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The Impact of Social Media Advertising on Online Shopping Preferences in Nilai City, Malaysia

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Abstract

Social media advertisements can influence consumers' purchasing preferences by impacting their awareness, attitude, trust, and intention towards the advertised products, services, or brands. This study aims to achieve two objectives: firstly, to determine the correlation between independent variables (security, privacy, product features, social influence, and promotion) and secondly, to examine the relationship between independent variables and dependent variables (online shopping purchasing preference among shoppers in Nilai). Convenience sampling was used to collect survey data, with questionnaires distributed through various online platforms to respondents residing in Nilai. A total of 272 responses were collected. The study utilized a Pearson correlation model and multiple linear regression to achieve the objectives. The R-squared value of 0.564 indicates that the model can explain almost half of the variability in the dependent variables. The results reveal no negative correlations among the independent variables. The weakest correlation observed is between promotion and product features at 0.392. Conversely, the strongest correlation is between security and privacy, with a coefficient of 0.703, indicating a significant influence of security on privacy. In the multiple linear regression model, four independent variables—security, product features, social influence, and promotion—significantly impact the dependent variable.

Keywords: Online Shopping, Purchasing Preference, Shoppers, Social Media Advertisement, Multiple Linear Regression, Pearson Correlation

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1.0 Introduction

Social media platforms such as Instagram, TikTok, Twitter, YouTube, and Facebook play a pivotal role in global connectivity, enabling the exchange of news, fostering discussions, and providing educational content. Originally designed for information sharing among users with similar interests, these platforms have evolved into venues for monetization through product reviews, sponsored content, and direct sales (Purnama & Asdlori, 2023). Social media marketing has become increasingly popular, allowing businesses to reach vast audiences in innovative ways by analyzing conversations and building customer relationships. Real-time interactions on these platforms help attract more buyers and enable entrepreneurs to communicate directly with their audience, gather feedback, and enhance brand awareness. This study focuses on how factors like security, privacy, product features, social influence, and promotion influence purchasing decisions among consumers in Nilai. The COVID-19 pandemic, which led to the closure of physical stores and a surge in online shopping for essentials, highlighted the significance of these factors. Security concerns about online transactions, credit card safety, and the general hesitancy surrounding new online tools underscore the relevance of examining how strategic social media marketing can enhance perceptions of online shopping safety. Furthermore, privacy issues often lead to cart abandonment, with studies showing that a majority of online transactions are not completed due to privacy fears (Miyazaki & Fernandez, 2001).

The study explores how website and product features, such as usability and variety, along with perks like free shipping and clear return policies, influence consumer preferences and trust in online shopping. It also examines the effectiveness of social media advertising in highlighting these features. Additionally, the research looks into how social influence on platforms, where peer opinions significantly affect buying decisions, shapes consumer behavior. The goal is to gain insights into the dynamics of social media marketing and its effects on consumer actions in a digital marketplace. For example, Crout (2021) emphasizes the significant impact of deals and promotions on online shopping behaviors, noting that two-thirds of consumers are influenced by coupons or discounts, with 80% trying new brands based on these promotions. Thus, this study includes promotion as an independent variable to examine its effect on purchasing

decisions. The rise of social media has made consumers more open to digital advertising, leading to increased online purchases despite concerns about risks and benefits, such as free shipping. The increase in online shopping after COVID-19 has introduced conveniences but also risks like privacy breaches and scams. This study does not aim to solve these problems for online sellers. Instead, it focuses on offering insights to enhance social media marketing strategies and deepen understanding of the factors that influence social media advertising (Lim et al., 2022). This study was established with the following objectives:

1. To determine the correlation between independent variables (security, privacy, product features, social influence, and promotion) among each other.

2. To examine the relationship between independent variables (security, privacy, product features, social influence, and promotion) towards dependent variables (online shopping purchasing preference among shoppers in Nilai).

The study aims to understand how various aspects of e-commerce, such as the perceived security of online transactions, privacy assurances, the attractiveness of product features, the influence of social networks, and the effectiveness of promotional activities, influence consumer behavior. By examining these variables, the research seeks to reveal significant trends and preferences that dictate online purchasing decisions in the Nilai shopper demographic.

2.0 Literature Review

2.1 Security

The idea that financial transactions carried out online are inherently riskier and less secure is largely shared among consumers. Customer worries about security and privacy surpass other issues like website usability, download times, search issues, interface restrictions, etc., by a significant margin. Online purchase requires customers to make online transactions which arise from these issues concerning security. For example,

Ardiansah et al. (2020) in their research stated that online shopping security threats have the potential to erode public confidence in e-payment security (EPS) and reduce the interpersonal trust that results from human interactions. The authors discovered that a higher intention to make an online transaction would result from an increase in perceived web security. The media has published frequent and precise warnings regarding unfavourable Internet usage, such as privacy and security leaks, which allow fraudulent acts to impede and hinder consumers when they shop online. Consumers who shop online are continuously concerned about the Internet because they are concerned that their personal information may be stolen. This implies that customers' perceptions of privacy and security are most likely to boost their trust in online buying, which might make consumers more receptive to promotions (Tran & Nguyen, 2022).

