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Customer Experience as A Mediator Between AI Personalization and Consumer Loyalty: Evidence From Shopee Users

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ABSTRACT

The rapid development of artificial intelligence (AI) has transformed digital marketing practices, particularly through personalization strategies that enhance consumer interactions. This study aims to examine the effect of AI personalization on customer experience and consumer loyalty, as well as the mediating role of customer experience in the relationship between AI personalization and consumer loyalty on digital platforms. This research adopts a quantitative approach using survey data collected from users of digital platforms. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) to test the proposed relationships among the variables. The results indicate that AI personalization has a positive and significant effect on customer experience and consumer loyalty. Furthermore, customer experience significantly influences consumer loyalty and mediates the relationship between AI personalization and consumer loyalty. These findings highlight that AI-driven personalization can enhance experiential value, which in turn strengthens consumer loyalty. This study contributes to the digital marketing and customer experience literature by providing empirical evidence on how AI-based personalization mechanisms shape consumer loyalty in digital environments.

Keywords: AI personalization, Artificial intelligence, Customer experience, Consumer loyalty, Digital marketing

1. INTRODUCTION

The rapid advancement of digital technology has brought about significant changes in the way transactions are conducted, enabling a wide range of activities to be carried out easily through digital platforms. In Indonesia, the growth of e-commerce has been particularly dynamic, leading to increasingly competitive market conditions.

Based on data from Bank Indonesia as reported by Pusat Data Kontan (2025), Indonesia's e-commerce transaction value has experienced substantial growth over the past five years. In 2020, transaction value reached Rp266.3 trillion and increased sharply to Rp401.1 trillion in 2021. The upward trend continued to Rp476.3 trillion in 2022, although a slight decline occurred in 2023, with transactions decreasing to Rp453.75 trillion. In 2024, the figure rebounded to Rp487.01 trillion, indicating tahat the sector continues to demonstrate strong long-term growth potential despite temporary fluctuations.

In addition to transaction growth, competition among online shopping platforms has intensified. According to the Indonesian Internet Service Providers Association, Shopee was the most frequently accessed online shopping platform in Indonesia in 2025, recorded at 53.22%. It was followed by TikTok Shop at 27.37%, Tokopedia at 9.57%, Lazada at 9.09%, and Blibli at 0.29% (Asosiasi Penyelenggara Jasa Internet Indonesia [APJII], 2025, p. 104). Nevertheless, the dynamics of e-commerce growth are not entirely linear, as variations in consumer behavior and intensifying competition continue to shape market conditions (Akahome, 2026; Elízaga, 2026).

As competition intensifies across digital commerce platforms, sustained business performance depends less on attracting first time buyers and more on cultivating long term relationships with existing customers. Consumer loyalty is defined as a deeply held commitment

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to repurchase or consistently support a preferred product or service despite situational influences and marketing efforts from competitors (Kotler & Keller, 2016). To strengthen loyalty, many e-commerce platforms have adopted Artificial Intelligence (AI) technologies to enhance customer relationships. AI-based personalization allows platforms to analyze large-scale consumer data to deliver relevant product recommendations, personalized search results, and contextual digital interactions. Previous studies suggest that AI-driven recommendation systems can enhance customer engagement and ultimately foster consumer loyalty (Mohammad et al., 2026; Shwetha & Afza, 2026; Yin et al., 2025).

Despite its potential advantages, applying AI driven personalization also presents important challenges. Increasing awareness of privacy and data protection issues has made consumers more attentive to the ways their personal information is accessed, processed, and employed. When tailored interactions are viewed as intrusive or excessive, confidence in the platform may weaken and resistance can emerge (Duan et al., 2026). Furthermore, recommendations that are irrelevant, repetitive, or poorly aligned with user preferences may diminish the quality of the purchasing journey, creating dissatisfaction instead of strengthening long term commitment (Ranjan & Mukherjee, 2026). These conditions indicate that the influence of personalized intelligent systems on sustained patronage is likely to operate through intermediate mechanisms rather than occurring as an immediate effect.

Although intelligent personalization offers substantial functional value, its implementation also introduces critical issues associated with recommendation accuracy, algorithmic transparency, protection of personal data, and the extent to which tailored interactions are perceived as intrusive (Qadri et al., 2026). Consumers may perceive personalized recommendations as beneficial when they accurately reflect individual preferences and enhance decision-making efficiency. However, excessive personalization or inaccurate recommendations may generate discomfort, feelings of surveillance, or perceptions that platforms excessively monitor personal behavior (Singh, 2026). In addition, limited transparency regarding how consumer data are collected and processed by AI systems may reduce trust and negatively influence consumer perceptions. Therefore, AI personalization represents not only a technological capability but also a psychological and ethical issue that shapes customer experience and loyalty in digital commerce environments (Das et al., 2026).

