



The Effect of Personalized Advertising on Purchase Intention: The Mediating Role of Attitude Toward Ads among Shopee Users

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Abstract

Technological advances in artificial intelligence and data analytics have enabled e-commerce platforms to deliver highly personalized advertising. However, how consumers psychologically respond to such personalization remains unclear, particularly in emerging markets. Drawing on Privacy Calculus Theory and the Affect Transfer Hypothesis, this study examines the influence of personalized advertising on purchase intention among Shopee users in Indonesia, with attitude toward advertising as a mediating variable. Data were collected from 114 Shopee users using purposive sampling and analyzed using regression and Hayes' PROCESS mediation analysis. The results indicate that personalized advertising has a significant direct effect on purchase intention and a significant indirect effect through attitude toward advertising, indicating partial mediation. These findings suggest that personalization influences purchasing not only by improving information fit but also by shaping consumers' cognitive and emotional evaluations of advertising. This study contributes to the personalized advertising literature by demonstrating the mediating role of attitude toward advertising in an emerging e-commerce context. Practically, the results highlight the importance of designing personalized advertising that balances relevance with consumer trust and perceived privacy.

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1. INTRODUCTION

Technological advances in artificial intelligence, data analytics, mobile applications, and social media have transformed how firms communicate with consumers, enabling the rapid expansion of personalized advertising (Grewal et al., 2020). In Indonesia, this transformation is particularly visible. By early 2025, the country recorded 212 million internet users (74.6% of the population) and over 356 million mobile connections, reflecting deep digital penetration (Datareportal, 2025). Indonesia's e-commerce sector is projected to reach USD 94.5 billion by 2025 and nearly USD 194 billion by 2030 (Mordor



Intelligence, 2024). Among major platforms, Shopee dominates in traffic and transaction volume, outperforming Tokopedia, Lazada, and Blibli (Momentum Works, 2025). This dominance reflects how algorithm-driven personalization has become central to customer engagement, brand loyalty, and consumer decision-making in digital marketplaces (Alamin et al., 2023).

Personalized advertising refers to the practice of tailoring marketing messages to individual consumers based on their preferences, behaviors, and demographic profiles (Baek & Morimoto, 2012; Rahmawaty et al., 2024). Powered by artificial intelligence and data analytics, e-commerce platforms can now deliver advertising content that is highly relevant to each user, thereby increasing engagement, satisfaction, and purchase intention (Chhabria et al., 2023; V & Elantheraiyan, 2025). Prior studies show that personalization enhances satisfaction, purchase frequency, and retention by making consumers feel recognized and valued, while also improving marketing efficiency through the reduction of irrelevant promotions (Ho & Ho, 2008; Tran, 2017). Consumers increasingly expect personalized interactions; studies show that 71% expect customization, and 76% express frustration when it's absent (McKinsey, 2021). Yet, alongside these benefits, personalization also raises growing concerns about privacy and data use, with consumers reacting negatively when personalization is perceived as overly invasive or intrusive (Chen et al., 2022; De Keyzer et al., 2024).

This tension has produced two competing streams of research. One stream emphasizes the positive effects of personalization, showing that tailored messages improve relevance, perceived value, and purchase intention (Chhabria et al., 2023; Ho & Ho, 2008). The other stream highlights its risks, demonstrating that excessive targeting can trigger privacy concerns, perceived intrusiveness, and psychological reactance, thereby reducing advertising effectiveness and consumer trust (Chen et al., 2022; Zhu & Kanjanamekanant, 2021). These contradictory findings suggest that personalized advertising does not function as a purely technological stimulus; rather, it operates as a psychological experience that consumers must interpret, evaluate, and emotionally process.

Together, these streams suggest that consumer responses to personalization are best understood as an integrated cognitive–affective evaluation rather than as isolated reactions to relevance or privacy alone.

Attitude toward advertising captures this evaluative process. It reflects consumers' cognitive, affective, and conative responses to advertising (Schiffman & Kanuk, 2010). Personalized ads that are perceived as relevant, credible, and respectful of personal boundaries tend to evoke positive emotions and favorable evaluations, whereas ads perceived as intrusive or irrelevant generate irritation, distrust, and resistance (Ho Nguyen et al., 2022; Zhu & Kanjanamekanant, 2021). These attitudes are critical because they shape purchase intention, defined as a consumer's readiness or willingness to buy following exposure to advertising (Ho Nguyen et al., 2022; Vainikka, 2015). When consumers form positive attitudes toward personalized ads, purchase intention increases; when attitudes are negative, purchase intention declines (Kim & Han, 2025; Mehta & Kulkarni, 2022).