Tham et al. (2019) stated that when customers shop online, they are exposed to risks such as financial risk.That is, they could be concerned about safety and security regarding the usage of their credit cards and the revelation of personal information. Therefore, when deciding whether or not to proceed with a purchase, consumers who opt to buy online heavily consider the financial risk. This is because financial risks have created a threat, which has influenced perceptions and changed consumer behaviors which may influence product features (Hisham, Ismail & Syed Mohamad, 2023). As security is always linked to trust, Pregoner et al. (2020) stated that trust plays an important part in human emotions. Thus, it is essential for both online vendors and shoppers when it comes to the reliability of e-commerce. It is also a crucial element in electronic business since it influences customers' incentive to make purchases from online merchants and their interest in their product offerings. This indicates that security is strongly influenced by social influence.

According to Rita et al. (2019), security related to online shopping refers to transactions such as credit cardpayments. The concerns of customers frequently arise on whether the website use will safeguard them against fraud following a transaction. Privacy and website security are crucial when evaluating the level of service provided by online retailers. Hence, to improve the website's reputation and level of service, assurance and security must be emphasized. Security significantly influences online shopping preferences as it directly impacts consumer trust in e-commerce. Effective

security measures reassure consumers, fostering trust and encouraging more frequent and confident online purchases. Hence, the following hypothesis is proposed:

> **H1:** There exists a significant effect of security on online shopping purchasing preference among shoppers.

2.2 Privacy

As indicated in the previous study, privacy has always been one of the most debated topics concerning the customer's willingness to make online purchases. For example, Yuniar and Fibrianto (2021) mentioned in their study that customers should be aware of why their personal information is being gathered and how it will be used since theyhave the right to control and authority over it. They also stated that the growth of electronic commerce (online shopping platforms) is also associated with the amount of trust customers have in online shopping platforms. In order to proceed with online purchases, sometimes, customers are required to expose some of their personal information, and understandably, this may concern them. For example, Cheah et al. (2022) stated that privacy concerns had been identified as a persistent barrier to the expansion of internet retail and have been demonstrated to have a significant impact on consumers' trust while making purchases online. Meanwhile, Pappas (2018) stated that online services, specifically in e-commerce, business, and social interactions, arefundamentally based on trust and privacy. It could have a positive effect on a customer's emotional traits but not necessarily on their behavioral intentions. Privacy concerns, however, could have a negative effect on a customer's emotional characteristics or intensify their negative emotions, which might influence online shopping purchasing preferences among shoppers.

On the other hand, Wang and Herrando (2019) stated that because privacy assurance on social commerce sites is either not expected or is unclear, customers are reluctant to expose their personal information when purchasing. Furthermore, they explained that social media can be utilized to enhance the relationship between customers and sellers even though it is still unclear whether they will proceed with the decision to

purchase if their privacy can be successfully secured by the privacy policies and third-party regulations. To surge the likelihood of a customer buying online, it is a must for the company or the business to guarantee that their personal information is secure, safe, and confidential (Bhatti & Ur Rehman, 2019). Few research has demonstrated that privacy risk considerably decreases online buying activity (Bhatti & Ur Rehman, 2019). Privacy significantly influences online shopping preferences as it directly impacts consumer trust. Consumers are often required to disclose personal information when making online purchases, leading to concerns about how this data is handled. Ensuring that personal data is secure and that privacy policies are transparent and robust can greatly affect the willingness of consumers to engage in online transactions. Effective management of privacy concerns can alleviate consumer apprehension, thus positively influencing their purchasing decisions. Following from here, the hypothesis stated below is proposed:

> **H2:** There exists a significant effect of privacy on online shopping purchasing preference among shoppers.

2.3 Product Feature

Since online shopping is rapidly growing, there are many factors to consider for customers before they decide to make a purchase, such asthe design, quality, experience, and functionality of the product, and all of these are included in the product feature. For example, Qalati et al. (2021) stated that one of the key components of online purchasing trust is perceived service quality coming from product features. By offering top-notch services, the majority of online retail platforms win customers' confidence and create lasting bonds with them. According to Qalati et al. (2021), the impression of service quality among retailershas a substantial impact on consumer trust. Because consumers cannot access or are unknowledgeable about a product's quality before making a purchase from an online shop, there will be information asymmetries. Meanwhile, Punyatoya (2019) stated that an excellent website reflects the vendor's capabilities and shows that it genuinely cares about its clients, which will impact customers' trust in the business as well as online shopping purchasing preferences among shoppers. Consumer familiarity

with an online merchant is boosted by prior experience, which favourably improves trust. When earlier contacts are positive, ambiguity is reduced, and trust is developed, which should result in a longer-lasting connection.

In addition, Yang et al. (2019) explained that since online customer reviews have drawn a lot of attention from the product design research community, online retailers have used it as a new source of the voice of the customer toanalyze user needs, customer preferences, and design requirements, such as product topic identification for product planning and prioritizing customer concern. The authors mentioned other studies that concentrate on compiling or summarizing product reviews to provide general user perceptions of items or product features influencing online shopping purchasing preference among shoppers. Discussing another important factor in product features which is consumers' experience in online shopping, Pizzi et al. (2019) have come up with the term hedonism to describe customers' propensity to take pleasure in time-consuming shopping. Further explained are which customers that have a more hedonistic approach to purchasing should be satisfied by a pleasurable online shopping experience, which encourages exploration, immersion, and amusement. Moreover, Ceyhan (2019) discusses the functionality of the product, which refers to the judgment people make about a good or service based on logic and economics. Product features significantly influence online shopping preferences as they encompass the design, quality, functionality, and overall experience offered by the product. Clear, detailed descriptions and high-quality images of products help reduce the information asymmetry experienced by online shoppers. Enhancing product features improves user trust and satisfaction, thereby directly affecting their purchasing decisions. This is particularly crucial in online environments where physical interaction with the product is absent. Following from here, the hypothesis stated below is proposed:

H3: There exists a significant effect of product features on online shopping purchasing preference among shoppers.

