchase intention ($\beta = 0.411$, $p < 0.001$). The indirect effect through perceived product diagnosticity was significant ($\beta = 0.276$; 95% bootstrap CI (0.210, 0.347)), while the direct effect remained significant ($\beta = 0.135$, $p = 0.010$), indicating partial mediation in which diagnosticity accounted for approximately 67% of AR's total effect on purchase intention. The findings extend the S–O–R account of AR marketing to a lower-adoption Nigerian market and identify perceived product diagnosticity as a key mechanism, offering retailers practical guidance to design AR experiences that improve genuine product evaluability rather than novelty alone.

Keywords: *Augmented reality, Perceived product diagnosticity, Product visualization, Purchase intention, Stimulus–Organism–Response*

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Introduction

Augmented reality (AR) is a class of technologies that overlays computer-generated content onto a user's perception of the real physical environment in real time, positioned along a continuum of local presence that distinguishes it from fully immersive virtual reality (Rauschnabel et al., 2022a). Unlike virtual reality, which replaces the physical world with a simulated one, AR keeps consumers grounded in their own surroundings while allowing them to interact with virtual product representations (Flavián et al., 2019). Over the past decade, the maturation of smartphone cameras, mobile processing power, and web-based rendering has moved AR from an experimental novelty toward a practical marketing instrument, and a growing body of scholarship now treats AR product visualization as a distinct and consequential form of online product presentation (Rauschnabel et al., 2019; Rauschnabel et al., 2022b).

The theoretical interest in AR for marketing rests on its capacity to enrich the informational and experiential quality of the pre-purchase encounter. Where conventional e-commerce relies on static images and textual descriptions, AR enables consumers to place a virtual product within their own environment, manipulate it, and evaluate its scale, fit, and appearance under realistic conditions. Building on mental imagery theorizing, Hilken et al. (2022) demonstrated through field and experimental studies that AR helps consumers bridge "imagination gaps" on the path to purchase, with measurable effects on purchase intentions and behaviour. Complementary evidence indicates that the perceived interactivity of AR particularly its controllability and playfulness strengthens consumers' mental imagery and, through it, their attitudes and behavioural intentions (Park & Yoo, 2020). Experiential AR applications have likewise been shown to raise fashion purchase intention relative to conventional presentation formats (Watson et al., 2020), while the spatial presence, personalization, and intrusiveness of AR applications jointly condition consumer and brand responses (Smink et al., 2020).

Despite this evidence, the mechanism through which AR product visualization influences purchase intention remains incompletely specified, particularly the cognitive pathway by which richer product presentation is converted into behavioural intent. A promising explanatory construct is perceived product diagnosticity, defined as the extent to which a consumer believes that a shopping experience is helpful in evaluating a product (Uhm et al., 2022). Because AR heightens both the vividness and the interactivity of the product encounter, it is theoretically

positioned to elevate perceived diagnosticity by narrowing the gap between a mediated presentation and a direct product trial (Park & Yoo, 2020). Recent empirical work supports this proposition directly: Uhm et al. (2022) found that consumers exposed to AR e-commerce reported significantly higher perceived diagnosticity and purchase intention than those exposed to conventional web-based presentation, identifying diagnosticity as a central variable in the AR–purchase relationship. Treating perceived product diagnosticity as a mediator therefore offers a parsimonious account of how AR visualization affects purchase intention, moving the literature beyond documenting that AR "works" toward explaining why it does.

The overwhelming majority of this evidence, however, originates in high-income economies with mature e-commerce infrastructure and comparatively high consumer familiarity with immersive technologies. Evidence from sub-Saharan Africa, and Nigeria specifically, remains scarce and mixed. In one of the few national studies, Damian-Okoro and Harry (2025) surveyed Nigerian online shoppers and reported that AR enhanced customer engagement while returning inconsistent effects on satisfaction, underscoring that findings from Western contexts may not transfer directly to Nigerian consumers. Related Nigerian work has examined AR and virtual reality effects on customer engagement and purchase behaviour in retail settings (Enyejo et al., 2024), yet these studies address the national or general retail level rather than the specific mechanism of AR product visualization on purchase intention. At the sub-national level, consumer behaviour research in Benin City has concentrated on the determinants of conventional online retail patronage among university populations (Omogbe & Osayande, 2018), without engaging AR as a presentation technology. Consequently, there is no known study that examines the effect of AR product visualization on consumer purchase intention within Benin City, and none that tests perceived product diagnosticity as the intervening mechanism in a Nigerian setting.

