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AI-Powered Personalization and Privacy Concern as Drivers of E-Loyalty: The Mediating Role of Online Trust in TikTok Shop

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A B S T R A C T

AI-based recommendation systems have become an important part of the shopping experience on TikTok Shop, allowing users to encounter products that are more closely aligned with their interests. At the same time, the extensive use of personal and behavioural data may create concerns about user privacy. This research investigates how Perceived AI Personalization and Privacy Concern relate to E-Loyalty among TikTok Shop users, while considering Online Trust as an intervening mechanism. The study involved 200 TikTok Shop users in Indonesia who were selected through purposive sampling. Responses were obtained through an online survey and evaluated using PLS-SEM with SmartPLS 3.2.9 The analysis indicates that Perceived AI Personalization strengthens Online Trust, although its direct association with E-Loyalty is not statistically supported. Privacy Concern, in contrast, weakens both Online Trust and E-Loyalty. Higher Online Trust is also associated with stronger E-Loyalty. The mediation analysis reveals that Online Trust fully carries the influence of Perceived AI Personalization on E-Loyalty, whereas it only partially carries the influence of Privacy Concern. The proposed model accounts for 17.3% of the variation in Online Trust and 35.1% of the variation in E-Loyalty. Overall, the results indicate that personalization is more likely to encourage loyalty when it first contributes to user trust, while privacy concerns may undermine loyalty both directly and by weakening trust.

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1. INTRODUCTION

The growth of social commerce has changed the way consumers encounter products and decide what to purchase online. In contrast to traditional e-commerce, where users generally search for products intentionally, social commerce integrates entertainment, social interaction, product discovery, and transactions within a single digital environment. TikTok Shop exemplifies this transformation by combining short-form videos, livestream shopping, creator-generated promotions, and direct purchasing features. Its discovery-based model enables products to be proactively presented through algorithmically curated content on users' For You Page (Febriani, 2025; Putri et al., 2024; Rahmawati & Ramli, 2024).

The significance of TikTok Shop in Indonesia is reflected in both its audience reach and transaction value. Data from TikTok's advertising platform suggested that its potential reach was approximately 180 million people in Indonesia aged 18 and older by the end of 2025, although the reported number represents advertising reach rather than monthly active users (Kemp, 2025). Indonesia also reportedly generated approximately US$13.1 billion in TikTok Shop gross merchandise value in 2025, making it one of the platform's largest national markets (Mediana, 2026). These figures demonstrate the increasing importance of TikTok Shop within Indonesia's digital-commerce ecosystem.

Artificial intelligence plays a central role in this ecosystem by analysing users' viewing duration, interactions, preferences, search activities, and purchasing history to generate personalized product recommendations. When users perceive these recommendations as relevant and useful, AI personalization can reduce product-search effort, improve the shopping experience, and strengthen engagement and loyalty (Jayapal, 2025; Koneti, 2025; Madhuri et al., 2024; Maylinda & Andarini, 2024). However, highly accurate personalization requires extensive collection and processing of behavioural data, creating a personalization–privacy paradox in which users value personalized services while simultaneously worrying about how their personal information is collected, used, and protected (Cloarec et al., 2024; Vishwakarma et al., 2025).

Privacy-related risks are not merely theoretical. In May 2025, researchers reported that more than 1.6 million files stored in unprotected cloud containers exposed customer information associated with several online marketplaces, including some TikTok Shop transactions. The exposed records reportedly included names, email addresses, delivery information, purchased products, and order details. Although the incident was not identified as a direct breach of TikTok's internal systems, it demonstrates how customer data may be exposed across the broader network supporting social-commerce transactions (Petkauskas, 2025). In Indonesia, the temporary suspension of TikTok's Electronic System Provider Registration Certificate in October 2025 due to incomplete data disclosure also illustrates the growing regulatory importance of platform transparency and accountability (Amelia & Nurkhaerani, 2025)

Online trust is therefore essential in explaining how users respond to the benefits and risks of AI-powered personalization. Online trust reflects the extent to which users believe that a digital platform can operate dependably, act transparently, perform effectively, and safeguard both their interests and personal information. Relevant recommendations may strengthen trust by demonstrating the platform's ability to understand users' needs, whereas privacy concerns may weaken trust by creating uncertainty about data collection and protection. Trust may subsequently influence e-loyalty, which refers to users' commitment to continue using a platform, make repeat purchases, prefer it over competitors, and recommend it to others (Hassan et al., 2025; Rahmawati & Ramli, 2024).