2.4 Social Influence

Hu et al. (2019) defined social influence as the term used to describe how interactions with others cause people to change their views, feelings, attitudes, or behaviours. As a result, in the context of social commerce, the social influence factors need to be understood in light of their unique characteristics. The authors stated that an online shopper's confidence in enhancing their buying performance may be strengthened by linking their behaviour with knowledgeable people, which results in internal satisfaction, leading to online shopping purchasing preference among shoppers. Yang et al. (2021) suggested that customers buy things for a range of factors that reflect their diverse values. In the same research, authors argued that when one's social environment encourages a certain action, the attitudes of individuals are more closely tied to such behaviours (or behaviour intentions). This came as a result of social influence, which influences online shopping purchasing preference among shoppers. Meanwhile, Teo et al. (2019) expressed in their research that social networking platforms provide users with the chance to express their preferences for certain products, increase brand awareness, and affect brand image. As users may depend on others' opinions and perceptions when making decisions before purchasing items, these websites can be a form of social influence. Differing from the physical store, where customers can try the product and may ask the staff for the details, online stores only provide customers with a description of the product, like a size chart and such.

Meanwhile, Filieri et al. (2018) stated that third-party e-tailers, defined as any indication or signal displayed by the website to direct users toward services that are suggested based on certain characteristics, which aid consumers in decision-making through communication services, may influence consumers' purchase intention. Additionally, Aji et al. (2020) mentioned in their study that the two-way communication tool for exchanging knowledgeand opinions is ideal for improving brand reputation since brands are starting to use social media as a tool for sales, connections, and engagement with their customers. This is due to the transparency of social media in expressing the brand's identity rather than attempting to manage its image. This kind of engagement strengthens purchase intentions by influencing the customers and improving brand perception. Thus, social media is also regarded as one of the social influences that affect online shopping purchasing preferences among shoppers. Following from here, the hypothesis stated below is proposed:

H4: There exists a significant effect of social influence on online shopping purchasing preference among shoppers.

2.5 Promotion

Karim et al. (2021) defined sales promotion as an action that serves as a direct enticement, providing extra value or an incentive for a product to resellers, salespeople, or consumers. To encourage consumer behavior, online shopping festivals frequently use a strategy that combines product and environmental promotion. Consumers' perceptions of external stimuli during an online shopping festival are primarily influenced by products and environmental promotion. According to the idea of attribution, customers attribute their purchasing activity to their evaluation of their shopping (Chen and Li, 2020). Consumers consider environmental stimulus variables that are indirectly connected to items when they make purchases and product marketing stimulus factors that are directly tied to the products.

Fam et al. (2019) defined sales promotion as any short-term enticement designed to elicit a desired responsefrom consumers and tends to be utilized for a limited preset length of time in order to induce the customers' desires, stimulate interest, encourage them to try new items, enhance sales, or incentivize trade. Further explainedwas the success of sales promotion if customers were enticed to buy new products along with getting additionalbenefits such as monetary or non-monetary rewards. Consumers are motivated economically in the short term bymonetary incentives, whereas utility items might profit economically in the long run by non-monetary incentives.

Sales promotion, according to Hasim et al. (2018), is a direct enticement that provides an added benefit orincentive for the product to the sales force, distributors, or the customer with the main goal of generating immediate sales. The author revealed that price discounts greatly impact consumers' intentions to make impulsive purchases, influencing online shopping purchasing preferences among shoppers. Promotions affect the number of purchases people make and shorten the decision-making process. Sales promotion is a short-term motivating approach to boost sales or brand purchases (Bhatti,

2018). Additionally, it is an approach that requires little time to boost revenues. This strategy has the power to draw in and keep customers while strengthening relationships with sellers (Bhatti, 2018). Following from here, the hypothesis stated below is proposed:

H5: There exists a significant effect of promotion on online shopping purchasing preference among shoppers.