The psychological mechanism underlying these responses is explained by two complementary theories. According to Privacy Calculus Theory, consumers cognitively evaluate personalized advertising by weighing perceived benefits such as relevance, informativeness, and convenience against perceived risks such as privacy invasion and data misuse (Baek & Morimoto, 2012; Chen et al., 2022; Culnan & Armstrong, 1999). When benefits outweigh risks, positive attitudes emerge, increasing engagement and purchase intention. When perceived risks dominate, consumers resist or avoid the advertising. At the same time, the Affect Transfer Hypothesis proposes that the emotions generated during this evaluation process such as enjoyment, trust, or irritation transfer to attitudes and subsequently influence behavioral responses, including purchase intention (Ates & Odzic, 2023; Lutz, 1985; MacKenzie & Lutz, 1989).

Despite these theoretical insights, a critical gap remains in the literature. Much of the existing research treats personalization and privacy as distinct constructs, typically

modeling privacy as an external moderator. This approach fails to capture how consumers actually experience personalized advertising in practice, where privacy concerns are integrated into the overall perception of the advertisement rather than evaluated in isolation. Consequently, this study departs from conventional models by conceptualizing privacy as an internal perceptual dimension of personalized advertising itself. This operationalization allows a more accurate representation of the privacy calculus as a unified cognitive–affective evaluation through which personalization is transformed into either acceptance or resistance.

Building on this reconceptualization, the present study positions attitude toward advertising as the central psychological mechanism through which this unified perception of personalized advertising is translated into purchase intention. By modeling privacy as an internal dimension of personalized advertising rather than as a separate moderator, the study captures how consumers cognitively and emotionally integrate relevance, informativeness, credibility, and privacy when responding to algorithm-driven ads.

By empirically examining Shopee users in Indonesia, a major emerging market where algorithmic targeting is widespread but consumer trust remains fragile, this research extends personalization theory beyond Western contexts. Accordingly, this study examines the influence of personalized advertising on purchase intention, both directly and indirectly through attitude toward advertising. The proposed research framework is presented in Figure 1.

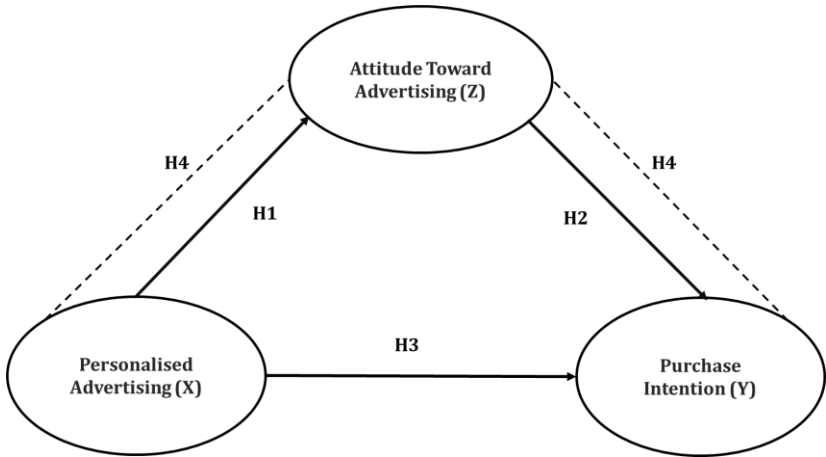


Figure 1. Conceptual Model
Source: Development by Researcher (2025)

Accordingly, the following hypotheses were proposed:
 H1: Personalized advertising positively influences attitude toward advertising.
 H2: Attitude toward advertising positively influences purchase intention.
 H3: Personalized advertising positively influences purchase intention.
 H4: Attitude toward advertising mediates the relationship between personalized advertising and purchase intention.

