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The Effect of Personalized Advertising on Attitude towards Advertising and Click- Through Rate

Siti Nurhidayah¹, I Made Bayu Dirgantara^{1*}

¹ Univesitas Diponegoro, Semarang, Indonesia

* Corresponding author: I Made Bayu Dirgantara (imadebdirgantara@lecturer.undip.ac.id)

Abstract

This study aims to analyse the effect of Personalized Advertising on Attitudes towards Advertising and Click-Through Rate, with Privacy Concerns as a mediating variable, focusing on AXIS card users in Semarang City. The research addresses the challenge faced by AXIS Company, a telecommunications service provider, in attracting and retaining users amidst intense market competition. The population for this study comprises AXIS Provider card users in Semarang City, with a sample size of 160 individuals who have made at least one purchase through the AXISNET application. A quantitative approach was employed, utilizing the SEM- PLS method with Smart PLS version 4 software. The analysis included testing the validity and reliability of measurement instruments and conducting hypothesis testing through bootstrapping procedures. The findings reveal that personalized advertising significantly and positively influences attitudes towards advertising and the click-through rate, with privacy concerns acting as a significant mediating variable. These results highlight the importance of privacy concerns for users and the effectiveness of personalized advertising in enhancing user attitudes towards advertising and increasing the click-through rate. This study underscores the need for effective marketing strategies that address privacy concerns to improve advertising outcomes for AXIS Company.

Keywords

Personalized Advertising, Privacy Concern, Attitude towards Advertising, Click-through Rate.

1. Introduction

In Indonesia, the telecommunications industry is crucial for supporting connectivity and technological development. The industry is dominated by key players like Telkomsel, XL Axiata, and Indosat Ooredoo, offering various telecommunications services and innovations in marketing and customer experience. The rise in internet users and mobile phone penetration has created significant opportunities for service innovation, such as mobile banking, e-commerce, and digital entertainment.

Telecommunications companies' websites and apps (e.g., MyTelkomsel, MyXL, AXISNET, Bima+) serve as primary communication channels with customers, providing product information and facilitating interactions such as purchases and account management. Digital marketing in the telecommunications industry aims to increase brand awareness, customer retention, and promote products and services tailored to consumer needs, with a focus on relevant data usage and personalization (Zafar et al., 2021).

Personalized advertising in telecommunications has become a major focus, involving content, product, pricing, or service recommendations based on user preferences. This approach can enhance customer engagement, stimulate revenue growth, and strengthen customer relationships. For instance, AXIS, a subsidiary of XL Axiata, has implemented personalized marketing using Customer Engagement Tools to segment customers for targeted campaigns and ads within the AXISNET app. However, effective implementation requires careful data collection, user privacy protection, and technical adaptations (Zhu & Kanjanamekanant, 2021).

Personalized advertising has raised significant privacy concerns related to data usage and protection. Companies need to collect personal data, such as call history and location, for effective personalization, which can lead to privacy and data security issues. Unaddressed privacy concerns can erode customer trust, trigger regulatory issues, and result in financial losses due to data breaches. Thus, balancing effective personalization and user privacy protection is crucial (Bleier & Eisenbeiss, 2015).

This study applies the Theory of Planned Behaviour, which posits that human behaviour is influenced by behavioural, normative, and control beliefs (Ajzen, 1991). Positive attitudes, subjective norms, and a high sense of control positively influence the intention to engage in behaviour. Accordingly, this study proposes that ad personalization and privacy concerns will positively impact consumer attitudes towards personalized ads.

Building on previous research by Bleier and Eisenbeiss (2015) on advertising companies in Germany, this study focuses on the telecommunications sector in Indonesia, particularly on AXIS users. Unlike Bleier & Eisenbeiss, who included trust in sellers as a mediating factor, this study omits it and adds click-through rate as a variable, focusing on product impression sales among AXIS users.

Despite launching various products and features tailored to the youth market, AXIS has faced challenges in increasing its user base and customer loyalty. AXIS has the weakest market position among Indonesian telecom providers, lagging behind Telkomsel, IM3, Three, and XL. According to data from the Top Brand Index, AXIS had an average percentage of 6.5% in various aspects in 2020. In 2021, AXIS improved to 8.6%, but experienced a decline to 8% in 2022, further dropping to 6.5%, and then slightly rising to 6.7% in 2023.