Customer experience plays a crucial role in this relationship. Customer experience refers to the overall perception formed through customer interactions with a company across multiple touchpoints (Lemon & Verhoef, 2016). Effective and ethically implemented AI personalization can generate efficient, convenient, and enjoyable shopping experiences, which subsequently strengthen loyalty (Arora et al., 2024; Chotisarn & Phuthong, 2025). Conversely, poorly executed personalization may weaken the overall experience and diminish customer commitment (Kotkov & Medlar, 2023; Wang et al., 2023).

Existing literature has provided valuable insights into the association between AI driven personalization and long-term patronage. Nevertheless, several important issues remain unresolved. First, most empirical investigations emphasize the direct influence of intelligent recommendation technologies on repeat purchasing and commitment, while giving limited attention to the underlying psychological processes through which these outcomes are formed. Second, evidence regarding the intermediary function of customer experience within this relationship is still relatively scarce, especially in the context of rapidly expanding digital economies such as Indonesia. Third, existing research often emphasizes technological performance while paying less attention to experiential and perceptual dimensions that influence long-term loyalty formation.

Grounded in the Stimulus Organism Response (S O R) framework, intelligent personalization is positioned as an external stimulus capable of shaping consumers' internal cognitive and affective evaluations before influencing subsequent behavioral outcomes. From this

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perspective, customer experience represents the intervening mechanism through which AI enabled interactions are transformed into enduring loyalty.

Accordingly, this research empirically investigates whether customer experience serves as the mechanism through which AI enabled personalization influences consumer loyalty among Shopee users in Indonesia. By applying the Stimulus Organism Response framework to the context of intelligent personalization, the study advances theoretical understanding of how enduring patronage develops in digital commerce while offering practical guidance for e commerce providers seeking to design personalization practices that strengthen long term customer relationships.

The Stimulus–Organism–Response (S-O-R) theory, developed by Mehrabian and Russell (1974), posits that external stimuli influence individuals' internal psychological states, which subsequently drive behavioral responses (Hochreiter et al., 2023). Within this framework, environmental factors function as stimuli that trigger reactions within the organism. The organism represents the individual's internal psychological condition shaped by exposure to external stimuli, ultimately influencing behavior.

Within the proposed conceptual framework, AI enabled personalization is treated as the external stimulus that influences customer experience as the internal evaluative process, which then determines consumer loyalty as the resulting behavioral outcome. Based on this perspective, its influence is expected to emerge both through the intervening role of customer experience and through a direct contribution as a strategic technological capability. This framework offers a systematic explanation of the processes through which intelligent personalization initiatives contribute to the development of sustained loyalty in digital commerce environments.

Within the S-O-R framework, AI personalization is conceptualized as a technological stimulus because it represents an external environmental cue designed to influence consumers' perceptions and interactions during digital shopping activities. Personalized recommendations, adaptive search results, and algorithm-driven promotions function as stimuli that continuously shape how consumers process information and evaluate platform relevance. In digital commerce environments, these AI-based interactions are not merely technical features, but external triggers capable of influencing consumers' cognitive and emotional states.

Customer experience is positioned as the organism because it reflects consumers' internal psychological evaluations resulting from exposure to AI-driven personalization. The organism component within the S-O-R theory represents affective and cognitive responses formed after individuals interact with environmental stimuli. In this context, consumers interpret personalization through perceptions of convenience, enjoyment, relevance, efficiency, and emotional engagement, which collectively form the overall customer experience.

Meanwhile, consumer loyalty represents the behavioral response because it reflects consumers' subsequent actions and behavioral intentions following their experiential evaluations. Loyalty manifests through repeat purchases, platform preference, and willingness to maintain long-term relationships with the platform. Therefore, within this theoretical mechanism, AI personalization does not directly create loyalty solely through technological functionality, but through the psychological and experiential processes perceived by consumers during digital interactions.

Critical Theoretical Comparison and Conceptual Positioning

Although prior literature has extensively discussed consumer loyalty, AI personalization, and customer experience as separate constructs, theoretical integration among these concepts remains limited. First, the conceptualization of consumer loyalty varies across scholars. Kotler and Keller (2016) emphasize loyalty as a deeply held commitment to repurchase despite external influences, focusing primarily on behavioral persistence. In contrast, Mashuri (2020) highlights the dual nature of loyalty, incorporating both attitudinal commitment and behavioral repetition. This distinction suggests that loyalty is not merely transactional but also psychological. Therefore,

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examining loyalty within digital platforms requires understanding both observable repeat behavior and internal consumer attachment.