This study applies the Stimulus–Organism–Response framework and Privacy Calculus Theory to explain these relationships. Perceived AI personalization is positioned as a positive stimulus representing the benefits of relevant recommendations, while privacy concern represents a negative stimulus associated with perceived data risks. Both stimuli influence online trust as the organism component, which subsequently shapes e-loyalty as the behavioural response. Privacy Calculus Theory further explains that users compare the expected benefits of personalization with the associated privacy risks before deciding whether to trust and continue using a digital platform (Dinev & Hart, 2006; Mehrabian & Russell, 1974).

Previous studies have produced inconsistent findings regarding these relationships. Some studies found that AI personalization directly increased consumer loyalty, while others suggested that its influence depended on the formation of trust. Similarly, privacy concern has generally been associated with weaker digital behaviour and data-sharing intention, although its influence may become less significant when users perceive substantial benefits from personalized technology (Ameen et al., 2022; Cloarec et al., 2024; Maylinda & Andarini, 2024; Septiari & Putranta, 2025). Therefore, this study examines the direct effects of Perceived AI Personalization and Privacy Concern on the E-Loyalty of TikTok Shop users in Indonesia, as well as their indirect effects through Online Trust. The study contributes by providing an integrated explanation of the personalization–privacy paradox and offering practical insights into balancing recommendation relevance, platform transparency, and user privacy protection. The findings demonstrate that Perceived AI Personalization positively influences Online Trust but has no significant direct effect on E-Loyalty. Privacy Concern negatively influences both Online Trust and E-Loyalty, whereas Online Trust positively affects E-Loyalty, acts as a full mediator in the link between Perceived AI Personalization and E-Loyalty, while serving as a partial mediator in the association between Privacy Concern and E-Loyalty.

2. METHOD

A quantitative explanatory design was adopted to examine the associations involving Perceived AI Personalization, Privacy Concern, Online Trust, and E-Loyalty Perceived AI Personalization and Privacy Concern functioned as the predictor variables, whereas E-Loyalty served as the outcome variable. Online trust served as a mediating variable through which the two independent variables were expected to influence e-loyalty. This design allowed the proposed direct and indirect relationships to be examined empirically.

The target population comprised individuals living in Indonesia who used TikTok Shop. Since the exact number of users who met the research requirements was unknown, non-probability sampling with a purposive sampling technique was applied. Eligible respondents were Indonesian citizens living in Indonesia, at least 17 years old, active users of TikTok Shop, and had purchased a product through the platform based on an algorithmic recommendation within the previous six months. Such recommendations included products encountered through the For You Page, livestream shopping, or videos containing the yellow-basket feature.

A minimum of 200 respondents was set as the required sample size in accordance with PLS-SEM considerations. The sample requirement was determined using the ten-times guideline proposed by Hair et al. (2022), the sample size was calculated by multiplying the 20 initial measurement indicators by ten. The target was also intended to provide sufficient statistical power and to anticipate incomplete or invalid responses during the data-screening

process. Only questionnaires that met the respondent criteria and were completed appropriately were included in the analysis.

Data were collected online from March to July 2026 using a structured questionnaire administered through Google Forms. According to Sugiyono (2024), questionnaires are suitable for quantitative studies because they allow information to be gathered from many participants in a consistent and structured manner. The survey was circulated through social media and selected online communities in order to reach TikTok Shop users from various parts of Indonesia. Eligibility questions appeared at the start of the survey so that only respondents who fulfilled the specified criteria could proceed. Participation in this study was voluntary, and all information was collected solely for academic purposes. To protect respondents' privacy, the data were analyzed in aggregate form without disclosing any personally identifiable information.

The questionnaire contained 20 items covering four research constructs. Items related to Perceived AI Personalization were developed by referring to the measures proposed by Koneti (2025), Madhuri et al. (2024), and Maylinda and Andarini (2024). Measures for Privacy Concern drew on the works of Septiari and Putranta (2025), Vishwakarma et al. (2025), and Widyastuti et al. (2025). Meanwhile, the items for Online Trust and E-Loyalty were derived from Rahmawati and Ramli (2024) and Hassan et al. (2025). Some statements were modified so that their wording was more appropriate to the context and functions of TikTok Shop. Each statement was rated on a five-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree).