Given AXIS's relatively weaker market position among Indonesian telecom providers, this study aims to understand how personalized ads influence ad attitudes and click-through rates, considering privacy concerns. This insight is intended to help AXIS improve its marketing strategies and develop products and services that better meet customer needs. This research examines the impact of personalized ads

on attitudes towards ads and click-through rates, with privacy concerns as a mediating variable, specifically among AXIS users in Semarang.

2. Literature Review

The Theory of Planned Behaviour (TPB), developed by Ajzen (1991), emphasizes the critical values that determine an individual's actual behaviour. TPB is an extension of the Theory of Reasoned Action (TRA), both of which examine an individual's behavioural intentions (Ajzen & Fishbein, 1980). Two primary factors determine an individual's intention: attitude and subjective norm. Attitude refers to an individual's evaluation of a behaviour as good or bad, while subjective norm encompasses the social influences encouraging the behaviour.

According to Ajzen (1991), TRA does not fully explain behaviour, especially when it is beyond an individual's control or volition. To address this, Ajzen introduced an additional factor influencing intention: perceived behavioural control. Perceived behavioural control is how individuals assess their ability to manage their behaviour. This factor reflects how easily or difficultly individuals can respond to various actions, considering past experiences and anticipated obstacles. These three factors collectively influence an individual's behavioural decisions. Personalized Advertising (PA) (Wawan, 2024).

Personalized advertising can be described as promotional messages tailored and delivered to each consumer through paid media, based on personal information such as consumer names, previous purchase history, demographic characteristics, psychographics, location, and lifestyle interests (Baek & Morimoto, 2012). This practice stems from market targeting strategies, where marketers' efforts are more effective by capturing the attention of specific consumer segments rather than addressing all consumers generally (Girona & Korgaonkar, 2018). The rise in personalized advertising popularity is closely linked to rapid advancements in technology, big data mining, and targeting algorithms (Ampadu et al., 2022). This data includes demographic information and consumer preferences (Kim et al., 2022), online shopping habits (Bleier & Eisenbeiss, 2015), and browsing activities (Q. Chen et al., 2019).

In the realm of personalization, advertising personalization entails the collection, analysis, and utilization of consumer personal information beyond its original transactional purpose (Bleier & Eisenbeiss, 2015). Consumer consent for the use of personal information is seldom requested or often goes unnoticed until consumers receive tailored messages or marketing materials (Aguirre et al., 2015). Despite consumer concerns about their personal information, their actions to protect online privacy, such as disabling tracking cookies, are often incongruent with their level of concern (Boerman et al., 2018).

Moreover, specific levels of personalization, such as the depth of personalization, should serve as additional indicators of how much information advertising companies gather about consumers (Bleier & Eisenbeiss, 2015). For users who feel they lack full control over their data on social media platforms, this discrepancy can trigger dual reactions to breaches of social and informational boundaries, potentially intensifying privacy concerns (Baskoro et al., 2023). Conversely, users who believe they have full ownership of their data may be less offended by the platform's use of embarrassing data, as social media platforms can claim ownership of that data (Zhu & Kanjanamekanant, 2021).

Advertising remains a pivotal component in brand promotion, serving to inform and persuade prospective customers about a product. Tran, (2017) asserts that personalization enables customers to encounter ads tailored to their preferences, fostering a positive attitude toward online advertising and increasing the likelihood of purchase. On social networking sites, personalization is anticipated to engender positive attitudes toward ads, prompting actions such as website visits, product checks, and online orders (Wanajma, 2024).

Chen et al., (2023) reveal that consumers experience vulnerability, leading to negative responses to personalized ads. The more vulnerable consumers feel due to personalized ads, the more negative emotions they experience, potentially resulting in ad rejection and unfavourable attitudes. Consumer attitudes unsupportive of ads can influence their perception of the platform, possibly leading to cessation of use due to perceived intrusiveness.

In advertising computing, online bidding platforms utilize large-scale machine learning techniques to create models for ad clicks and conversions, automatically assisting companies in finding their target audiences and offering intelligent real-time bids for each user request on the network. User response metrics, such as Click-through Rate (CTR), are crucial in many corporate applications, including online advertising and recommendation systems (personalization). CTR aims to predict the likelihood of users clicking on ads. Therefore, accurate estimation of CTR plays a vital role in enhancing ad traffic and revenue (Li et al., 2021).

Personalized Advertising and Privacy Concern

Advertising on social media platforms has gained interest due to its unique ability to be personalized. Companies can create personalized ads based on user habits, such as offering special deals to frequent app users or promoting data packages to heavy internet users. Personalized ads help companies reach individual consumers and strengthen customer relationships. However, personalized ads raise privacy concerns as they utilize personal information (Ünal et al., 2011). Consumers fear misuse of their data without knowing how it will be used.