Second, the literature on AI personalization predominantly adopts a technological perspective. Huang and Rust (2018) categorize AI based on intelligence capabilities (mechanical, analytical, intuitive, empathetic), emphasizing functional sophistication. Meanwhile, Davenport et al. (2020) frame AI primarily as a data-processing tool that enhances marketing effectiveness. However, these perspectives largely focus on AI performance rather than consumer perception. In contrast, personalization research in marketing Bleier and Eisenbeiss (2015) emphasizes perceived relevance and experiential value as key outcomes. This divergence indicates a theoretical gap between technological capability and experiential impact. Hence, it becomes necessary to examine AI personalization not only as a technical system but as a perceived stimulus that shapes psychological responses.

Third, customer experience theory provides a more holistic lens. Schmitt (1999) conceptualizes experience through experiential modules (sense, feel, think, act, relate), focusing on strategic experience design. Verhoef et al. (2009), however, emphasize a multidimensional and journey-based perspective influenced by cognitive, emotional, and social factors. Compared to loyalty and AI theories, customer experience theory explicitly integrates emotional and perceptual dimensions, making it a suitable mediating construct in digital environments.

These perspectives are integrated through the S O R framework, which explains the sequential process linking technological inputs with consumer behavior. In this view, intelligent personalization serves as an external cue that shapes users' internal evaluations before influencing their subsequent behavioral decisions. Much of the existing literature has concentrated on identifying direct associations between personalization initiatives and loyalty outcomes. This perspective, however, provides a more comprehensive explanation by revealing the intervening psychological mechanism through which technology driven interactions ultimately foster enduring customer commitment.

Accordingly, this study conceptualizes customer experience as the primary psychological pathway through which AI enabled personalization translates into consumer loyalty. By integrating perspectives on technological capability, experiential marketing, and behavioral loyalty within the S O R perspective, the proposed framework offers a more holistic explanation of how lasting customer commitment develops in digitally mediated commerce supported by intelligent technologies.

AI enabled personalization allows firms to adapt digital interactions according to individual preferences, browsing behavior, and purchasing patterns. Features such as customized product suggestions, individualized promotional offers, and predictive search capabilities improve the relevance of information presented to each user, making the purchasing process more efficient and intuitive. Earlier research indicates that these capabilities strengthen perceptions of convenience, usefulness, and interaction quality within digital environments. Bleier and Eisenbeiss (2015) demonstrated that tailored content substantially increases consumer engagement while improving the quality of platform interactions. Consistent with this finding, Ifekanandu et al. (2023) showed that intelligent personalization enhances customer experience by delivering more accurate recommendations and increasing user satisfaction. Within e commerce settings, such adaptive interactions simplify product discovery, minimize the effort required to locate suitable items, and reinforce the value perceived by consumers. Accordingly, the implementation of AI based personalization is expected to generate a more positive overall experience.

Although research on AI enabled personalization has expanded considerably, existing studies have largely emphasized system performance, recommendation precision, and immediate behavioral consequences, while paying comparatively little attention to the psychological processes through which enduring loyalty develops, particularly in emerging digital economies. Moreover, empirical evidence that simultaneously examines AI personalization, customer

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experience, and consumer loyalty within a single behavioral framework remains limited in the Indonesian e commerce landscape. Addressing this gap is particularly relevant because consumers in Indonesia exhibit distinctive digital shopping characteristics, including intensive platform usage, a strong tendency toward impulse purchases, and heightened responsiveness to interactive online experiences.

Therefore, this study offers a conceptual contribution by extending the Stimulus–Organism–Response (S-O-R) framework into AI-driven digital commerce environments, positioning customer experience as the central psychological mechanism through which AI personalization influences consumer loyalty. Unlike prior studies that predominantly examine direct effects, this research emphasizes the experiential pathway of loyalty formation among Shopee users in Indonesia. Thus, the study contributes not only to the AI personalization literature but also to a broader understanding of digital consumer behavior in emerging markets.

H1: AI personalization positively influences customer experience.

AI personalization not only enhances service relevance but also contributes to stronger relationships between consumers and digital platforms (Mohammadkhani et al., 2026). By providing recommendations aligned with individual preferences, AI systems can improve consumer satisfaction and strengthen long-term engagement. Davenport et al. (2020) argue that AI technologies enable companies to build deeper relationships with customers by delivering highly relevant and timely interactions. Consistent findings were reported by Yin et al. (2025), who demonstrated that intelligent recommendation systems increase consumer engagement and reinforce loyalty within digital marketplace environments. When personalized interactions are perceived as valuable and genuinely beneficial, consumers show a greater willingness to remain with the platform and engage in repeated purchasing. These findings suggest that well implemented AI enabled personalization can strengthen long term customer commitment. Nevertheless, the benefits of intelligent personalization extend beyond technological capability alone. Consumer responses are also shaped by perceptions of fairness, transparency, and the ethical handling of personal information. Practices that involve excessive targeting, irrelevant recommendations, or insufficient clarity regarding data use may generate feelings of intrusion and weaken trust. Consequently, the positive relationships identified in this study are most likely to emerge when personalized interactions are viewed as relevant, transparent, and respectful of users' privacy expectations.