This gap is consequential for both theory and practice. Theoretically, testing an AR–diagnosticity–purchase intention pathway in a lower-adoption, infrastructure-constrained market provides a demanding test of the generalizability of accounts developed and validated elsewhere. Practically, Benin City represents a large and commercially significant urban market in Edo State whose retailers and e-commerce operators stand to benefit from evidence on whether, and through what mechanism, AR visualization can

strengthen purchase intention among local consumers. Accordingly, the present study examines the effect of AR product visualization on consumer purchase intention in Benin City, Edo State, Nigeria, and investigates the mediating role of perceived product diagnosticity.

The study addresses three **objectives**:

1. to determine the effect of AR product visualization on consumer purchase intention;
2. to determine the effect of AR product visualization on perceived product diagnosticity; and
3. to examine whether perceived product diagnosticity mediates the relationship between AR product visualization and consumer purchase intention.

In doing so, the study contributes localized, mechanism-level evidence to the AR marketing literature and extends the perceived-diagnostics account to a previously unexamined Nigerian urban context.

Research Questions

1. What is the effect of augmented reality product visualization on consumer purchase intention in Benin City, Edo State, Nigeria?
2. What is the effect of augmented reality product visualization on perceived product diagnosticity in Benin City, Edo State, Nigeria?
3. Does perceived product diagnosticity mediate the relationship between augmented reality product visualization and consumer purchase intention in Benin City, Edo State, Nigeria?

Research Hypotheses

1. H₀₁. Augmented reality product visualization has no significant effect on consumer purchase intention in Benin City, Edo State, Nigeria.
2. H₀₂. Augmented reality product visualization has no significant effect on perceived product diagnosticity in Benin City, Edo State, Nigeria.
3. H₀₃. Perceived product diagnosticity does not significantly mediate the relationship between augmented reality product visualization and consumer purchase intention in Benin City, Edo State, Nigeria.

Theoretical Framework

This study is anchored in the Stimulus–Organism–Response (S–O–R) framework, which has become the dominant lens for explaining consumer behaviour in augmented reality (AR) retail settings. The framework holds that features of a consumption environment (the

stimulus) act upon a consumer's internal cognitive and affective states (the organism), which in turn determine behavioural responses such as approach or avoidance. Reviews of the AR literature confirm that S–O–R is among the most frequently applied frameworks for modelling how AR characteristics translate into outcomes such as purchase intention (Qin et al., 2021). It suits the present study because it explicitly accommodates a mediated pathway, allowing a presentation technology to influence a behavioural outcome through an intervening psychological state rather than directly.

AR is well suited to this framework because it functions as a rich environmental stimulus: by overlaying interactive, three-dimensional product representations onto the consumer's own surroundings, it heightens interactivity and vividness relative to conventional online presentation, shaping consumers' evaluative states before any response is formed (Sun et al., 2022). Cognitive states such as perceived informativeness, presence, and mental imagery have been positioned as the organismic mechanisms carrying AR's effect onto downstream intentions (Sun et al., 2022; Whang et al., 2021), and mediation-based evidence shows that AR affects purchase intention indirectly (Whang et al., 2021) while AR-driven retail experiences yield measurable sales gains (Tan et al., 2022). Accordingly, this study treats AR product visualization as the stimulus, perceived product diagnosticity as the organism, and consumer purchase intention as the response.