2. METHODS

This study adopts a quantitative explanatory design to test the mediating role of attitude toward advertising in the relationship between personalized advertising and purchase intention. Data were collected from Shopee users in Indonesia using purposive sampling (N=114). This population is theoretically appropriate because Shopee’s extensive use of algorithm-driven personalization provides a real-world context in which consumers continuously evaluate the trade-off between relevance and privacy. Participants were

screened to ensure they had been exposed to Shopee’s personalized advertising and had completed at least one transaction on the platform.

The adequacy of the sample size was evaluated based on statistical power requirements for mediation analysis. Fritz and Mackinnon (2007) demonstrated through Monte Carlo simulations that detecting medium-sized indirect effects with 0.80 statistical power requires approximately 71–116 observations, depending on the magnitude of the paths. With 114 valid responses, the present study falls within this recommended range, indicating sufficient power to reliably estimate both direct and indirect effects. To further enhance robustness, Hayes’ PROCESS Macro (Model 4) with 5,000 bias-corrected bootstrap samples was employed, generating confidence intervals that do not depend on normality assumptions (Hayes, 2019).

All constructs were measured using five-point Likert scales adapted from established literature to ensure content validity. Personalized Advertising was operationalized as a multi-dimensional perceptual construct capturing relevance, informativeness, credibility, and privacy. Attitude toward Advertising captured consumers’ cognitive and affective evaluations of advertising, while Purchase Intention measured transactional and exploratory tendencies. All scales demonstrated strong internal consistency, with Cronbach’s Alpha values exceeding the 0.70 threshold (Hair et al., 2019).

Data analysis was conducted using SPSS version 26. The analytical procedure included: (1) descriptive statistics and classical assumption testing (normality and multicollinearity); (2) validity and reliability assessment; and (3) regression-based mediation analysis using Hayes’ PROCESS Macro (Model 4) to examine the psychological transmission mechanism linking personalized advertising, attitude toward advertising, and purchase intention.

3. RESULT AND DISCUSSION

3.1. Results

This section presents the empirical results addressing the research objectives, namely to examine the influence of personalized advertising on purchase intention, both directly and indirectly through attitude toward advertising. The data were obtained from 114 valid Shopee users and analyzed using SPSS 26 and Hayes’ PROCESS Macro (Model 4). The demographic profile of the respondents is summarized in Table 1. The sample consisted primarily of male users (54.4%), with 87.8% aged between 18 and 34 years. This indicates that the respondents largely represent young, digitally active consumers who are frequently exposed to algorithm-driven personalization in e-commerce environments. More than half of the respondents were students (54.4%), followed by employees (26.3%) and self-employed or other occupations (19.3%). In addition, most respondents reported frequent use of Shopee (63.2%), suggesting a high level of familiarity with the platform’s personalized advertising features.

Table 1. Demographic Statistic of the sample

Demographic Variable	Category	Frequency	Percentage
Gender	Female	52	45.6 %
	Male	62	54.4 %
Age	18–24 years	50	43.9 %
	25–34 years	50	43.9 %
	>35 years	14	12.3 %
Occupation	Student	62	54.4 %
	Employee	30	26.3 %
	Self-employed & others	22	19.3 %
Shopee Usage Frequency	Often (≥ 3 times/month)	72	63.2 %
	Occasionally (< 3 times/month)	42	36.8 %

Source: Data Processed (2025)

These characteristics indicate that the sample represents a key segment of Indonesian e-commerce usersnamely, young and digitally engaged consumers for whom personalized advertising is a routine part of the online shopping experience. This makes the sample appropriate for examining how personalization influences attitudes and purchase intentions in platform-based retail environments.

Following the respondent profile analysis, measurement quality was evaluated using validity and reliability testing. As summarized in Table 2, all items exceeded the required validity threshold ($r > 0.184$) and all constructs achieved Cronbach's Alpha values above 0.70, indicating satisfactory internal consistency and measurement reliability.

Table 2. Validity and Reliability Test Results

Variable	Cronbach's Alpha	r-value Range	Result
Personalized Advertising	0.893	0.43–0.87	Valid & Reliable
Attitude toward Ads	0.911	0.65–0.89	Valid & Reliable
Purchase Intention	0.936	0.60–0.91	Valid & Reliable

Source: Data Processed (2025)

These results confirm that all constructs are valid and reliable. Consequently, the analysis proceeded to evaluate the classical assumptions to ensure the data was suitable for regression modelling.