H2: AI personalization positively influences consumer loyalty.

Customer experience plays a crucial role in shaping consumer behavior and long-term relationships with companies (Unal et al., 2026). Positive experiences during the purchasing process can create emotional attachment and strengthen consumers' willingness to continue using a platform. According to Lemon and Verhoef (2016), positive experiences across multiple customer journey touchpoints significantly influence loyalty outcomes. When consumers perceive interactions with a company as enjoyable, efficient, and valuable, they are more likely to engage in repeat purchases and recommend the service to others. Empirical studies also support the strong relationship between customer experience and loyalty. Kurniawati & Ariyani (2021) found that customer experience significantly influences consumer loyalty through increased satisfaction and emotional attachment. In digital commerce environments, factors such as user-friendly interfaces, fast transactions, and responsive customer service can create positive experiences that foster long-term loyalty.

H3: Customer experience positively influences consumer loyalty.

According to Mehrabian and Russell (1974), environmental stimuli affect individuals' internal states (organism), which subsequently influence behavioral responses. In this study, AI personalization functions as the stimulus that influences consumers' internal psychological evaluations in the form of customer experience (Armutcu, 2026). Positive experiences then shape behavioral responses such as consumer loyalty. Previous studies suggest that the impact of

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technological features on consumer behavior often occurs through experiential mechanisms. (Ifekanandu et al., 2023) found that personalization technologies influence customer loyalty through the mediating role of customer experience. Therefore, customer experience may serve as an important psychological mechanism that explains how AI personalization contributes to consumer loyalty.

H4: Customer experience mediates the relationship between AI personalization and consumer loyalty.

2. METHOD

This research adopts a quantitative design based on a survey approach to investigate the associations among AI personalization, customer experience, and consumer loyalty among Shopee users. Primary data were obtained through an online questionnaire administered using purposive sampling. Respondents were selected according to predetermined criteria, requiring them to have actively used Shopee for a minimum of three consecutive months, thereby ensuring sufficient exposure to the platform's personalized features and shopping environment.

The required sample size was established with reference to the guideline proposed by Hair (2022), commonly known as the 10 times rule, which recommends that the minimum number of observations should equal at least ten times the largest number of structural paths directed toward a latent construct. Based on this recommendation, the study initially targeted 150 participants. Upon completion of data collection, 163 usable questionnaires met the eligibility criteria and were retained for subsequent analysis. The proposed model was examined using Partial Least Squares Structural Equation Modeling (PLS SEM) with SmartPLS 3. The analytical procedure comprised two sequential phases. The first phase focused on assessing the measurement model to confirm the adequacy of the constructs through evaluations of convergent validity, discriminant validity, and internal consistency. The second phase examined the structural relationships by estimating the explanatory power of the model, the magnitude of the hypothesized effects, and their statistical significance through a bootstrapping procedure. An additional indirect effect analysis was conducted to determine whether customer experience functioned as the intervening mechanism linking AI enabled personalization to consumer loyalty.

According to Griffin, as cited in Mashuri (2020), consumer loyalty can be measured using three primary indicators: (1) Repeat Purchase – the consumer's commitment to repurchasing a product or service. (2) Retention – the consumer's resistance to negative influences or competitive offerings.(3) Referrals – the willingness to recommend the product or service to others. These indicators reflect both behavioral and attitudinal dimensions of loyalty, making them suitable for evaluating long-term customer commitment in digital commerce contexts.

Based on (Huang & Rust, 2018), AI can be measured using four dimensions: (1) Mechanical Intelligence – AI capability designed for consistent and limited adaptive learning. (2) Analytical Intelligence – AI capability to systematically and consistently solve complex tasks. (3) Intuitive Intelligence – AI capability to generate creativity and adapt to new situations. (4) Empathetic Intelligence – AI capability to recognize, understand, influence, and appropriately respond to users' emotions. These dimensions provide a comprehensive framework for evaluating AI personalization in digital platforms.

According to Schmitt (1999), customer experience can be measured using five experiential modules: (1) Sense Experience – experiences derived from sensory stimulation. (2) Feel Experience – emotional responses formed through interactions over time. (3) Think Experience – cognitive engagement that encourages creativity and problem-solving. (4) Act Experience – behavioral and lifestyle-related experiences resulting from interactions. (5) Relate Experience – social experiences connecting consumers to broader communities and cultural contexts. These dimensions highlight the multidimensional nature of customer experience, particularly in digital commerce environments.

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This research empirically examines whether customer experience serves as the underlying mechanism through which AI enabled personalization influences consumer loyalty. In addition, the findings are expected to offer practical guidance for e commerce providers in designing intelligent personalization initiatives that strengthen long term customer relationships and foster sustained loyalty.