Conceptual Framework

The conceptual framework proposes that AR product visualization influences consumer purchase intention both directly and indirectly through perceived product diagnosticity. First, AR product visualization is expected to strengthen purchase intention by reducing the sensory and informational limitations of online shopping, an effect linked across categories to stronger behavioural intentions and actual sales (Qin et al., 2021; Whang et al., 2021; Nawres et al., 2024; Tan et al., 2022). Second, AR is expected to raise perceived product diagnosticity, the extent to which consumers judge the experience helpful for evaluating a product, because it narrows the gap between a mediated encounter and a direct product trial, supplying cues that reduce uncertainty about product quality and fit (Sun et al., 2022; McLean & Wilson, 2019). Third, perceived product diagnosticity is expected to strengthen purchase intention and thereby mediate the AR purchase intention relationship: because AR elevates the cognitive states that support product evaluation (McLean & Wilson, 2019; Sun et al., 2022), and such states drive behavioural intention

(Qin et al., 2021; Whang et al., 2021), diagnosticity is positioned as the organismic mechanism converting the AR stimulus into the purchase-intention response.

This mediated structure operationalizes the S–O–R logic and is summarized in Figure 1.

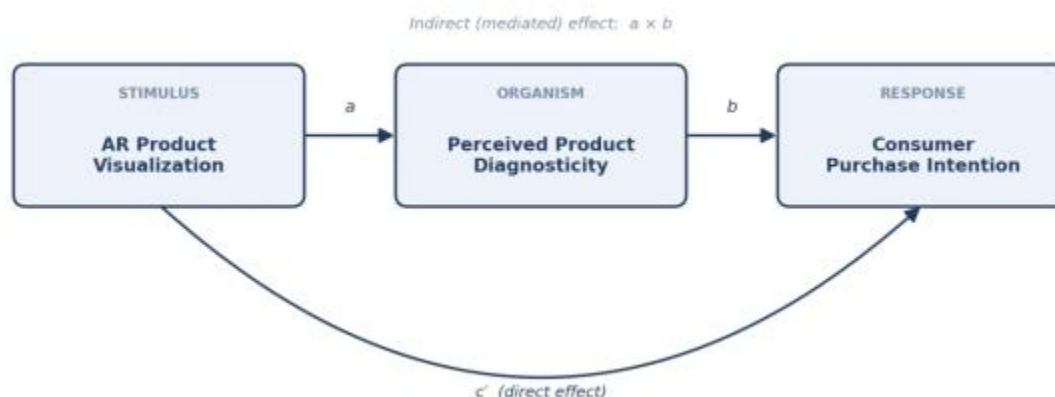


Figure 1. Conceptual framework of the study, showing AR product visualization (stimulus), perceived product diagnosticity (organism), and consumer purchase intention (response).

Research Methodology

Research Design

The study adopts a quantitative, cross-sectional survey design within a positivist, deductive paradigm. It is mediation-oriented, examining the effect of augmented reality (AR) product visualization on consumer purchase intention and the extent to which this effect operates through perceived product diagnosticity. The design operationalizes the Stimulus–Organism–Response model, treating AR product visualization as the stimulus, perceived product diagnosticity as the organismic state, and consumer purchase intention as the response, with both direct and mediated paths estimated. The survey is stimulus-based: each respondent interacts with a standardized AR product-visualization demonstration before completing the instrument, ensuring a common referent and responses grounded in an actual rather than a hypothetical AR encounter.

Population of the Study

The population comprises adult consumers in Benin City, Edo State, who own internet enabled smartphones and shop online. As no register of online shoppers in the city exists, the population is large and cannot be precisely enumerated; it is therefore treated as effectively infinite, which determines the sample-size procedure adopted.

Sample Size

The sample size was determined using Cochran's (1977) formula for populations of unknown size,

$n_0 = Z^2pq/e^2$. With $Z = 1.96$ (95% confidence), $p = q = 0.5$, and $e = 0.05$, therefore, $n_0 = 384.16 \approx 385$ respondents. The Krejcie and Morgan (1970) table corroborates this, converging to 384 for very large populations. To offset non-response and invalid returns, 400 questionnaires were distributed.

