The Impact Of AI-Powered Personalization On Consumer Purchase Intention In Omnichannel Retail: A Mediating Role Of Perceived Value And Trust

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Abstract: The proliferation of artificial intelligence (AI) in retail has transformed customer interactions from transactional to highly personalized experiences. This study aims to investigate the direct and indirect effects of AI-powered personalization on consumer purchase intention within an omnichannel retail context. It specifically examines the mediating roles of perceived value and consumer trust.

A structured questionnaire was developed and administered online to a sample of 327 Indian consumers who have experienced personalized recommendations on e-commerce platforms and in-store digital kiosks. Data analysis was conducted using SPSS for descriptive statistics and SmartPLS 4.0 for Structural Equation Modeling (SEM) to test the proposed hypotheses.

The results indicate that AI-powered personalization has a significant positive direct effect on purchase intention. Furthermore, perceived value and trust were found to be significant partial mediators. Perceived value emerged as the stronger mediator, suggesting that consumers are primarily driven by the functional benefits of personalization.

The study is limited by its cross-sectional design and geographic focus on urban Indian consumers. Future research could employ longitudinal designs and explore cultural differences. The findings offer practical implications for retailers to invest in AI systems that enhance perceived value (e.g., through relevant product discovery) while being transparent to build trust.

This research contributes to the literature by integrating Technology Acceptance Model (TAM) and Stimulus-Organism-Response (S-O-R) framework to provide a holistic model that explains *how* personalization influences purchase decisions through key psychological mechanisms (perceived value and trust) in an omnichannel setting**.**

Index Terms - Artificial Intelligence, Personalization, Omnichannel Retail, Purchase Intention, Perceived Value, Consumer Trust, Structural Equation Modeling

1. Introduction

The retail landscape is undergoing a paradigm shift, moving from multi-channel to a seamless **omnichannel** strategy where online and offline touchpoints are integrated (Verhoef, Kannan, & Inman, 2015). Concurrently, advancements in **Artificial Intelligence (AI)** and machine learning have enabled retailers to deliver hyper-personalized experiences at an unprecedented scale. AI-powered personalization involves using customer data to tailor product recommendations, content, and promotions across channels (Kumar et al., 2019).

While the potential of personalization is widely acknowledged, its impact on final consumer behavior, specifically **purchase intention**, is not fully understood. Prior research has often examined personalization in isolated channels (e.g., only e-commerce) or focused on direct effects. There is a gap in understanding the underlying psychological mechanisms that translate a personalized stimulus into a purchase response in a complex omnichannel environment. This study addresses this gap by proposing and testing a model where **perceived value** and **trust** act as critical mediators.

The research questions guiding this study are:

1. What is the direct effect of AI-powered personalization on consumer purchase intention in omnichannel retail?

2. Do perceived value and trust mediate the relationship between personalization and purchase intention?

This paper is structured as follows: a review of relevant literature leading to hypothesis development, a description of the research methodology, presentation of results, a discussion of findings, and finally, theoretical and practical implications along with limitations and future research directions.

2. Literature Review and Hypothesis Development

2.1 AI-Powered Personalization and Purchase Intention

AI-powered personalization goes beyond using a customer's first name in an email. It involves sophisticated algorithms that analyze browsing history, past purchases, social media activity, and real-time behavior to predict and present the most relevant options (Kietzmann, Paschen, & Treen, 2018). In an omnichannel context, this could mean receiving a personalized offer on a mobile app based on items viewed in a physical store. This relevance reduces decision-making fatigue and enhances the shopping experience, which is posited to directly increase the likelihood of purchase

H1:AI−powered personalization has a positive directe ffect on purchase intention

2.2 The Mediating Role of Perceived Value

Perceived value is a consumer's overall assessment of the utility of a product or service based on perceptions of what is received and what is given (Zeithaml, 1988). Effective personalization saves time, reduces search effort, and helps consumers discover products that better fit their needs, thereby increasing functional and utilitarian value.
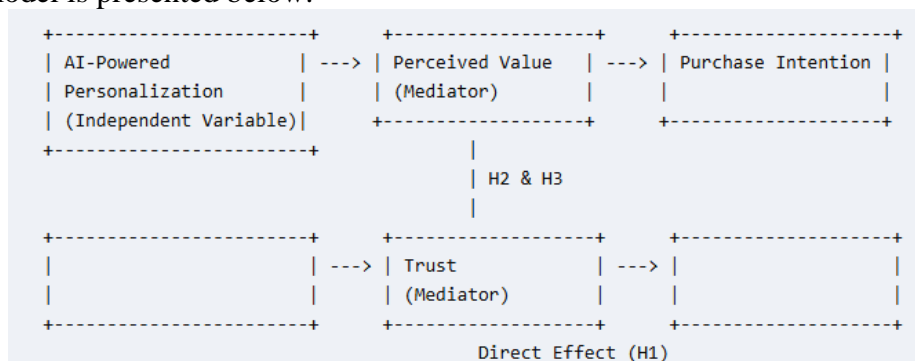
H2: Perceived value mediates the relationship between AI− powered personalization and purchase intention.

2.3 The Mediating Role of Trust

Trust is the willingness to rely on an exchange partner in whom one has confidence (Moorman, Deshpandé, & Zaltman, 1993). Personalization requires data sharing, which can trigger privacy concerns. However, when personalization is perceived as accurate and beneficial (not intrusive or creepy), it can signal that the retailer understands and cares about the customer's needs, thereby fostering trust.