Research by Bleier and Eisenbeiss, (2015), Chen et al., (2023), and Yu et al., (2019) indicates that personalized advertising impacts privacy concerns. Individual behaviour decisions involve a cost-benefit analysis, weighing the benefits and risks (Culnan & Armstrong, 1999; Dinev & Hart, 2006; Laufer & Wolfe, 1977). Therefore, when consumers accept personalized ads, they trade off privacy for benefits like more relevant online ads.

Consumers' understanding of their privacy protection affects their opinions on personalized ads. When consumers feel their privacy is well-guarded, they tend to respond positively, showing higher trust and less suspicion towards the company. Conversely, if privacy is perceived as compromised, it leads to negative emotions such as fear, stress, and frustration (Ruiz-Mafe et al., 2016). Users worry their data might be sold to irresponsible parties or used for surveys without their consent.

Kim et al., (2022) state that privacy concerns impact attitudes towards advertising. Morris, Woo, Geason, and Kim (in Zhu & Kanjanamekanant, (2021) indicate that consumers' opinions on ads, especially those related to their habits, strongly determine ad reception. When consumers feel their privacy is well-protected, they are more likely to trust personalized ads. Thus, it can be assumed that the better consumers feel about their privacy, the more positive their attitude towards personalized advertising.

To enhance positive interactions with personalized ads, strategies to build trust between companies and consumers are essential. Companies can leverage website credibility or offer consumers choices regarding the use of personal data for advertising (Aguirre et al., 2015). Yu et al. (2019) state that privacy concerns mediate the relationship between personalized advertising and click-through rates. Consumers tend to believe that ads adhere to the norms of the website, if guarantees

and protections associated with the site also apply to the ads. When a trusted website displays highly personalized ads, consumers are more likely to accept this form of vulnerability. However, if data collection is perceived as secretive, click-through rates are

The concepts of attitude, intention, and behaviour are the three foundations of the Theory of Planned Behaviour (TPB) developed by Ajzen, (1991). Liang, (2004) applied TPB to demonstrate a positive relationship between consumer attitudes and intentions toward accepting personalized ads, which influences their behaviour. The more positive the consumer's attitude toward an ad, the higher the likelihood of responding to it. This positive response is often expressed through clicking on the ad. If consumers find the personalized ad satisfactory and relevant to their needs, they are likely to proceed further. Positive consumer attitudes towards ads can significantly increase click-through rates, indicating a strong link between favourable perceptions and interactive behaviour with the ad content.

3. Methods

In this study, a population will be taken from the AXIS card users in Semarang City who are minimum 17 years or older, have made a purchase through the AXISNET app, and have seen advertisements on the app. The researcher will use a non-probability sampling technique of collecting samples. The determination of the sample size for this study refers to Lemeshow's formula with a 95% confidence level, a maximum estimation of 50%, and an allowable Margin of Error of 8%. This results in a sample size of 151 respondents. However, in this study, the number of respondents was increased by approximately 5.96%, bringing the total to 160 respondents who will be the study sample.

The independent variable in this study is Personalized Advertising. The dependent variables are Attitude towards Advertising and Click-through Rate. The mediating variable is Privacy Concern. This study employs a quantitative approach, collecting data through a questionnaire distributed via Google Forms. The questionnaire was disseminated online through social media based on predetermined criteria. The measurement scale uses a 5 points Likert scale to frame the questions or statements in the questionnaire. Data analysis in this study was conducted through hypothesis testing using Structural Equation Modelling (SEM), with evaluation performed using Partial Least Squares (PLS) and resampling methods (bootstrapping) in Smart PLS version 4.

4. Results

Most of the respondents were female (70%). Most respondents were aged between 17-22 years (69.38%). Regarding occupation, 73.12% of the respondents were students. Most respondents had used AXIS cards for less than one year (55.63%) and had used the application for less than one year (67.5%). The frequency of purchases was mostly between 1 to 5 times (94.8%). Lastly, most respondents preferred the type of monthly internet product (46.88%).

Almost every addition of external data exhibits indicators exceeding 0.70, indicating that nearly all indicators are valid. This demonstrates that each indicator has a high level of validity, thus meeting the criteria for convergent validity. Consequently, the analysis will proceed to testing for discriminant validity. The Average Variance Extracted (AVE) method can be used to measure the discriminant validity for each construct or latent variable. If the square root of the AVE for each construct is greater than the correlation between two constructs included in the model, then the discriminant validity of the model will be better. No issues with convergent validity were found in the tested model, as shown in so the structure of this research model does not need to be changed.