3. RESULTS AND DISCUSSION

Result

Respondent Profile

Table 1. Demographic Characteristics of Respondents

Variable	Category	n	%
Gender	Male	44	26,99%
	Female	119	73,01%
Age (years)	18–22	104	63,80%
	23–27	29	17,79%
	28–32	12	7,36%
	> 32	18	11,04%
Education	High School	99	60,74%
	Diploma	47	28,83%
	Bachelor's Degree	9	5,52%
	Postgraduate Degree	8	4,91%
Purchase Frequency	2–3 times	18	11,04%
	> 3 times	145	88,96%
Employment Status	Student	105	64,42%
	Private Sector Employee	29	17,79%
	Government Employee	6	3,68%
	Entrepreneur	7	4,29%
	Others	16	9,82%
Income Level	< Rp2.000.000	101	61,96%
	Rp2.000.000 – Rp4.000.000	46	28,22%
	Rp4.000.001 – Rp6.000.000	9	5,52%
	> Rp6.000.000	7	4,29%

Source: Author's own work

This study involved a total of 163 respondents. Based on gender distribution, the majority were female, accounting for 119 respondents (73.01%), while male respondents totaled 44 (26.99%). This composition indicates a predominance of female consumers in the use of the Shopee platform within the research sample.

In terms of age, most respondents were between 18–22 years old (104 respondents; 63.80%), followed by those aged 23–27 years (29 respondents; 17.79%), above 32 years (18 respondents; 11.04%), and 28–32 years (12 respondents; 7.36%). This distribution suggests that the sample is largely composed of young adults who represent one of the most active segments of digital marketplace users in Indonesia. Such demographic characteristics reflect the profile of digitally engaged Shopee users who are highly familiar with algorithm-based interactions, including personalized recommendations, targeted promotions, and AI-assisted shopping features. As digital-native consumers, younger users tend to be more receptive to AI-driven personalization because these technologies align closely with their mobile-oriented lifestyles, shopping behaviors, and expectations for convenience and speed.

With respect to educational attainment, most participants had completed senior high school or an equivalent qualification, accounting for 99 respondents (60.74%). This group was followed by diploma graduates with 47 respondents (28.83%), bachelor's degree holders with 9

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respondents (5.52%), and postgraduate graduates with 8 respondents (4.91%). This indicates that respondents possess an adequate educational background to evaluate digital technology-based services.

In terms of employment status, most respondents were students (105 respondents; 64.42%), followed by private-sector employees (29 respondents; 17.79%), entrepreneurs (7 respondents; 4.29%), government employees (6 respondents; 3.68%) and other occupations (16 respondents; 9.82%), This composition is consistent with the dominance of the young adult age group in the sample.

Based on income level, the majority of respondents reported earning less than Rp2,000,000 per month (101 respondents; 61.96%), followed by those earning Rp2,000,000–Rp4,000,000 (46 respondents; 28.22%), Rp4,000,001–Rp6,000,000 (9 respondents; 5.52%), and above Rp6,000,000 (7 respondents; 4.29%). The demographic profile suggests that the sample was dominated by individuals representing the lower and middle income segments. Within this consumer group, personalized digital features, including customized discounts, individualized promotional offers, and contextually relevant product recommendations, are likely to be perceived as particularly valuable because they facilitate more efficient purchasing decisions while helping consumers optimize their spending. Personalized shopping experiences may therefore contribute more strongly to customer experience and platform loyalty among younger and price-sensitive Shopee users.

Regarding purchase frequency, 145 respondents (88.96%) reported making purchases more than three times, while 18 respondents (11.04%) made purchases two to three times. This finding indicates that the majority of respondents are active users with relatively high shopping intensity on the Shopee platform. This condition strengthens the validity of the study, as respondents possess sufficient experience to accurately evaluate AI-based personalization, customer experience, and consumer loyalty.

Outer Model Evaluation Results

Table 2. Convergent Validity

	AI Personalization	Consumer Loyalty	Customer Experience
AIP1	0,669		
AIP2	0,692		
AIP3	0,741		
AIP4	0,814		
AIP5	0,652		
CL1		0,690	
CL2		0,724	
CL3		0,718	
CL4		0,744	
CL5		0,741	
CL6		0,647	
CX1			0,748
CX2			0,770
CX3			0,707
CX4			0,668
CX5			0,659

Source: Author's own work

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According to Chin (1998), convergent validity is achieved when each indicator exhibits a loading value greater than 0.50. As reported in Table 2, all observed indicators exceed this recommended criterion, confirming that the measurement model satisfies the requirements for convergent validity.