Sampling Technique

A purposive sampling technique was adopted, as no sampling frame of online shoppers in Benin City exists. Respondents were screened for eligibility: adults aged 18 years and above who own an internet-enabled smartphone, have prior online-shopping experience, and complete the AR product-visualization demonstration. Administration combined intercepts at major shopping districts with online distribution to local e-commerce user groups. No stratification was applied, as the model contains no grouping moderator.

Research Instrument

Data were collected using a structured, self-administered questionnaire in four sections. Section A captured demographic and screening details. Following the AR product-visualization demonstration, Section B measured AR product visualization (adapted from Park & Yoo, 2020; Sun et al., 2022), Section C measured perceived product diagnosticity (adapted from Uhm et al., 2022), and Section D measured consumer purchase intention (adapted from Whang et al., 2021; Qin et al., 2021). All substantive items used balanced multi-item subscales rated on a five-point

Likert scale from 1 (strongly disagree) to 5 (strongly agree)

Method of Data Analysis

Demographic data were summarized using frequencies and percentages. The direct paths ($H0_1$ and $H0_2$) were tested through their path coefficients, and the mediating effect ($H0_3$) through the indirect effect of AR product visualization on purchase intention via perceived product diagnosticity. Following Hayes (2018), the indirect effect was estimated by bootstrapping with 5,000 resamples and a bias-corrected 95% confidence interval, with mediation inferred where the interval excluded zero. Significance was set at $p < 0.05$, and the a-path, b-path, direct, and total effects were reported to establish the form of mediation.

Ethical Considerations

Participation was voluntary and based on informed consent, with respondents free to withdraw at any point. Anonymity and confidentiality were assured, the data were used solely for research purposes, and institutional approval was obtained before data collection.

Validity and Reliability of the Instrument

Content validity was established through expert review in marketing and consumer behaviour, and a pilot study of 30 consumers outside the main sample refined item wording and confirmed that the AR demonstration functioned across devices. Internal consistency, composite reliability (CR) and convergent validity were then assessed for the three constructs as presented in Table 1.

Table 1. Reliability and convergent validity

Construct	Cronbach's α	CR	AVE	Loadings
AR product visualization	0.834	0.879	0.548	0.708–0.765
Perceived product diagnosticity	0.847	0.891	0.621	0.772–0.794
Consumer purchase intention	0.830	0.887	0.663	0.800–0.827

All Cronbach's alpha coefficients (0.830–0.847) and composite reliabilities (0.879–0.891) exceeded the 0.70 threshold, every average variance extracted (AVE) value (0.548–0.663) exceeded the 0.50 criterion, and all standardized item loadings equalled or exceeded 0.70, confirming that the measures are reliable and convergent-valid. Discriminant validity was established using the Fornell and Larcker (1981) criterion, with the square root of each construct's AVE exceeding its correlations with the other constructs as seen in Table 2 confirming discriminant validity and indicating that the three constructs are empirically distinct.

Table 2. Discriminant validity (Fornell–Larcker criterion)

Construct	AR	DIAG	PI
AR visualization	0.740	0.596	0.411
Product diagnosticity	0.596	0.788	0.543
Purchase intention	0.411	0.543	0.814

Note. Diagonal values (bold in the model) are the square root of the AVE; off-diagonal values are inter-construct correlations.

Demographic Characteristics of Respondents

The demographic characteristics of the 400 respondents are presented in Table 1. The sample was predominantly young, with 71.2% aged between 18 and 33 years, and male majority (57.5%). Respondents were highly educated (73.5% held an HND/Bachelor's degree or a postgraduate qualification) and were active online shoppers, with 65.2% shopping weekly or very often. Notably, 73.2% had not previously used an AR shopping tool, supporting the stimulus-based design in which respondents evaluated a standardized AR demonstration.