After confirming the validity and reliability of the measurement instruments, classical assumption tests were conducted to assess the suitability of the regression model. The Kolmogorov–Smirnov test indicated that personalized advertising was normally distributed ($p=0.153$), while attitude toward advertising showed a slight deviation from normality ($p = 0.003$). This deviation does not compromise the analysis because the sample size ($n=114$) is sufficiently large for regression estimates to remain robust, and Hayes' PROCESS Macro relies on bootstrapping procedures that do not require normally distributed variables. Multicollinearity diagnostics further confirmed the adequacy of the model, with Tolerance values of 0.334 and VIF values of 2.992, indicating no problematic correlation among predictors. These results are summarized in Table 3.

Table 3. Assumption Test Results (Normality and Multicollinearity)

Variable	K-S Test (Sig.)	Tolerance	VIF	Result
Personalized Advertising	0.153	0.334	2.992	Normal, no multicollinearity
Attitude Toward Advertising	0.003	0.334	2.992	Slightly non-normal, acceptable (CLT)

Source: Data Processed (2025)

Following the confirmation of classical assumptions, the proposed hypotheses were tested using Hayes' PROCESS Macro (Model 4). This approach was selected for its robustness in estimating indirect effects via bootstrapping, which provides higher power and more accurate results for mediation analysis than traditional methods. Figure 2 presents the estimated relationships among personalized advertising (PA), attitude toward advertising (ATA), and purchase intention (PI), indicating that ATA serves as a partial mediator. The explanatory power of the model is substantial: personalized advertising explains 66.6% ($R^2=0.666$) of the variance in attitude toward advertising, and the combined predictors explain 66.8% ($R^2=0.668$) of the variance in purchase intention. These high (R^2) values demonstrate that the model captures a large proportion of the psychological process behind ad evaluation, providing strong empirical support for the conceptual framework.

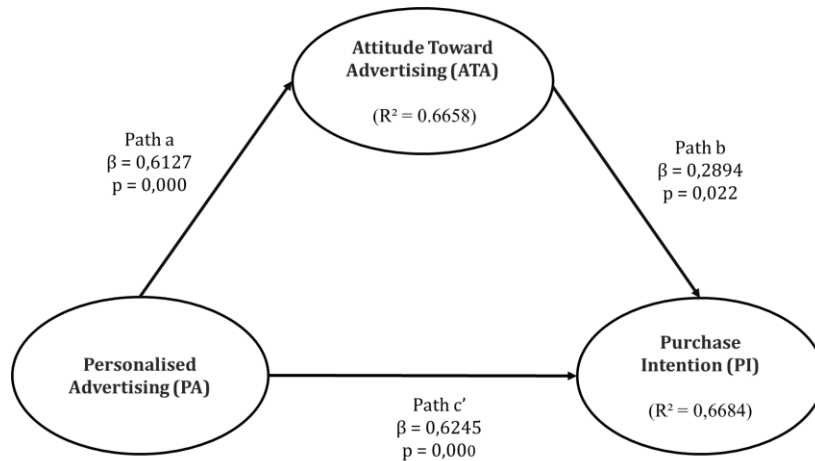


Figure 2. Model and Hypothesis Testing
Source: Data Processed (2025)

To examine these relationships in greater detail, regression and mediation analyses were conducted, and the results are summarized in Table 4.

Table 4. Regression and Mediation Analysis Results

Hypothesis	Relationship	β	t-statistic	p-value	BootLLCI	BootULCI	Result
H1	PA → ATA	0.6127	14.9364	0.000	–	–	Supported
H2	ATA → PI	0.2894	2.3153	0.022	–	–	Supported
H3	PA → PI	0.6245	6.6535	0.000	–	–	Supported
H4	PA → ATA → PI	0.1773	–	–	0.0038	0.3433	Supported

Source: Data Processed (2025)

As shown in Table 4, personalized advertising has a strong positive effect on attitude toward advertising ($\beta = 0.613$, $p < 0.001$) and a significant direct effect on purchase intention ($\beta = 0.625$, $p < 0.001$). Attitude toward advertising also significantly predicts purchase intention ($\beta = 0.289$, $p = 0.022$). To ensure robustness, a mediation analysis using Hayes' PROCESS Model 4 with 5,000 bootstrap samples was conducted. The results confirmed a significant indirect effect ($\beta = 0.177$, 95% CI [0.0038, 0.3433]). Since the 95% confidence interval does not include zero, partial mediation is statistically supported.