Table 3. Discriminant Validity

	AI Personalization	Consumer Loyalty	Customer Experience
AIP1	0,669	0,337	0,365
AIP2	0,692	0,383	0,406
AIP3	0,741	0,475	0,489
AIP4	0,814	0,551	0,568
AIP5	0,652	0,371	0,348
CL1	0,454	0,690	0,537
CL2	0,328	0,724	0,460
CL3	0,473	0,718	0,418
CL4	0,458	0,744	0,498
CL5	0,417	0,741	0,421
CL6	0,432	0,647	0,428
CX1	0,510	0,482	0,748
CX2	0,379	0,513	0,770
CX3	0,433	0,483	0,707
CX4	0,478	0,404	0,668
CX5	0,405	0,433	0,659

Source: Author's own work

Table 3 shows that every indicator exhibits a stronger loading on its corresponding construct than on any other construct in the model. This pattern confirms that each construct is empirically distinct, indicating that the measurement model fulfills the established criterion for discriminant validity.

Table 4. Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)	Criteria	Remarks
AI Personalization	0,513	>0,5	
Customer Experience	0,507	>0,5	valid
Consumer Loyalty	0,506	>0,5	

Source: Author's own work

As reported in Table 4, each construct achieves an AVE value above the recommended cutoff of 0.50. These results indicate that the constructs capture sufficient variance from their respective indicators, confirming that the measurement model fulfills the established AVE criterion for convergent validity.

Tabel 5. Composite Reliability

	Composite Reliability	Criteria	Remarks

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AI Personalization	0,839	>0,7	
Customer Experience	0,837	>0,7	reliabel
Consumer Loyalty	0,860	>0,7	

Source: Author's own work

The results presented in Table 5 indicate that each construct achieves a composite reliability value above the recommended threshold of 0.70. These findings confirm that the measurement instruments exhibit satisfactory internal consistency, indicating that all constructs fulfill the accepted reliability criterion.

Tabel 6. Cronbach's Alpha

	Cronbach's Alpha	Criteria	Remarks
AI Personalization	0,763	>0,7	reliabel
Customer Experience	0,755	>0,7	reliabel
Consumer Loyalty	0,805	>0,7	reliabel

Source: Author's own work

As presented in Table 6, every construct records a Cronbach's alpha value exceeding the recommended benchmark of 0.70. This result indicates satisfactory internal consistency, confirming that the measurement scales satisfy the established reliability standard.

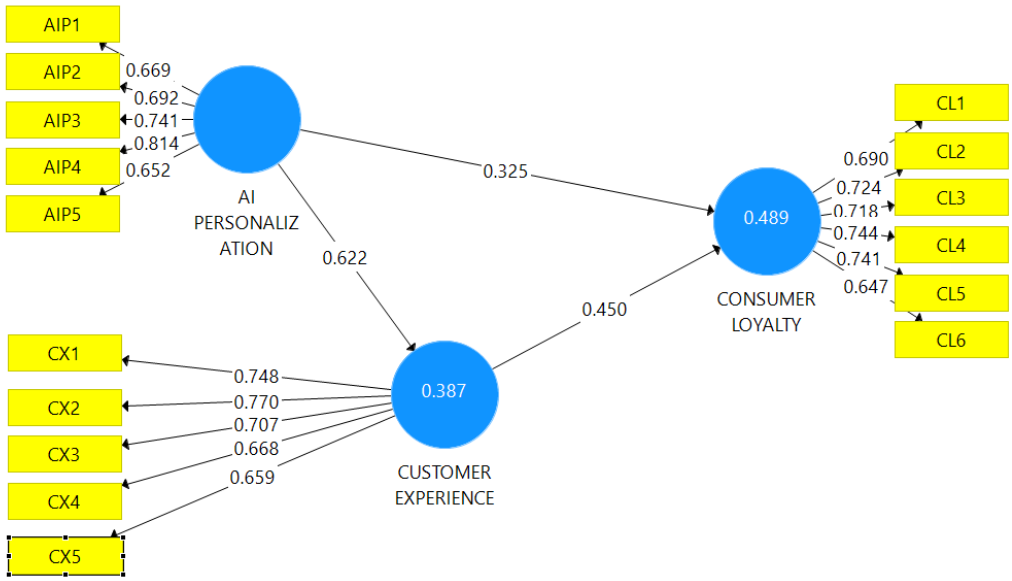

Figure 1. Structural Model Results (PLS-SEM)
Source: Author's own work

The adequacy of the measurement model was assessed by evaluating convergent and discriminant validity. Convergent validity was examined using indicator loadings together with AVE. Following the recommendations of Chin (1998) and Hair (2022), the required criteria are satisfied when indicator loadings exceed 0.50 and AVE values are greater than 0.50.

The findings show that every indicator achieves an outer loading above 0.60, confirming acceptable indicator reliability. In addition, all constructs attain AVE values greater than the recommended cutoff of 0.50. The respective values are 0.513 for AI Personalization, 0.507 for

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Customer Experience, and 0.506 for Consumer Loyalty. These results demonstrate that each construct accounts for more than half of the variance in its corresponding indicators, confirming that the convergent validity requirement has been fulfilled.