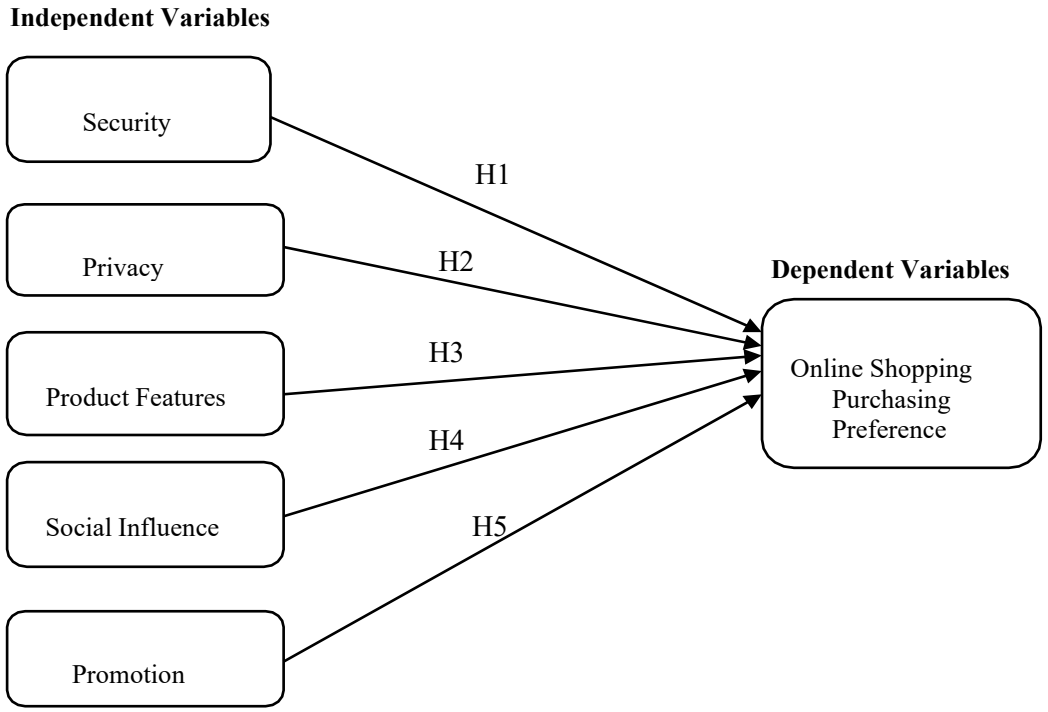

Figure 1: Theoretical Framework of the study

The theoretical framework of the study in Figure 1 delineates the relationships between five independent variables—security, privacy, product features, social influence, and promotion—and the dependent variable, online shopping purchasing preference. The framework posits that each of these factors significantly influences consumers' preferences for online shopping. For instance, security is linked to how protected consumers feel regarding their personal and financial information during online transactions. Privacy concerns the confidentiality with which a consumer's information is treated by online retailers. Product features relate to the attributes and quality of

products that affect consumer choices. Social influence examines how opinions and behaviors of peers and social media impact consumer behavior. Lastly, promotion involves the impact of marketing efforts such as discounts and special offers on purchasing decisions. Each of these variables is hypothesized to positively influence the preference for purchasing online, forming the basis for empirical testing within the study.

3.0 Methodology

This study investigates the online shopping preferences of residents in Nilai, Negeri Sembilan, Malaysia, where the digital infrastructure supports a vibrant e-commerce environment. With 84.2% mobile phone penetration and 27.4 million active internet users, Malaysia offers a fertile ground for digital consumer behavior research. Nilai, in particular, has emerged as a key retail hub with facilities such as Nilai Square, AEON Mall, and MesaMall. The town's total population stands at 119,613, making it a significant sample locale for studying consumer trends. To accurately capture the online shopping behaviors in Nilai, a calculated sample size of 272 was determined using Survey Monkey's sample size calculator. This number was based on a 90% confidence interval and a 5% margin of error, ensuring that the findings are both reliable and representative of the broader population. This structured approach addresses the various challenges in e-commerce, from cybersecurity risks to the adaptation of new digital marketing tools. Figure 2 shows the number of sample sizes generated using the sample size calculator.

Figure 2: Sample Size Calculation
(Source: https://www.surveymonkey.com/mp/sample-size-calculator/)

The study collected data using convenience sampling, a method where units are

chosen based on their proximity to the researcher, such as location, accessibility, and interest in participating. Non-probability sampling methods, which is convenience sampling, were chosen due to factors like low response rates in probability surveys, increased use of non-probability data sources, and the need for real-time information. In addressing the ethical considerations pertinent to this study, several measures were implemented to ensure the integrity and respect for all participants' privacy and personal data. Informed consent was obtained from all participants prior to their inclusion in the study. They were informed about the purpose of the research, the nature of the data to be collected, and their rights to withdraw from the study at any point without any consequences. To safeguard participants' confidentiality, all personal identifiers were removed from the datasets before analysis. Data privacy was rigorously maintained by storing information on secured servers with access limited to the research team.

Furthermore, all data handling procedures were conducted in accordance with international standards for data protection to prevent unauthorized access and ensure the ethical handling of sensitive information regarding personal shopping habits and preferences. These steps underscore our commitment to upholding the ethical standards of research and ensuring the trust and safety of all participants. To improve response rates within our convenience sampling framework, we implemented a focused follow-up strategy for non-respondents. Initially, participants were contacted via email to introduce the study and invite participation. If there was no response within a week, a reminder email was sent, emphasizing the importance of their contribution to the research outcomes. For those who still did not respond after the reminder, a final email was dispatched, detailing the secure data protection measures and ethical standards adhered to throughout the study. This approach was essential in maximizing participation from our available sample, thereby enhancing the reliability of our research findings.

A standard 5-point Likert scale ranging from 1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5-Strongly Agree gathered primary data by using the items stated in Table 1. The survey links were shared on messaging and social media platforms like Facebook, Twitter, WhatsApp, and Telegram, using Google Forms to create the survey. The survey consist of two parts: Part A on socio-demographic information, while Part B focused on online shopping preferences. Each part included five questions, with the

remaining five questions covering independent variables like security, privacy, product features, social influence, and promotion. Data were collected for two months, from January 2024 to February 2024, and were analyzed using IBM SPSS Version 27.