Before the full-scale data collection was undertaken, the questionnaire was tested on 30 TikTok Shop users who fulfilled the study requirements. This preliminary test was intended to determine whether the items were understandable and whether the measures demonstrated adequate validity and reliability. The retained constructs produced Average Variance Extracted (AVE) The AVE results fell within the range of 0.581–0.713, whereas composite reliability values varied from 0.823 to 0.881. All recorded VIF values remained under 5, providing no indication of problematic multicollinearity. One indicator of Perceived AI Personalization returned an outer loading of 0.649. The indicator was nevertheless maintained because the construct as a whole still fulfilled the established requirements for convergent validity and reliability. Based on these results, the questionnaire was considered adequate for use in the main survey.

The dataset was analyzed in SmartPLS 3.2.9 through Partial Least Squares Structural Equation Modeling (PLS-SEM). Assessment began with the measurement model to verify convergent validity, internal consistency, and discriminant validity. Convergent validity was evaluated using indicator loadings together with the Average Variance Extracted (AVE). Loadings of at least 0.70 were considered satisfactory, while each construct was expected to achieve an AVE above 0.50. Internal consistency was assessed through Cronbach's alpha, rho_A, and composite reliability, with values of 0.70 or higher taken as acceptable. To verify that the constructs captured sufficiently different concepts, discriminant validity was checked through the Heterotrait–Monotrait (HTMT) ratio, using 0.85 as the maximum acceptable value.

Once these measurement requirements were satisfied, attention shifted to the structural relationships in the model. The structural model was examined through VIF for collinearity, R^2 for explanatory power, f^2 for effect magnitude, and Q^2 for predictive relevance. Bootstrapping was then applied to evaluate the statistical significance of the hypothesized paths. A hypothesis was considered supported when its t-statistic exceeded 1.96 and the corresponding p-value was below 0.05. The indirect paths were subsequently assessed to

establish the mediating role of Online Trust and to determine whether its mediation between Perceived AI Personalization, Privacy Concern, and E-Loyalty was full or partial.

3. RESULTS AND DISCUSSIONS

The final analysis was based on 200 valid questionnaires completed by TikTok Shop users in Indonesia who fulfilled the eligibility requirements of the study. Data processing was carried out in SmartPLS 3.2.9 and followed two analytical stages. The analysis proceeded in two sequential steps using SmartPLS 3.2.9. The measurement model was initially examined to verify indicator validity, construct reliability, discriminant validity, and collinearity. Once the measurement criteria had been satisfied, attention shifted to the structural model, where R^2, f^2, and Q^2 were used to assess explanatory strength, effect magnitude, and predictive capability. The hypothesized direct and mediated paths were subsequently tested.

3.1. Respondent Profile

A total of 200 valid responses from TikTok Shop users in Indonesia were included in the final analysis. The respondents consisted of 125 males (62.5%) and 75 females (37.5%). Based on occupation, the majority were students (81.5%), followed by private employees (12.5%), freelancers (3.0%), entrepreneurs (2.5%), and civil servants (0.5%). Regarding geographical distribution, most respondents resided in Java (49.5%), followed by Kalimantan (38.0%), Sumatra (6.0%), Sulawesi (6.0%), and Bali and Nusa Tenggara (0.5%). These demographic characteristics show that the sample included active TikTok Shop users from several regions of Indonesia and was suitable for examining the relationships among Perceived AI Personalization, Privacy Concern, Online Trust, and E-Loyalty.

Table 1. Respondent Profile (N = 200)

Characteristic	Category	Number	Percentage (%)
Gender	Male	125	62.5
	Female	75	37.5
Occupation	Student	163	81.5
	Private Employee	25	12.5
	Freelancer	6	3.0
	Entrepreneur	5	2.5
	Civil Servant (ASN)	1	0.5
Region	Java	99	49.5
	Kalimantan	76	38.0
	Sumatra	12	6.0
	Sulawesi	12	6.0
	Bali & Nusa Tenggara	1	0.5

3.2. Measurement Model Evaluation

3.2.1. Convergent Validity and Construct Reliability

The measurement model was examined to determine whether the indicators adequately reflected the constructs they were intended to measure and whether the instrument demonstrated sufficient consistency. A total of 20 indicators were included in the initial model. During the first estimation, EL2 and OT4 produced outer loading values below the required level of 0.70. Both indicators were consequently excluded. The model was then estimated again with 18 remaining indicators, all of which met the required standards for convergent validity and construct reliability.