Table 3. Demographic profile of respondents

Variable	Category	Frequency	%
Age	18–25	168	42.0
	26–33	117	29.2
	34–41	52	13.0
	42–49	34	8.5
	50 and above	29	7.2
Gender	Male	230	57.5
	Female	170	42.5
Education	HND/Bachelor's	186	46.5
	Postgraduate	108	27.0
	OND/NCE	61	15.2
	Secondary	38	9.5
	Other	7	1.8
Online shopping frequency	Weekly	153	38.2
	Very often	108	27.0
	Monthly	95	23.8
	Rarely	44	11.0
Prior AR tool use	No	293	73.2
	Yes	107	26.8

Descriptive statistics and Correlations

Across the three sections the item means occupied a fairly narrow band, from a low of 3.15 to a high of 3.74 on the five-point scale, with all standard deviations between 0.70 and 0.84, indicating homogeneous, closely clustered responses with no single item attracting unusually dispersed or polarised opinion. For AR product visualization, item means ranged from 3.53 (control over how the product was viewed) to 3.74 (vividness and realism of the product), all falling within the Agree band, with visual realism drawing the strongest agreement and interactive control the weakest. For perceived product diagnosticity, item means ranged from 3.15 (assessing product quality) to 3.30 (overall usefulness for evaluation), all within the Neutral band, with judging quality rated lowest, plausibly reflecting that quality is harder to infer from a visual overlay than appearance is. For consumer purchase intention, item means ranged from 3.24 (willingness to buy) to 3.32 (high likelihood of purchase), again all Neutral.

At the construct level, AR product visualization recorded the highest mean ($M = 3.64$, $SD = 0.54$), followed by consumer purchase intention ($M = 3.27$, $SD = 0.66$) and perceived product diagnosticity ($M = 3.24$, $SD = 0.58$). AR product visualization was thus rated distinctly higher than both diagnosticity and purchase intention, which sat close together, indicating that consumers responded more favourably to the AR experience itself than to its perceived evaluative usefulness or its pull on their intention to buy. All pairwise correlations were positive and significant at $p < 0.001$ as shown in Table 4. The strongest association was between AR product visualization and perceived product diagnosticity ($r = 0.596$), followed by diagnosticity and purchase intention ($r = 0.543$); the direct association between AR product visualization and purchase intention was weaker ($r = 0.411$), a pattern consistent with mediation in which diagnosticity, rather than AR directly, carries most of the effect onto purchase intention.

Table 4. Means, standard deviations and inter-construct correlations

Construct	Items (k)	Mean	SD	AR	DIAG	PI
AR visualization	6	3.64	0.54	1	0.596	0.411
Product diagnosticity	5	3.24	0.58	0.596	1	0.543
Purchase intention	4	3.27	0.66	0.411	0.543	1

Note. $p < 0.001$.

Hypothesis Testing

The hypotheses were tested using regression-based path analysis with standardized variables, and the mediating effect was assessed with 5,000 bootstrap resamples (Hayes, 2018). The fit of the estimated regression models is summarized in Table 5, the path estimates are reported in Table 6, and the mediation results in Table 7.

Table 5. Regression model summary

Model	R ²	Adj. R ²	F	df	p
M1: Diagnosticity ~ AR	0.356	0.354	219.59	(1, 398)	<0.001
M2: Purchase Intention ~ AR	0.169	0.167	80.78	(1, 398)	<0.001
M3: Purchase Intention ~ AR + Diagnosticity	0.306	0.303	87.67	(2, 397)	<0.001

Note. Standardized variables. M1 corresponds to path *a* (AR → diagnosticity); M2 to the total effect *c* (AR → purchase intention); M3 contains path *b* (diagnosticity → purchase intention) and the direct effect *c'* (AR → purchase intention).

Table 6. Standardized path coefficients

Path	β (std.)	SE	t	p	Result
a: AR → Diagnosticity	0.596	0.040	14.82	<0.001	Significant
b: Diagnosticity → PI	0.462	0.052	8.88	<0.001	Significant
c: AR → PI (total)	0.411	0.046	8.99	<0.001	Significant
c': AR → PI (direct)	0.135	0.052	2.60	0.01	Significant

Table 7. Mediation analysis: indirect, direct and total effects

Effect	β (std.)	95% Boot CI (Lower, Upper)	Decision
Indirect (a × b): AR → Diagnosticity → PI	0.276	(0.210, 0.347)	CI excludes 0 → significant
Direct (c')	0.135	—	Significant (p = 0.01)
Total (c)	0.411	—	Significant