Table 1: Questionnaire items

Construct	Item
Section A: Socio Demography	
Age	Below 20, 21-30, 31-40, 41 and above
Gender	Male, Female
Occupation	Student, Not Working, Business, Government Sector, Private Sector
Income	Below RM2000, RM2001-RM3000, RM3001-RM4000, RM4001-RM5000, Above RM5000
Sources of Online Shopping Information	Family, Friends, TV Advertisement, Website Advertisement, Others
Preference for product/service for online shopping	Apparel, Online Ticketing, Accessories, Healthcare & Fitness, Books
Modes of Payment in Online Shopping	Cash on Delivery (COD), Credit card, Mobile Banking, Debit Card
Section B : Online Shopping Purchasing Preference Among Shoppers (DV)	My intention to become an online shopper is positive and enthusiastic.
	I am capable of being an online shopper over many purchase activities.
	I have a great intention to replace the traditional shopping (offline shopping) pattern with online shopping.
	While browsing a product, I plan to conduct the purchase process online.
	I would like to purchase products and services that appear frequently on online shopping sites that are easier to use.
Section C: Determinants of Social Media Advertisement	
Independent Variable 1: **Security**	I feel safe and secure while shopping online.
	Online shopping platforms protect my security
	I like to shop online from a website that uses an online payment method that I am familiar with.
	I am aware that the practice of online shopping

	exposes me to the risk of financial fraud.
	I stop purchasing the products and services after being aware that there are risks of fraud or scams
Independent Variable 2: **Privacy**	I am worried that the personal information in the online shopping activities will be used by other parties without my authorization.
	I believe that the shopping platform will protect my personal information in strict accordance with its "Privacy Statement".
	I believe that the shopping platform will use the personal information I provide in accordance with the promise in the "Privacy Statement".
	I am uncomfortable with how my personal information from online purchases is continually used.
	I believe that it is the most important thing to keep my privacy intact from online purchasing apps or websites.
Independent Variable 3: **Product Features**	I am unable to evaluate and examine the quality and characteristics of the product precisely when shopping online.
	I can easily obtain and retrieve information about the products or services when I am browsing the website.
	I prefer to buy from a website that provides me with quality information
	I shop online because it is easy to choose and make comparisons with other products while shopping online
	I am aware that the quality of the product might not meet my expectations of the performance of the product.
Independent Variable 4: **Social Influence**	The opinions and experiences shared by my peers will affect my online purchase intention.
	I will exchange information regarding products and services that I purchased online with my family and friends.
	Before I purchase a product or brand from online shopping platforms, I will collect information related to user product reviews from the Internet.
	Customer reviews give me confidence in

	purchasing a product or brand online.
	I am more likely to have a positive attitude towards products or services recommended by social media influencers.
Independent Variable 5: **Promotion**	I always pay attention to the offering of sales promotions (discounts, special gifts, etc.) for a certain product.
	Seeing a promotional item, I will involuntarily want to buy it even though it is not in my shopping plan.
	Big shopping events/promotions help me purchase the things I need for the season.
	I often regret not buying the products after the promotion ended.
	Clearance sales make me buy immediately.

3.1 Pilot Study

The main goal of a pilot study is to detect any issues with the measurement tool, such as a questionnaire. Specifically, the pilot study evaluates the reliability and validity of the questionnaire. Conducting a pilot study is critical for survey-based research to ensure the questionnaire is both reliable and valid (Hassan, Schattner & Mazza, 2006). Reliability measures the consistency of the questionnaire results, while validity assesses how well it captures what it is intended to measure. To ensure accuracy, the questionnaire must be proven reliable and valid. Cronbach's alpha is used to assess reliability by examining the variance shared among the questionnaire items relative to the overall variance. Although it's not a statistical test, Cronbach's alpha is a coefficient that reflects consistency. It is calculated based on the average correlation between items and the total number of items. Below, the formula for Cronbach's alpha is provided for reference (Taber, 2018).

$$\alpha = \frac{N\overline{c}}{\overline{v} + (N-1)\overline{c}} \quad (1)$$

in which:

N refers to the number of items.

$\overline{c}$ refers to the average inter-item covariance among the items.

$\overline{v}$ denotes the means of the variance.

This equation illustrates that as the number of items increases, so will the value of Cronbach's alpha. Furthermore, if the average inter-item correlation is low, the alpha will be low. Cronbach's alpha rises in parallelwith an increase in the mean inter-item correlation (holding the number of items constant). Table 2 describes Cronbach's alpha rule of thumb, where the value of Cronbach's alpha will be interpreted according to its internalconsistency.

Table 2: Cronbach's Alpha Rule of Thumb

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

(Source: *Beginning Quantitative Research*, 2022)

The study utilizes face validity to assess the validity of a test. Face validity is crucial as it indicates if a measure seems relevant and appropriate for the object being evaluated. Two experts were asked to review a questionnaire, and if they believe it measures what it should, it has good face validity. Low face validity occurs if the measure is unclear. After the two experts have checked the questionnaire for its validity test, it is then distributed to 39 random people who are willing to participate in this study. According to Hertzog (2008), a pilot study sample size of 30 to 50 participants is generally sufficient to ensure statistical validity and reliability without being unnecessarily resource-intensive. Cronbach's alpha for the dependent variable and independent variables are tested using the IBM SPSS Statistics 27 version. Cronbach's alpha results for all the variables are shown in Table 3. The sum of Cronbach's alpha for

all variables is shown in Table 3.