Table 2. Measurement Model Assessment

Construct	Indicator	Outer Loading	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Perceived AI Personalization	PAP1	0.785	0.826	0.836	0.877	0.588
	PAP2	0.765				
	PAP3	0.737				
	PAP4	0.753				
	PAP5	0.793				
Privacy Concern	PC1	0.783	0.836	0.850	0.883	0.602
	PC2	0.835				
	PC3	0.753				
	PC4	0.775				
	PC5	0.731				
Online Trust	OT1	0.813	0.837	0.842	0.891	0.671
	OT2	0.835				
	OT3	0.822				
	OT5	0.807				
E-Loyalty	EL1	0.788	0.774	0.777	0.855	0.595
	EL3	0.739				
	EL4	0.800				
	EL5	0.758				

Table 2 shows that the outer loadings of the retained indicators fell between 0.731 and 0.835. PC5 produced the lowest loading at 0.731, whereas PC2 and OT2 shared the highest value of 0.835. As every retained indicator had an outer loading above 0.70, each was considered sufficiently representative of its corresponding latent construct. Accordingly, no additional indicators needed to be removed.

The reliability of the constructs was assessed using Cronbach's alpha, rho_A, and composite reliability. Cronbach's alpha ranged from 0.774 to 0.837, rho_A from 0.777 to 0.850, and composite reliability from 0.855 to 0.891. Because all values were above the 0.70 benchmark, each construct showed satisfactory internal consistency. The AVE results were 0.588 for Perceived AI Personalization, 0.602 for Privacy Concern, 0.671 for Online Trust, and 0.595 for E-Loyalty. As every AVE value surpassed 0.50, the constructs were able to explain more than half of the variance in their corresponding indicators. Overall, the results indicate that both construct reliability and convergent validity were adequately achieved.

3.2.2. Discriminant Validity

Discriminant validity was then examined through the Heterotrait–Monotrait (HTMT) ratio to determine whether the constructs represented sufficiently distinct concepts. The criterion was considered satisfied when the HTMT value for each pair of constructs remained below 0.85.

Table 3. Discriminant Validity Using the HTMT Criterion

Construct	EL	OT	PAP	PC
E-Loyalty	—			
Online Trust	0.701	—		
Perceived AI Personalization	0.253	0.303	—	
Privacy Concern	0.407	0.382	0.120	—

Table 3 reports HTMT values between 0.120 and 0.701, with every value remaining below the 0.85 criterion. The strongest association was observed between Online Trust and E-Loyalty, with an HTMT value of 0.701, whereas the weakest association appeared between Privacy Concern and Perceived AI Personalization, at 0.120. The HTMT values between Privacy Concern and E-Loyalty and between Privacy Concern and Online Trust were 0.407 and 0.382, respectively. Meanwhile, the relationships of Perceived AI Personalization with E-Loyalty and Online Trust produced values of 0.253 and 0.303. These findings demonstrate that no excessive measurement overlap existed among the constructs; therefore, discriminant validity was established.

3.3. Structural Model Evaluation

3.3.1. Collinearity Assessment

The structural model was evaluated in terms of collinearity, explanatory capacity, effect magnitude, and predictive performance. Potential collinearity among the predictor variables was examined through the Variance Inflation Factor (VIF) to determine whether relationships among the predictors could distort the estimated path coefficients. A VIF value below 5 was used as the criterion for indicating the absence of problematic collinearity.

Table 4. Collinearity Evaluation Results

Relationship	VIF	Decision
OT → EL	1.209	No collinearity problem
PAP → EL	1.075	No collinearity problem
PC → EL	1.133	No collinearity problem
PAP → OT	1.000	No collinearity problem
PC → OT	1.000	No collinearity problem

As reported in Table 4, the VIF values varied between 1.000 and 1.209. The Online Trust → E-Loyalty relationship produced the highest VIF value of 1.209, whereas the paths from Perceived AI Personalization and Privacy Concern to Online Trust each recorded a value of 1.000. Because every VIF value remained well below the threshold of 5, collinearity was not considered a concern in the structural model, and the estimation of the path coefficients was unlikely to be distorted by excessive correlations among the predictors.