Reliability testing is used to measure how consistently a variable is measured over time. It involves retesting and internal consistency. To assess reliability, several indicators are used, such as item-total score correlation and Cronbach's alpha, with a recommended minimum alpha value of 0.70 (Hair et al., 2019). The inner model, also known as the structural model, is part of the Partial Least Squares Structural Equation Modelling (PLS-SEM) analysis that examines the relationships between latent variables or constructs.

R-square (R^2) is a measure that indicates how well the dependent variable can be explained by the independent variables in a model. R^2 values of 0.75, 0.50, and 0.25 can be considered substantial, moderate, and weak, respectively (Hair et al., 2019). The adjusted R^2 values range between 0.218 and 0.361, indicating weak to moderate levels of R^2 . Therefore, no additional testing is required, and the R^2 is acceptable and can be used in the subsequent analysis.

F-squared (f^2) is an effect size measure in PLS-SEM that indicates the extent to which an independent variable affects the variance in a dependent variable. As a guideline, f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects of an exogenous construct, respectively. An f^2 value less than 0.02 indicates a negligible effect (Hair et al., 2019).

Personalized Advertising has a low f^2 in relation to Privacy Concerns, while Privacy Concerns in relation to Attitude toward Advertising shows a moderate f^2 . Additionally, Privacy Concerns in relation to Click-Through Rate and Attitude toward Advertising in relation to Click-Through Rate show low f^2 values.

Q-Squared

Q-square (Q^2) is a measure that evaluates the predictive relevance of the model. The Q^2 value is obtained through a blindfolding procedure, where original data are sequentially omitted and used to predict the imputed values. When the difference between the original and predicted values is small, a higher Q^2 is obtained, indicating high predictive accuracy. A Q^2 value greater than zero indicates good predictive accuracy, while a value below zero suggests a lack of predictive relevance (Hair et al., 2019).

The bootstrapping procedure is conducted to obtain the significance of the model's parameters. To assess significance, evaluation is performed by examining the p-values and t-statistics. If the probability value (p-value) is less than 0.05 with a 5% alpha significance level, and the t-statistic exceeds the critical value (1.96 for a 5% alpha), the hypothesis can be accepted. Therefore, the significance of the hypothesis is determined by a p-value less than 0.05 (with a 5% alpha) (Hair et al., 2019). The bootstrapping calculations are illustrated in Figure 4.

Mediation Effect Test

Personalized Advertisement (X1) → Privacy Concern (Y1) → Attitude towards Advertisement (Y2) has a p-value of 0.000, which is accepted and indicates a successful mediating role. Next, Personalized Advertisement (X1) → Privacy Concern (Y1) → Click-through Rate (Y3) has a p-value of 0.001, which is accepted and indicates a successful mediating role. Next, Privacy Concern (Y1) → Attitude towards Advertisement (Y2) → Click-through Rate (Y3) has a p-value of 0.000,

Which is accepted and indicates a successful mediating role. Next, Personalized Advertisement (X1) → Privacy Concern (Y1) → Attitude towards Advertisement (Y2) → Click-through Rate (Y3) has a p-value of 0.002, which is accepted and indicates a successful mediating role. This research is supported by previous studies by (Kim et al., 2022), which found that Privacy Concern acts as a mediator between Personalized Advertisement and Attitude towards Advertisement. Additionally, the results of studies by Bleier & Eisenbeiss, (2015) and Yu et al., (2019) also support this research, showing that Privacy Concern also mediates the relationship between Personalized Advertisement and Click-through Rate.

5. Discussion

This study indicates that show a significant influence on various variables. First, relevance and engagement with Personalized Advertisements have the most substantial impact, indicating the company's adeptness in understanding and responding to user preferences. This can potentially enhance user engagement with relevant and appealing ads, thereby increasing interaction, response, and conversion rates, providing a competitive edge in online marketing. Conversely, users' concerns about the influence of their purchase activities on personalized ads have a relatively minor impact, suggesting the need for user education and feedback integration to address privacy apprehensions.

Secondly, the misuse of user privacy has the greatest influence on Privacy Concerns, reflecting the company's sensitivity and commitment to user privacy. However, user concerns about the collection of personal information by personalized ads have a relatively lower impact, indicating the necessity for enhanced transparency and user control over data collection. Moreover, users' perception of the concept of using personalized ads has the greatest influence on Attitudes towards Advertisements, highlighting successful alignment with individual preferences and fostering strong customer relationships. Conversely, users' perception of the idea of using personalized ads has a relatively minor impact, suggesting the need for improved relevance and monitoring of user feedback to ensure ad personalization meets user interests.