Table 3: Reliability Statistics for All Variables

Variables	a
Dependent Variable (Online shopping purchasing preference)	0.848
Independent Variable 1 (Security)	0.774
Independent Variable 2 (Privacy)	0.848
Independent Variable 3 (Product Feature)	0.863
Independent Variable 4 (Social Influence)	0.928
Independent Variable 5 (Promotion)	0.880

The most typical approach to gauging a linear correlation is via the Pearson correlation coefficient (r). A number between -1 and 1 represents the relationship between the two variables' strength and direction. Our study uses Pearson Correlation to determine the correlation between independent variables (security, privacy, product features, social influence, and promotion) among each other. Table 4 shows the correlation type and interpretation of the Pearson Correlation Coefficient.

Table 4: The Correlation Type and Interpretation of Pearson Correlation Coefficient

Pearson Correlation Coefficient,(r)	Correlation Type	Interpretation
Between 0 and 1	Positive correlation	The other variable follows the direction of the first one as it changes.
0	No correlation	The variables do not relate to oneanother.
Between 0 and -1	Negative correlation	The other variable shifts in the opposite way when the other changes.

The Pearson Coefficient also can be calculated using the formula below:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \quad (2)$$

in which:

r = Pearson Coefficient

n= number of stock pairs

$\sum xy$ = sum of the paired stocks' products

$\sum x$ = the total of the x scores

$\sum y$= the total of the y scores

$\sum x^2$ = the total of x-squared scores

$\sum y^2$ = the total of the y-squared scores

The Pearson correlation coefficient is a descriptive statistic, which means it enumerates a dataset's features. It explains specifically the magnitude and direction of the linear relationship between two quantitative variables. Table 5 demonstrates the Pearson Correlation Coefficient, Strength, and direction.

Table 5: The Pearson Correlation Coefficient Value, Strength, and Direction

Pearson Correlation Coefficient *(r)* value	**Strength**	**Direction**
$r \geq 0.5$	Strong	Positive
$0.3 \leq r < 0.5$	Moderate	Positive
$0 < r < 0.3$	Weak	Positive
0	None	None
$0 < r < -0.3$	Weak	Negative
$-0.3 \leq r < -0.5$	Moderate	Negative
$r \leq -0.5$	Strong	Negative

This study used the multiple linear regression (MLR) model to examine the relationship between independent variables (security, privacy, product features, social influence, andpromotion) towards dependent variables (purchasing preference among shoppers in Nilai). Because it considers several explanatory variables, multiple regression is essentially an extension of ordinary least-squares (OLS) regression. The model can be written as follows:

$$y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \quad (3)$$

y = Online purchasing preference in Nilai

X_1 = Security

X_2 = Privacy

X_3 = Product Feature

X_4 = Social Influence

X_5 = Promotion

β_o = Constant of the y-intercept

$\beta_{1\text{-}5}$ = Slope coefficient for the independent variables.

ε = Error term

The model consists of ε, which is the residual or error term. It represents the unobserved factors that werenot included in the equation. The error term also implies that there is a disturbance in the regression model. The test for significant relationships between independent variables on an individual (P-value) or as a group (F statistics) on a dependent variable was carried out. If the value is less than 0.05, the null hypothesis will be rejected.

4.0 Results

Table 6 presents the demographic profile of 272 respondents, predominantly female (75.7%) and mostly between the ages of 21-30 (81.6%). The age distribution also shows

smaller proportions for the below 20 group (10.3%), 31-40 group (3.7%), and those over 41 (4.4%). Regarding occupation, students form the majority at 69.5%, followed by private sector employees (18%), government sector employees (4.8%), unemployed individuals (4.4%), and business owners (3.3%). In terms of income, most respondents (80.1%) earn RM2,000 or less. Other income brackets include RM2,001 to RM3,000 (10.7%), RM3,001 to RM4,000 (4.4%), RM4,001 to RM5,000 (2.2%), and below RM5,000 (2.6%). Respondents reported that web advertisements (68.4%) and recommendations from friends (65.4%) most influence their online shopping, followed by family recommendations (49.3%), TV advertisements (34.95%), and other sources (29%). The most popular items purchased online are apparel (82.4%), with accessories (56.6%), healthcare and fitness products (55.1%), online tickets (54%), and books (35.7%) also commonly bought. In terms of payment preferences, mobile banking is favored by 90.1% of respondents, significantly higher than other methods such as debit cards (31.6%), cash on delivery (27.6%), and credit cards (11.4%).