3.3.2. Coefficient of Determination

Table 5. Coefficient of Determination Results

Endogenous Construct	R^2	Decision
E-Loyalty	0.351	Weak
Online Trust	0.173	Weak

Table 5 summarizes how much variance in the endogenous constructs was explained by the model. For E-Loyalty, the R^2 value was 0.351, indicating that Perceived AI Personalization,

Privacy Concern, and Online Trust collectively explained 35.1% of its variance, while 64.9% remained attributable to other variables not included in the study. Online Trust produced an R^2 of 0.173, meaning that Perceived AI Personalization and Privacy Concern explained 17.3% of its variance, with the remaining 82.7% influenced by factors outside the proposed model. Referring to the benchmarks of 0.75, 0.50, and 0.25 for substantial, moderate, and weak explanatory power, respectively, the explanatory strength for both endogenous variables was considered weak. Nevertheless, the model showed a relatively greater ability to explain E-Loyalty than Online Trust.

3.3.3. Effect Size

Table 6. Effect Size (f^2) Testing Results

Relationship	f^2	Decision
OT → EL	0.308	Medium
PAP → EL	0.009	No meaningful effect
PC → EL	0.039	Small
PAP → OT	0.074	Small
PC → OT	0.133	Small

Table 6 shows that the relationship between Online Trust and E-Loyalty produced an f^2 value of 0.308 and was classified as having a medium effect. This was the largest effect size in the model, indicating that Online Trust made the strongest contribution to explaining E-Loyalty. Privacy Concern toward Online Trust, Perceived AI Personalization toward Online Trust, and Privacy Concern toward E-Loyalty produced f^2 values of 0.133, 0.074, and 0.039, respectively, and were classified as having small effects. The f^2 value for the relationship between Perceived AI Personalization and E-Loyalty was 0.009, which was below the threshold for a small effect. This finding indicates that Perceived AI Personalization made only a very limited direct contribution to explaining E-Loyalty.

3.3.4. Predictive Relevance

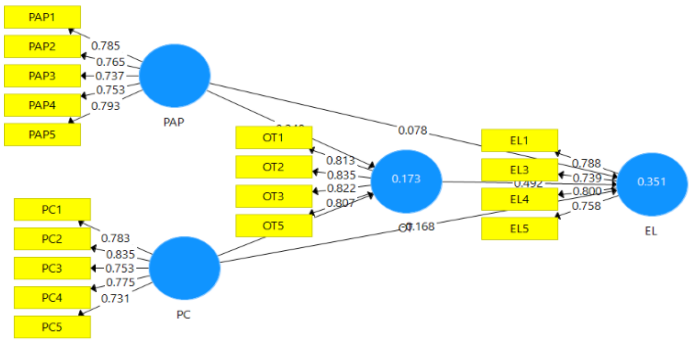
Table 7. Predictive Relevance (Q^2) Testing Results

Endogenous Construct	Q^2	Decision
E-Loyalty	0.200	Weak
Online Trust	0.110	Weak

The predictive relevance results are summarized in Table 7. E-Loyalty obtained a Q^2 value of 0.200, while Online Trust recorded a value of 0.110. As both values were above zero, the model demonstrated predictive relevance for each endogenous construct. The larger Q^2 value for E-Loyalty further suggests that the model provided better predictive performance for E-Loyalty than for Online Trust.

Figure 1 illustrates the estimated PLS-SEM model generated in SmartPLS 3.2.9. Perceived AI Personalization and Privacy Concern are positioned as exogenous constructs, Online Trust functions as the mediating construct, and E-Loyalty serves as the main endogenous construct. The figure displays the estimated path coefficients linking Perceived AI Personalization and Privacy Concern with Online Trust and E-Loyalty, together with the path from Online Trust to E-Loyalty. These coefficients provide an overview of the direction and relative magnitude of the proposed relationships before their statistical significance is tested through bootstrapping.