Discriminant validity was evaluated using the cross loading criterion. The results demonstrate that every indicator exhibits its strongest loading on the construct it is intended to measure rather than on the remaining constructs. This pattern confirms that the constructs are empirically distinct. Overall, the measurement model satisfies the required reliability and validity standards, supporting its suitability for subsequent structural model assessment.

Inner Model Evaluation Results

According to Ghozali (2014), the inner model describes the structural relationships among latent constructs and explains the influence of exogenous variables on endogenous variables. This stage also serves as the basis for testing the proposed hypotheses by estimating the relationships among the constructs. In the present study, structural model evaluation was performed using R^2 to assess explanatory power and Q^2 to examine predictive relevance.

Table 7. Structural Model (Inner Model) Test Results

	Test Results	Criteria
Coefficient of Determination (R-Square)		
Consumer Loyalty	0,489	moderate
Customer Experience	0,387	moderate
Predictive Relevance (Q-Square)		
Consumer Loyalty	**0,236**	moderate
Customer Experience	**0,187**	moderate

Source: Author's own work

The R^2 statistic was employed to determine the proportion of variance in each endogenous construct accounted for by the proposed model. As reported in Table 7, the R^2 value for Customer Experience is 0.387, indicating that AI personalization accounts for 38.7% of the variation in this construct, whereas the remaining 61.3% is attributable to factors beyond the scope of the present model. Based on the classification suggested by Hair (2022), this value reflects a moderate level of explanatory power. For Consumer Loyalty, the R^2 value reaches 0.489, demonstrating that the combined contribution of AI personalization and customer experience explains 48.9% of its variance, while the remaining 51.1% is associated with variables not incorporated into this study. According to the same benchmark, this result also falls within the moderate category, indicating that the proposed model provides a satisfactory explanation of consumer behavior in the e commerce setting.

The Q^2 statistic was applied to assess the model's predictive relevance based on the estimated parameters. As shown in Table 7, the blindfolding analysis produced Q^2 values of 0.187 for Customer Experience and 0.236 for Consumer Loyalty. Since both values are above the recommended benchmark of 0.15, the model demonstrates moderate predictive relevance. These findings indicate that the proposed framework not only captures the structural relationships among the constructs but also exhibits satisfactory predictive capability.

Path Coefficient and Hypothesis Testing Results

Hypothesis testing was performed in SmartPLS 3 using the bootstrapping procedure to evaluate the statistical significance of the proposed structural relationships. Following the established decision criteria, a hypothesis is supported when the p value is below 0.05 and the t statistic exceeds 1.96 under a two tailed test at the 95% confidence level. The estimated path coefficients and the corresponding hypothesis testing results are presented below:

Table 8. Direct and Indirect Effects

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Hypothesis	Path	β	T-Value	P-Value	Decision
H1	AI Personalization → Consumer Loyalty	0.325	4.691	0.000	Supported
H2	AI Personalization → Customer Experience	0.622	14.478	0.000	Supported
H3	Customer Experience → Consumer Loyalty	0.450	5.920	0.000	Supported
H4	AI Personalization → Customer Experience → Consumer Loyalty (Indirect Effect)	0.280	5.234	0.000	Supported

Source: Author's own work

The hypothesis testing results provide support for all proposed relationships. AI personalization exerts a positive and statistically significant influence on consumer loyalty (β = 0.325; t = 4.691; p < 0.001) and customer experience (β = 0.622; t = 14.478; p < 0.001), with the latter representing the strongest structural effect. In addition, customer experience positively predicts consumer loyalty (β = 0.450; t = 5.920; p < 0.001). The indirect effect linking AI personalization to consumer loyalty through customer experience is likewise significant (β = 0.280; t = 5.234; p < 0.001), confirming the presence of partial mediation. Collectively, these findings indicate that intelligent personalization strengthens consumer loyalty through both a direct pathway and an indirect pathway, with customer experience acting as the principal psychological mechanism underlying this relationship.

Discussion

This result supports the argument of Huang and Rust (2018) that artificial intelligence enhances service interactions by enabling systems to learn from consumer data and provide adaptive responses. Similarly, Davenport et al. (2020) explain that AI technologies allow firms to transform consumer data into personalized services that increase interaction quality. Empirical evidence from Ifekanandu et al. (2023) and Arviollisa et al. (2021) also confirms that AI-based personalization improves customer experience by increasing the relevance and efficiency of digital services.

The findings also indicate that AI personalization positively influences consumer loyalty. This suggests that personalized services strengthen consumers' commitment to continue using a digital platform. When consumers perceive that recommendations and offers are aligned with their preferences, they are more likely to maintain long-term engagement with the platform.