H0₁ stated that AR product visualization has no significant effect on consumer purchase intention. The total effect was positive and significant ($\beta = 0.411$, $t = 8.99$, $p < 0.001$), explaining 16.9% of the variance in purchase intention. H0₁ is therefore rejected: AR product visualization has a significant positive effect on consumer purchase intention. H0₂ stated that AR product visualization has no significant effect on perceived product diagnosticity. The path was positive and significant ($\beta = 0.596$, $t = 14.82$, $p < 0.001$, $R^2 = 0.356$). H0₂ is therefore rejected: AR product visualization has a significant positive effect on perceived product diagnosticity. H0₃ stated that perceived product diagnosticity does not mediate the relationship between AR product visualization and consumer purchase intention. The standardized indirect effect was $\beta = 0.276$, with a 95% bootstrap confidence interval of (0.210, 0.347) that excludes zero, indicating significant mediation. Because the direct effect ($c' = 0.135$, $p = 0.01$) remained significant, the mediation is partial, with perceived product diagnosticity accounting for approximately 67% of the total effect of AR product visualization on purchase intention. H0₃ is therefore rejected.

All three null hypotheses were rejected. AR product visualization significantly raised both perceived product diagnosticity and consumer purchase intention, and its effect on purchase intention operated substantially through perceived product diagnosticity. The results support the Stimulus–Organism–Response pathway proposed in the conceptual framework, identifying perceived product diagnosticity as the mechanism through which AR product visualization influences purchase intention among consumers in Benin City, Edo State.

Discussion of Findings

The study set out to examine whether AR product visualization affects consumer purchase intention among consumers in Benin City, and whether that effect operates through perceived product diagnosticity. All three null hypotheses were rejected, and the pattern of results offers a coherent, account that both aligns with and extends the existing AR marketing literature.

The finding that AR product visualization significantly raised consumer purchase intention (H0₁; $\beta = 0.411$, $p < 0.001$) is consistent with a now-substantial body of experimental and field evidence. It corroborates Hilken et al. (2022), who demonstrated across field and experimental studies that AR helps consumers bridge imagination gaps on the path to purchase, and Watson et al. (2020), who reported that experiential AR applications raised fashion purchase intention relative

to conventional presentation. It is likewise consistent with category specific evidence from Whang et al. (2021) on beauty products, Qin et al. (2021) on mobile AR applications, and Nawres et al. (2024) on luxury goods, as well as the large-scale field demonstration by Tan et al. (2022) that in-store AR translates into measurable sales gains. That a comparable positive effect emerges in a lower adoption, infrastructure-constrained Nigerian market is theoretically noteworthy, since most of this prior evidence originates in high-income economies; the present result suggests the underlying mechanism, richer, more controllable product encounters reducing pre-purchase uncertainty, generalizes beyond the settings in which it was first established.

The effect of AR product visualization on perceived product diagnosticity (H0₂; $\beta = 0.596$, $p < 0.001$) was the strongest path in the model and squares closely with prior work on AR's informational properties. Sun et al. (2022) showed that AR product display reduces consumers' uncertainty about product quality and fit through heightened perceived informativeness, presence, and mental imagery, mechanisms conceptually adjacent to diagnosticity, while Park and Yoo (2020) established that the perceived interactivity of AR strengthens consumers' mental imagery and downstream responses. The magnitude of the AR diagnosticity association observed here reinforces the view that AR's principal contribution to the pre-purchase encounter is evaluative: by allowing consumers to inspect, scale, and contextualize a product within their own environment, it narrows the gap between a mediated presentation and a direct product trial.