Figure 1. PLS-SEM Estimation Model



3.3.5. Direct Effects and Hypothesis Testing

The hypotheses were evaluated through a bootstrapping analysis conducted in SmartPLS 3.2.9. The direct and mediated paths were evaluated using their estimated coefficients, t-statistics, and p-values. Statistical significance was established when the t-statistic exceeded 1.96 and the corresponding p-value fell below 0.05, based on a 5% significance criterion. For reporting purposes, p-values shown by SmartPLS as 0.000 were written as <0.001.

Table 8. Direct Effects and Hypothesis Testing

Hypothesis	Relationship	β	t-Statistic	p-Value	Result	Decision
H1a	PAP → OT	0.248	4.058	<0.001	Positive and significant	Accepted
H1b	PAP → EL	0.078	1.352	0.176	Positive and not significant	Rejected
H2a	PC → OT	−0.331	5.537	<0.001	Negative and significant	Accepted
H2b	PC → EL	−0.168	2.888	0.004	Negative and significant	Accepted
H3a	OT → EL	0.492	9.526	<0.001	Positive and significant	Accepted

Table 8 summarizes the outcomes of the five direct paths tested in the model. Perceived AI Personalization was positively associated with Online Trust, and this relationship was statistically significant (β = 0.248, t = 4.058, p < 0.001), providing support for H1a. This finding suggests that stronger perceptions of AI-based personalization tend to be accompanied by higher levels of trust in TikTok Shop. However, its direct relationship with E-Loyalty was not statistically supported (β = 0.078, t = 1.352, p = 0.176). Accordingly, H1b was rejected, indicating that personalization alone did not directly lead to greater user loyalty.

Privacy Concern, on the other hand, was negatively related to Online Trust (β = −0.331, t = 5.537, p < 0.001), supporting H2a. This result shows that higher concern about privacy is associated with lower trust in TikTok Shop. A similar negative pattern was also found for E-Loyalty, where Privacy Concern produced a significant coefficient of −0.168 (t = 2.888, p = 0.004). Therefore, H2b was accepted, suggesting that stronger privacy concerns may also weaken users' loyalty toward the platform.

Of the direct effects examined, the strongest relationship was found between Online Trust and E-Loyalty. The path coefficient reached 0.492, with a t-statistic of 9.526 and a p-value below 0.001. These results support H3a and indicate that greater trust in TikTok Shop is closely associated with stronger E-Loyalty.

3.3.6. Indirect Effects and Mediation Testing

Table 9. Indirect Effects and Mediation Testing

Hypothesis	Indirect Relationship	β	t-Statistic	p-Value	95% CI	Mediation Type	Decision
H3b	PAP → OT → EL	0.122	3.619	<0.001	0.062–0.194	Full mediation	Accepted
H3c	PC → OT → EL	−0.163	4.969	<0.001	−0.232 to −0.104	Partial mediation	Accepted

The mediation results reported in Table 9 show that Perceived AI Personalization had a significant indirect relationship with E-Loyalty through Online Trust (β = 0.122, t = 3.619, p < 0.001). Its 95% confidence interval extended from 0.062 to 0.194, with zero falling outside this range. This confirms the statistical significance of the indirect pathway. Since Perceived AI Personalization did not show a significant direct association with E-Loyalty, its effect on loyalty occurred exclusively through Online Trust. Accordingly, Online Trust functioned as a full mediator, and H3b was accepted.

Privacy Concern also showed a significant indirect relationship with E-Loyalty through Online Trust, yielding β = −0.163, t = 4.969, and p < 0.001. The 95% confidence interval extended from −0.232 to −0.104 and excluded zero. This negative pathway suggests that increasing privacy concerns are associated with reduced Online Trust, which in turn is associated with lower E-Loyalty. Since both the direct and indirect relationships between Privacy Concern and E-Loyalty were statistically significant, the mediation was classified as partial. Thus, H3c was accepted.

3.4. Discussion

The findings demonstrate that Online Trust plays a central role in the formation of E-Loyalty among TikTok Shop users. Perceived AI Personalization increased Online Trust but did not directly influence E-Loyalty. Privacy Concern reduced both Online Trust and E-Loyalty, while Online Trust positively influenced E-Loyalty. Online Trust also fully mediated the effect of Perceived AI Personalization and partially mediated the effect of Privacy Concern on E-Loyalty.