Lastly, future intent to click ads holds the most substantial influence on Click-through Rate, indicating effective ad creation and relevance, bolstering brand awareness and conversion opportunities. Conversely, the intent to click for information retrieval has a relatively lower impact, suggesting the need for optimizing ads through A/B testing and improving content quality to better match user interests and needs. The findings of this study are expected to be beneficial for AXIS to optimize personalized ads tailored to users, potentially reducing user privacy concerns and increasing attitudes towards ads and click-through rates. This, in turn, can lead to more effective marketing strategies across all platforms and features.

The research findings suggest that Personalized Advertisements significantly influence Privacy Concerns, as evidenced by Bleier & Eisenbeiss, (2015) study. However, the impact varies depending on the type of ad personalization and consumer trust levels in the company. When AXISNET users perceive their privacy is respected and benefit from personalized ads, they are less concerned. This aligns with previous studies by Aguirre et al., (2015), Bleier & Eisenbeiss, (2015), S. Chen et al., (2023), and Kim et al., (2022), supporting the validity of hypothesis 1 in this study.

The research findings suggest that Privacy Concerns significantly influence Attitudes towards Advertisements, as supported by Kim et al., (2022) study. This shows the correlation between privacy concerns and advertisement attitudes, where users with a sense of privacy tend to view advertisements more favourably. This preference arises from users' inclination towards personalized advertisements based on voluntarily shared information on social media platforms, rather than external data sources like browsing history. When users perceive advertisements as tailored to their voluntary disclosures, they perceive higher privacy levels, leading to a more positive attitude towards advertisements. Thus, in this study, Privacy Concerns significantly impact Attitudes towards Advertisements, validating hypothesis 2. This finding is consistent with prior research by S. Chen et al., (2023); Kim et al., (2022).

The research findings, supported by Yu et al., (2019) study, indicate that Privacy Concerns significantly influence Click-through Rate. This highlights the correlation between privacy concerns and click-through rates, emphasizing the need to consider

privacy concerns when designing online marketing strategies to enhance consumer response rates to advertisements. The study validates hypothesis 3, showing that AXIS users' Privacy Concerns significantly impact the click-through rate of advertisements. This aligns with previous research by Aguirre et al., (2015), Bleier & Eisenbeiss, (2015), and Yu et al., (2019).

The research findings, supported by S. Chen et al., (2023)'s study, indicate a significant positive influence of Attitude towards Advertisements on Click-through Rate. Positive attitudes towards advertisements correlate with increased likelihood of clicking on them, emphasizing the importance of enhancing consumer attitudes to improve response rates on social media platforms. This study validates hypothesis 4, showing that personalized advertisements by AXIS significantly impact users' click-through rates.

6. Conclusion

Based on the hypothesis testing findings, Privacy Concerns mediate the relationship between Personalized Advertisements and Attitude towards Advertisements, as well as Click-through Rate. This suggests that when users perceive their privacy is respected in personalized advertisements, their attitudes towards ads tend to be positive, impacting click-through rates. AXIS's tailored ads enhance effectiveness, with more personalized ads leading to higher click-through and conversion rates. Privacy Concerns have the most significant impact on Attitude towards Advertisements. This research provides strategic insights for AXIS to improve marketing performance and user interactions, aiming to establish itself as a key player in the telecommunications industry.

In this study, there are opportunities for improvement and further development in future research. Some aspects that need attention for refinement and enhancement include Firstly, eliminating one of the indicators of Personalized Advertisements to retain only three valid indicators. Secondly, the moderate to weak values of R^2 and f^2 suggest that the developed model may not precisely explain the variation in the data or yield accurate predictions. These limitations indicate areas where future studies can focus on refining the model and addressing potential shortcomings to enhance the robustness and predictive power of the research findings.

Based on the limitations identified in this study, suggestions for future research include Firstly, expanding the distribution of questionnaires to ensure more diverse and evenly distributed participation across all aspects. Secondly, considering the use of more complex models or extending existing models by incorporating additional variables and improving the measurement of variables to enhance the accuracy of analysis. Lastly, in future studies, researchers can modify the model by adding customer trust as a mediating variable or including purchase decision as a dependent variable. These recommendations aim to address the identified limitations and contribute to further advancements in understanding the dynamics of the researched phenomenon.

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