Table 6: Demographic Profile of The Respondents (N=272)

Variable	Subject	Frequency	Percentage (%)
Gender	Male	66	24.3%
	Female	206	75.7%
Age	Below 20	28	10.3%
	21-30	222	81.6%
	31-40	10	3.7%
	Above 41	12	4.4%
Occupation	Student	189	69.5%
	Not Working	12	4.4%
	Business	9	3.3%
	Government Sector	13	4.8%
	Private Sector	49	18.0%
Income	Below RM2,000	218	80.1%
	RM2,001 – RM3,000	29	10.7%
	RM3,001 – RM4,000	12	4.4%
	RM4,001 – RM5,000	6	2.2%
	Above RM5,000	7	2.6%
Sources of Online Shopping Information	Family	134	49.3%
	Friends	178	65.4%
	TV Advertisement	95	34.9%
	Website Advertisement	186	68.4%
	Others	79	29.0%
Preference for Product/Service for Online Shopping	Apparel	224	82.4%
	Online Ticketing	147	54.0%
	Accessories	154	56.6%
	Healthcare & Fitness	150	55.1%
	Books	97	35.7%
Modes of Payment inOnline Shopping	Cash on Delivery (COD)	75	27.6%
	Credit Card	31	11.4%
	Mobile Banking	245	90.1%
	Debit Card	86	31.6%

Next, the descriptive statistics of the model are discussed following the result shown in Table 7.

Table 7: Descriptive Statistics

	Mean	Std. Deviation	N
Online Shopping Purchasing Preference	4.0088	0.75378	272
Security	3.8441	0.68562	272
Privacy	3.9566	0.68664	272
Product Features	4.0846	0.69073	272
Social Influence	4.1088	0.74174	272
Promotion	3.7434	0.89056	272

In this model, the dependent variable (online shopping purchasing preference) and the two independent variables (product features and social influence) have means that are greater than 4, suggesting that the respondents tend to choose the strongly agreed option of the variables. However, other independent variables (security, privacy, and promotion) have means that are larger than 3, denoting that the respondents favour the agreed option of the variables. Moreover, in our model, all of the variables have a high value of standard deviation, which implies that data points are scattered further apart from the mean. Subsequently, to answer objective 1, Pearson Correlation is employed to determine the correlation between independent variables (security, privacy, product features, social influence, and promotion) among each other. Table 8 shows the person correlation (r) for all the independent variables.

Table 8: Correlations between independent variables among each other

	Security	Privacy	Product Features	Social Influence	Promotion
Security	1				
Privacy	0.703**	1			
Product Features	0.582**	0.645**	1		
Social Influence	0.553**	0.583**	0.618**	1	
Promotion	0.396**	0.478**	0.392**	0.489**	1

** Correlation is significant at the 0.01 level (2-tailed).

Two correlations have the lowest values among all the existing correlations. These occur between **promotion and product features,** which is 0.392, indicating that promotion do not have much influence on product features. Another lowest correlation exists between **promotion and security**, which is 0.396. The low correlation implies that promotion does not have a strong impact on security. The model also has independent variables with the two highest correlations. This occurs between **security and privacy**, where the correlation is 0.703, denoting that security exerts influence on privacy. Other than that, **privacy and product features** also correlate highly with each other which is 0.645. This means that privacy has an impact on product features. This finding may be a result of customers putting their trust in privacy if the product featured is high in quality or if it is from a well-known brand. Table 9 below discusses the R-squared of the multiple linear regression model of the study.

Table 9: Coefficient of Determination, R-squared of the Multiple Linear Regression Model

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751[a]	.564	.556	.50218

a. Predictors: (Constant), Promotion, Product Features, Security, Social Influence, Privacy

b. Dependent Variable: Online Shopping Purchasing Preference

The data R-squared value is 0.564, as shown in Table 9. This is already morethan halfway to a great fit. This model explains 56.4% of the variance in the independent variables. This shows a high level of explanatory power, implying that the independent variables in this model account for aconsiderable percentage of the observed variability. Even if R-squared is not particularly high, it may still be practically relevant, provided that it has meaningful consequences in the study's real-world context. Based on previous research, the independent variables (security, privacy, product features, social influence, and promotion) were added in this study to represent the model where the variables are

important to be included.

Table 10: Coefficient Values for the Multiple Linear Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	.203	.211		.964	.336
	Security	.330	.065	.300	5.050	.000
	Privacy	.079	.071	.072	1.118	.265
	Product Features	.149	.064	.137	2.347	.020
	Social Influence	.259	.058	.255	4.482	.000
	Promotion	.146	.041	.173	3.581	.000

a. Dependent Variable: Online Shopping Purchasing Preference

In this model, the predicted value of *y* (online shopping purchasing preference) when all other variables are 0 is 0.203. The unstandardized coefficients beta estimates the amount of increase in the dependent variable for a 1 unit increase in the independent variables. For example, 0.330 and 0.079 are the amounts in which *y* is predicted to change by 1 unit increase in security and privacy. Using standardized coefficients beta, all the coefficients are converted to a single unit of measurement which is into standard deviations. Security shows the highest standardized coefficient beta, which is 0.330, which implies that security has the highest unique contribution that can affect the dependent variable (online shopping purchasing preference). Thus, the model can be written as follows:

$$y = 0.203 + 0.330X_1 + 0.149X_3 + 0.259X_4 + 0.146X_5 + \varepsilon \quad (4)$$

y = Online purchasing preference in Nilai
X_1 = Security
X_3 = Product Feature
X_4 = Social Influence
X_5 = Promotion
ε = Error term

Among the independent variables, four factors are significant to the dependent variable, which are security, product features, social influence, and promotion. The significant test (p-value) shows the results for the mentioned variables which are p-value less than 0.05. This indicates that the null hypothesis for each independent variable is rejected while for privacy, the p-value is greater than 0.05, which then the null hypothesis failed to be rejected. The result for the p-value for each independent variable on the dependent variable is illustrated in Table 11.