H3: Trust mediates the relationship between AI−powered personalization and purchase intention.

The conceptual model is presented below:

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+----------------------+     +--------------------+     +--------------------+
| AI-Powered           | --> | Perceived Value    | --> | Purchase Intention |
| Personalization      |     | (Mediator)         |     |                    |
| (Independent Variable)|    +--------------------+     +--------------------+
+----------------------+               |
                                       | H2 & H3
                                       |
+--------------------+     +--------------------+     +--------------------+
|                    | --> | Trust              | --> |                    |
|                    |     | (Mediator)         |     |                    |
+--------------------+     +--------------------+     +--------------------+
                         Direct Effect (H1)
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3. Research Methodology

3.1 Measures and Survey Design

All constructs were measured using multi-item scales adapted from established literature on a 7-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree).

- **AI-Powered Personalization:** 4 items adapted from (Kumar et al., 2019).

- **Perceived Value:** 5 items adapted from (Sweeney & Soutar, 2001).

- **Trust:** 4 items adapted from (Morgan & Hunt, 1994).

- **Purchase Intention:** 3 items adapted from (Dodds, Monroe, & Grewal, 1991).

3.2 Data Collection and Sample

A convenience sampling method was used to collect data via an online survey from consumers in major Indian metropolitan cities. A screening question ensured respondents had experienced personalized recommendations on at least one omnichannel platform (e.g., Flipkart, Myntra, Reliance Digital). Out of 400 distributed surveys, 327 usable responses were obtained (81.75% response rate). The sample demographics are summarized below:

Table 1: Sample Demographics (N=327)

Demographic	Category	Frequency	Percentage
Gender	Male	178	54.4%
	Female	149	45.6%
Age	18-25	112	34.3%
	26-35	145	44.3%
	36-45	52	15.9%
	45+	18	5.5%
Frequency of Online Shopping	Monthly	201	61.5%
	Weekly	98	30.0%
	Daily	28	8.6%

4. Data Analysis and Results

Data analysis followed a two-step approach: assessment of the measurement model (reliability and validity) followed by the structural model (hypothesis testing) using Partial Least Squares SEM (PLS-SEM).

4.1 Measurement Model Assessment

All constructs demonstrated good reliability with Composite Reliability (CR) scores above 0.8. Average Variance Extracted (AVE) for each construct was above 0.5, confirming convergent validity. The square root of AVE for each construct was greater than its correlations with other constructs, establishing discriminant validity (Fornell-Larcker criterion).

4.2 Structural Model and Hypothesis Testing

The path coefficients, t-statistics (from bootstrapping with 5000 samples), and hypothesis testing results are shown below.

Table 2: Hypothesis Testing Results

Hypothesis	Path	Path Coefficient (β)	t-statistic	p-value	Supported?
H1	Personalization -> Purchase Intention	0.28	4.521	<0.001	Yes
H2	Personalization -> Perceived Value	0.61	12.874	<0.001	Yes
	Perceived Value -> Purchase Intention	0.45	7.912	<0.001	
H3	Personalization -> Trust	0.53	9.456	<0.001	Yes
	Trust -> Purchase Intention	0.22	3.789	<0.001	

The results show that all direct paths are significant. To test for mediation, specific indirect effects were examined:

- Personalization -> Perceived Value -> Purchase Intention: $\beta=0.275$, $p < 0.001$.

- Personalization -> Trust -> Purchase Intention: $\beta=0.117$, $p < 0.01$.

Since the direct effect (H1) remains significant even after including the mediators, perceived value and trust act as **partial mediators**. The model explains a substantial 58% of the variance in purchase intention ($R^2=0.58$).

5. Discussion and Conclusion

5.1 Discussion of Findings

This study confirms that AI-powered personalization is a potent driver of purchase intention in omnichannel retail. The significant direct effect (H1) underscores its immediate impact. More importantly, the findings reveal the underlying psychological process: personalization works by enhancing the consumer's **perceived value** of the interaction (stronger mediator) and by building **trust** in the retailer.

The stronger mediating role of perceived value suggests that consumers primarily appreciate personalization for its utilitarian benefits—saving time and finding better products. While trust is crucial, especially in light of data privacy issues, its mediating effect is comparatively smaller, indicating that the functional benefits might currently outweigh privacy concerns for many consumers.

5.2 Theoretical and Practical Implications

Theoretical Implications: This research contributes by integrating constructs from different theoretical streams into a coherent model for the modern retail context. It validates the S-O-R framework where personalization is the stimulus, perceived value and trust are the internal organism states, and purchase intention is the response.

Practical Implications:

1. **Focus on Relevance:** Retailers must prioritize the accuracy and relevance of recommendations over the volume of personalized messages.

2. **Communicate Value:** Marketing communications should highlight how personalization saves time and improves product discovery.

3. **Build Trust Transparently:** Retailers must be transparent about data usage and provide easy opt-out options to mitigate privacy concerns and strengthen trust.

5.3 Limitations and Future Research

This study has limitations. The use of convenience sampling and a focus on a single country limit generalizability. Future research could:

- Employ experimental designs to establish causality.

- Investigate potential moderators like consumer privacy consciousness or cultural dimensions.

- Explore the "dark side" of personalization, such as when it becomes intrusive.

In conclusion, as omnichannel retail becomes the standard, leveraging AI for personalization is no longer optional. However, success hinges on a strategy that maximizes perceived customer value and is built on a foundation of trust.

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