To assess the practical magnitude of these relationships, standardized coefficients were interpreted using effect size benchmarks for individual-difference research proposed by Gignac and Szodorai, (2016), where values around .10 indicate small, .20 typical, and .30 or higher large effects. The effects of personalized advertising on attitude toward advertising ($\beta = 0.61$) and on purchase intention ($\beta = 0.62$) both exceed the threshold for large effects, indicating that personalization has a substantial psychological and behavioral impact. Likewise, the effect of attitude toward advertising on purchase intention ($\beta = 0.29$) approaches the large-effect range, confirming that consumer attitudes play a meaningful role in translating personalized advertising into purchasing decisions.

3.2. Discussion

The findings show that personalized advertising influences purchase intention not merely through technological targeting, but through a cognitive–affective evaluation process. Consistent with Privacy Calculus Theory, consumers evaluate personalized advertising by weighing perceived benefits, such as relevance and informativeness, against perceived risks related to privacy (Culnan & Armstrong, 1999). However, this study extends the theory by showing that privacy is not evaluated as an external factor but is embedded within consumers' overall perception of the advertisement itself. When personalization

aligns with consumer expectations, it improves the cognitive appraisal of the ad, shifting the privacy calculus toward acceptance rather than resistance (Abdel Monem, 2021; Ates & Odzic, 2023).

The significant mediating role of attitude toward advertising further supports the Affect Transfer Hypothesis. Rather than responding directly to algorithmic targeting, consumers translate their cognitive evaluations of personalization into emotional reactions that shape their attitudes toward advertising (Lutz, 1985; MacKenzie & Lutz, 1989). These affective responses then influence purchase intention, confirming that advertising effectiveness depends on how personalized ads are experienced psychologically rather than on their technical accuracy alone (Ho Nguyen et al., 2022).

The coexistence of significant direct and indirect effects indicates a dual-pathway mechanism. Personalized advertising influences purchase intention through a functional pathway by improving information fit and reducing search effort (Tran, 2017), and through an evaluative pathway by shaping how consumers feel about the advertising. This explains why personalization can be highly effective when it is perceived as helpful but becomes fragile when it is perceived as intrusive or manipulative (Kim & Han, 2025; Lina, 2021).

Together, these findings demonstrate that personalized advertising operates as a holistic sense-making process in which consumers simultaneously evaluate relevance, credibility, and privacy and emotionally respond to these evaluations. This integrated process explains why similar algorithmic strategies can lead to either persuasion or resistance depending on how consumers interpret the intent and fairness of personalization (Zhu & Kanjanamekanant, 2021). These psychological dynamics underscore the importance of shifting from a purely technological to a consumer-centric understanding of algorithmic marketing.

4. CONCLUSION

This study demonstrates that the effectiveness of personalized advertising among Shopee users in Indonesia is driven less by algorithmic precision than by consumer sense-making. Empirically, personalized advertising influences purchase intention both directly and indirectly through attitude toward advertising, indicating a dual-pathway mechanism: a functional pathway that enhances decision convenience and an evaluative pathway that shapes consumers' cognitive-affective responses. By validating the mediating role of attitude toward advertising, this research provides empirical support for Privacy Calculus Theory and the Affect Transfer Hypothesis, demonstrating that consumers must psychologically accept both the relevance and the privacy-respect of personalized ads before these messages translate into purchase intention. For e-commerce platforms such as Shopee, personalization should be understood not merely as a data-driven targeting tool but as a form of consumer experience design. To sustain long-term engagement and trust in emerging markets, firms must balance algorithmic relevance with perceived fairness and privacy. The findings suggest that effective personalization in 2026 and beyond will depend on privacy-aware strategies that enhance relevance without triggering psychological resistance.

This study is subject to several limitations. Its cross-sectional design restricts causal inference, and its focus on young Indonesian Shopee users limits generalizability. Future research should employ longitudinal designs to examine how personalization fatigue, AI transparency, and evolving privacy norms shape consumer responses over time. In addition, modeling perceived intrusiveness as a separate construct could further clarify the threshold at which personalization shifts from being persuasive to being counterproductive.

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