The central contribution concerns the mediating role of perceived product diagnosticity (H0₃). The standardized indirect effect ($\beta = 0.276$; 95% bootstrap CI (0.210, 0.347)) was significant, and adding diagnosticity to the model raised the variance explained in purchase intention from 16.9% to 30.6%, indicating that a substantial portion of AR's influence is transmitted through consumers' sense that the experience helped them evaluate the product. This directly corroborates Uhm et al. (2022), who identified perceived diagnosticity as a central variable linking AR e-commerce experience to purchase intention, and it operationalizes the Stimulus–Organism–Response logic that Qin et al. (2021) and related reviews position as the dominant framework in AR consumer research: the AR stimulus acts on purchase intention not directly but through an internal evaluative state. In extending this pathway to a previously unexamined Nigerian urban market, the study answers the call implicit in Damian-Okoro and Harry (2025), whose national

Nigerian study found AR effects to be mixed, by specifying the cognitive mechanism through which AR works.

At the same time, two features of the results warrant a more measured reading. First, the mediation was partial rather than full: the direct AR–purchase intention path remained significant ($c' = 0.135$, $p = 0.010$), implying that diagnosticity does not exhaust AR's influence and that other organismic states also carry the effect. This is consistent with evidence that AR shapes purchase related responses through affective and experiential routes as well as cognitive ones, spatial presence and personalization (Smink et al., 2020), embodied and hedonic experience (Flavián et al., 2019), and inspiration (Rauschnabel et al., 2019), none of which was modelled here. Second, the descriptive pattern is instructive: while respondents agreed positively about the AR experience itself (grand mean 3.64, Agree), their ratings of its evaluative usefulness (3.24) and their purchase intention (3.27) were only moderate (Neutral). This gap, consumers responding more favourably to the AR encounter than to its downstream evaluative and behavioural pull, coheres with the cautious, context sensitive picture reported by Damian-Okoro and Harry (2025) and Enyejo et al. (2024) for Nigeria, and suggests that in a market where 73.2% of respondents had never previously used an AR shopping tool, novelty enthusiasm may outrun settled evaluative confidence.

Taken together, the findings make two contributions. Theoretically, they provide mechanism-level, localized evidence that the S–O–R account of AR, validated largely in high-adoption Western contexts, holds in a lower adoption Nigerian setting, with perceived product diagnosticity identified as the operative organismic state. Practically, they indicate that Benin City retailers and e-commerce operators can strengthen purchase intention by deploying AR visualization, but that the returns depend on designing the experience to improve genuine product evaluability (diagnosticity), not merely to impress; given the moderate diagnosticity and intention ratings, emphasis on realistic, information-rich, quality-revealing visualization is likely to matter more than novelty alone.

Conclusion

This study examined how AR product visualization influences consumer purchase intention among online consumers in Benin City, Edo State, and whether perceived product diagnosticity mediates that relationship. The findings show that AR product visualization exerts a significant positive effect on purchase intention, and a substantial part of that effect

operates through consumers' perception that the AR experience helps them evaluate the product. Perceived product diagnosticity is therefore not incidental to AR's influence but a central cognitive mechanism carrying it, with the direct AR–purchase intention path remaining significant, indicating that diagnosticity partially rather than fully accounts for the relationship. These results affirm the value of the Stimulus–Organism–Response framework for explaining AR-mediated consumer behaviour and, importantly, demonstrate that a pathway validated largely in high-adoption Western markets also holds in a lower adoption, infrastructure constrained Nigerian setting. Practically, the findings indicate that retailers and e-commerce operators in Benin City can strengthen purchase intention by adopting AR product visualization, but that the returns depend on designing experiences that enhance realistic, information-rich, quality-revealing evaluation rather than novelty alone, an emphasis underscored by respondents' positive assessment of the AR experience alongside their more moderate ratings of its evaluative usefulness and their intention to buy. The study is nonetheless bounded by its design. Its cross-sectional, single-city, purposively sampled data constrain causal and generalizing claims; its stimulus-based exposure captured immediate rather than habitual AR use; and the partial mediation observed implies that affective and experiential states not modelled here also transmit AR's influence. Future research should therefore test the pathway across other Nigerian cities and product categories, incorporate additional mediators such as spatial presence, enjoyment, and inspiration, and employ longitudinal or experimental designs to strengthen causal inference and trace how AR's effects evolve as consumer familiarity with the technology grows.

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