3.4.1. The Effect of Perceived AI Personalization on Online Trust

Perceived AI Personalization had a positive and significant effect on Online Trust (β = 0.248, p < 0.001), supporting H1a. Relevant recommendations may increase users' confidence that TikTok Shop understands their preferences and can provide useful services. This finding is consistent with Madhuri et al. (2024), Maylinda and Andarini (2024) and Koneti (2025), who emphasized that relevant and transparent personalization can strengthen trust in digital platforms.

3.4.2. The Effect of Perceived AI Personalization on E-Loyalty

Perceived AI Personalization did not have a significant direct effect on E-Loyalty (β = 0.078, p = 0.176); therefore, H1b was rejected. Personalized recommendations may simplify

product discovery but are not sufficient to create repeat purchases or long-term platform preference. This result supports Jayapal (2025), who found that the effect of personalization on loyalty depends on the formation of trust and user engagement.

3.4.3. The Effect of Privacy Concern on Online Trust

Privacy Concern had a negative and significant effect on Online Trust ($\beta = -0.331$, $p < 0.001$), supporting H2a. Concerns regarding excessive data collection, unclear data use, and highly specific recommendations may cause users to question the platform's security and integrity. This result is consistent with Privacy Calculus Theory and previous findings by Cloarec et al. (2024) and Widyastuti et al. (2025).

3.4.4. The Effect of Privacy Concern on E-Loyalty

Privacy Concern negatively and significantly influenced E-Loyalty ($\beta = -0.168$, $p = 0.004$), supporting H2b. Users who are concerned about personal-data security may reduce transactions, avoid storing payment information, or move to platforms perceived as safer. Although the effect size was small, the result confirms that privacy risks can weaken continued usage and loyalty.

3.4.5. The Effect of Online Trust on E-Loyalty

Online Trust was found to significantly and positively influence E-Loyalty ($\beta = 0.492$, $p < 0.001$), supporting H3a. It also had the largest direct coefficient and effect size in the model. When TikTok Shop is perceived as reliable and capable of protecting users' interests, users are more willing to make repeat purchases, continue using the platform, and recommend it to others. This result supports Hassan et al. (2025) and Rahmawati and Ramli (2024).

3.4.6. The Mediating Role of Online Trust Between Perceived AI Personalization and E-Loyalty

The indirect effect of Perceived AI Personalization on E-Loyalty through Online Trust was positive and significant ($\beta = 0.122$, $p < 0.001$). Since the direct effect was not significant, Online Trust fully mediated the relationship, supporting H3b. This means that personalization strengthens loyalty only after it successfully builds user trust, consistent with Jayapal (2025) and Kusbianto et al. (2026).

3.4.7. The Mediating Role of Online Trust Between Privacy Concern and E-Loyalty

The indirect effect of Privacy Concern on E-Loyalty through Online Trust was negative and significant ($\beta = -0.163$, $p < 0.001$). Because both the direct and indirect effects were significant, Online Trust partially mediated the relationship, supporting H3c. Privacy concerns therefore reduce loyalty both directly and indirectly by weakening users' trust. TikTok Shop should consequently combine trust-building strategies with transparent data use, stronger privacy protection, and greater user control.

4. CONCLUSION

This study examined the effects of Perceived AI Personalization and Privacy Concern on E-Loyalty through Online Trust among 200 TikTok Shop users in Indonesia. The findings demonstrate that Perceived AI Personalization has a positive and significant effect on Online Trust but does not have a statistically significant direct effect on E-Loyalty. Privacy Concern has negative and significant effects on both Online Trust and E-Loyalty. Online Trust exerted a significant positive influence on E-Loyalty and emerged as the strongest direct predictor in the research model.

Online Trust fully mediates the effect of Perceived AI Personalization on E-Loyalty and partially mediates the effect of Privacy Concern on E-Loyalty. Overall, six of the seven

hypotheses received empirical support, while the hypothesis concerning the direct effect of Perceived AI Personalization on E-Loyalty was rejected. These findings demonstrate that the benefits of AI-based personalization can strengthen loyalty only when they successfully increase user trust. In contrast, privacy concerns can reduce loyalty both directly and indirectly by weakening users' trust in TikTok Shop. Therefore, TikTok Shop and similar platforms should combine relevant personalization with transparent data practices, effective privacy protection, and sufficient user control to maintain long-term trust and loyalty.

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