From a theoretical perspective, Kotler and Keller (2016) explain that loyalty develops when consumers consistently perceive value and satisfaction from a service. AI personalization contributes to this value by improving the relevance of marketing interactions. In line with this, Bleier and Eisenbeiss (2015) highlight that personalized digital content increases consumer engagement and strengthens relationships with digital platforms. Previous studies by Yin et al. (2025) further demonstrate that AI-driven personalization can significantly enhance consumer loyalty in digital marketplaces.

The results further reveal that customer experience significantly influences consumer loyalty. According to Lemon and Verhoef (2016), customer experience reflects cumulative interactions across the entire customer journey that shape consumer perceptions and behaviors. Similarly, Schmitt (1999) emphasizes that meaningful experiences can create strong emotional connections between consumers and brands. (Verhoef et al., 2009) also argue that positive

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customer experiences strengthen long-term relational outcomes such as loyalty. Empirical findings by Kurniawati and Ariyani (2021) support this relationship, showing that customer experience significantly contributes to consumer loyalty.

This result indicates that AI personalization influences loyalty primarily through the experiential value perceived by consumers. In other words, personalization technologies become effective in building loyalty when they create meaningful and positive customer experiences. This mechanism can be explained through the Stimulus–Organism–Response (S-O-R) framework proposed by Mehrabian and Russell (1974), where technological features act as stimuli that influence internal psychological states and subsequently shape behavioral responses. In digital commerce contexts, AI personalization functions as the stimulus that shapes customer experience as the internal evaluation, which then leads to loyalty as the behavioral outcome. This explanation is consistent with Hochreiter et al. (2023) and empirical findings by Ifekanandu et al. (2023), which highlight that personalization technologies influence consumer behavior through experiential mechanisms

4. CONCLUSIONS AND SUGGESTION

This study investigates the relationships among AI personalization, customer experience, and consumer loyalty within digital commerce platforms. The empirical findings reveal that AI personalization positively and significantly influences both customer experience and consumer loyalty. By delivering tailored recommendations and adaptive interactions, intelligent technologies increase consumers' perceptions of relevance, convenience, and service quality throughout the purchasing journey. The results further demonstrate that customer experience exerts a significant positive influence on consumer loyalty while serving as the mechanism through which AI personalization generates its indirect effect. These findings indicate that the effectiveness of personalization technologies in fostering enduring customer commitment is largely driven by their ability to create valuable and satisfying consumption experiences.

The findings support the perspective that technological innovation in digital services should be understood not only as a functional tool but also as a driver of experiential value that shapes consumer behavior. From both practical and managerial perspectives, the findings emphasize the importance of strategically implementing AI-based personalization systems that not only enhance technological effectiveness but also prioritize ethical responsibility. Companies are encouraged to deliver relevant recommendations, personalized communication, and adaptive service features that improve customer experience while remaining transparent, helpful, and non-intrusive. By focusing on customer value, shopping convenience, and responsible data practices, organizations can strengthen consumer trust, foster emotional engagement, and maintain long-term customer loyalty.

To support sustainable consumer relationships, companies should clearly communicate how consumer data are collected, processed, and utilized within AI systems. Providing users with accessible privacy controls, personalized preference settings, and understandable recommendation mechanisms may help strengthen trust and enhance perceptions of platform credibility. In addition, AI personalization strategies should prioritize customer value and shopping convenience rather than merely increasing promotional exposure.

The findings further indicate that ethical and seamless AI-driven customer experiences can strengthen emotional engagement and encourage long-term consumer loyalty. Consequently, e-commerce platforms need to balance personalization effectiveness with consumer privacy protection in order to maintain sustainable digital relationships with consumers.

Notwithstanding its contributions, several limitations should be acknowledged. First, the analysis is confined to a single digital marketplace, which may reduce the applicability of the findings to other industries or online commerce settings. Second, the cross sectional design captures consumer perceptions at only one point in time, limiting the ability to observe how

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evaluations and loyalty evolve as users gain continued experience with the platform. Moreover, the proposed model incorporates a relatively limited number of constructs. Additional factors, including consumer trust, privacy concerns, perceived service quality, and technology readiness, may also play important roles in shaping loyalty within AI enabled digital environments and therefore warrant further investigation.

Furthermore, the respondent profile was dominated by younger participants, particularly students, which may cause the findings to reflect the attitudes and behavioral patterns of highly digitally engaged consumers. Individuals from older age groups or different socioeconomic segments may evaluate AI enabled personalization differently, especially with respect to privacy protection, trust in intelligent technologies, and perceptions of intrusive digital practices.

Future investigations are encouraged to extend the proposed framework by incorporating additional mediating or moderating constructs, including trust in AI, perceived privacy risk, and technology readiness. Employing longitudinal research designs would also provide a richer understanding of how customer experience and loyalty develop through continued interactions with intelligent systems over time. In addition, cross industry and cross national comparisons could offer broader evidence regarding the ways contextual, cultural, and technological conditions influence consumer responses to AI enabled personalization.

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