Table 11: Summary of Multiple Linear Regression Analysis

Hypothesis Statement	Significance	Result	Discussion
H_1: There exists a significant effect of security on online shopping purchasing preference among shoppers.	0.000	The null hypothesis, H_o is rejected at the 5% level.	Security affects online shopping purchasing preference as shoppers prefer to shop online when they feel secure doing the online transaction on the online platform.
H_2: There exists a significant effect of privacy on online shopping purchasing preference among shoppers.	0.265	Fail to reject the null hypothesis, H_o at the 5% level.	The insignificant of privacy towards online shopping purchasing preference may be due to the shoppers' lack of awareness of the consequences of sharing privacy data online.
H_3: There exists a significant effect of product features on online shopping purchasing preference among shoppers.	0.020	The null hypothesis, H_o is rejected at the 5% level.	Online shopping purchasing preference is affected by product features as shoppers will buy products that are up to their standard quality and

			likeability on online shopping platforms.
H_4: There exists a significant effect of social influence on online shopping purchasing preference among shoppers.	0.000	The null hypothesis, H_o is rejected at the 5% level.	Social influence impacts the online shopping purchasing preference of shoppers as they tend to buy the products that get positive reviews or are recommended by the influencers or their friends and family members.
H_5: There exists a significant effect of promotion on online shopping purchasing preference among shoppers.	0.000	Thus, the null hypothesis, H_o is rejected at the 5% level.	Promotion grabs the attention of shoppers and affects their online shopping purchasing preference as it induces shoppers to shop regularly from online shopping platforms.

5.0 Discussions

In the discussion of the findings from this study, it is important to delve deeper into the relationships and implications of the observed correlations among the independent variables concerning online shopping preferences. The lack of significant negative correlations suggests that the variables generally do not adversely affect each other, promoting a more harmonious model of online consumer behavior. The minimal correlation (0.392) between promotion and product features implies a limited interaction between these two factors. This finding is insightful as it suggests that promotional activities do not substantially influence the perceived quality or appeal of product features among consumers. According to Kuncoro & Kusumawati (2021), while

promotions can attract consumers, they do not necessarily compel consumers to compromise on quality, highlighting a discerning purchasing behavior that prioritizes product quality over mere promotional appeal.

Similarly, the correlation between promotion and security, observed at a similarly low level (0.396), indicates that promotional strategies may not directly impact consumers' perceptions of security when shopping online. This observation is supported by Rahman et al. (2018), who noted that while promotions could enhance the attractiveness of online shopping, they do little to mitigate concerns related to security, which remains a separate and significant consumer consideration. Conversely, the strong correlation between security and privacy (0.703) underscores a significant overlap between these concerns among online shoppers. Consumers appear to view security and privacy as closely linked, with effective security measures enhancing their confidence in the privacy protections offered by online platforms. This relationship is reinforced by findings from Barth et al. (2019) and further supported by Arpah et al. (2023), who found that robust security and privacy assurances are pivotal in sustaining consumer interest and trust in online shopping platforms.

Moreover, the substantial correlation (0.645) between privacy and product features suggests that privacy considerations may also enhance the value placed on product features. According to Lăzăroiu et al. (2020), privacy assurances can enhance customer loyalty and potentially influence repurchase intentions, especially when paired with high-quality product features. This linkage implies that consumers are likely to show repeated patronage and trust towards brands that not only offer high-quality products but also ensure stringent privacy measures. These findings offer nuanced insights into how various factors interact to shape online shopping behaviors, highlighting the complexity of consumer preferences in the digital marketplace. Next, the analysis will explore the explanatory power of these variables through the R-squared values obtained from the multiple linear regression model.

In the regression model of this study, the intercept indicates that the baseline value of online shopping purchasing preference, when all independent variables are set to zero, is 0.203. This suggests a modest inherent inclination towards online shopping

among the study population. The unstandardized coefficients reveal that for every unit increase in variables such as security and privacy, there is a predicted increase in the dependent variable by 0.330 and 0.079, respectively. This indicates that enhancements in security measures and privacy protections are likely to increase online shopping preferences, with security showing a more substantial impact. The use of standardized coefficients allows for a comparison of the influence of each variable on a common scale. Here, security stands out with the highest standardized coefficient (0.330), signifying it as the most influential factor affecting online shopping purchasing preferences. This aligns with contemporary concerns over digital security, emphasizing its critical role in consumer trust and decision-making in online markets.

Furthermore, the significance tests for the variables, indicated by p-values less than 0.05 for security, product features, social influence, and promotion, confirm their impactful role in shaping online shopping behaviors. These variables significantly contribute to the model, providing strong evidence against the null hypothesis and affirming their predictive power. Conversely, privacy, with a p-value greater than 0.05, does not significantly influence purchasing preferences in this model, suggesting that other factors may play a more decisive role in this specific context. It is possible that the consumers in the study area may not be highly aware or concerned about privacy issues related to online shopping. This could be due to a lack of understanding or awareness of how their personal information is being used by online platforms. This discussion highlights the importance of security and promotional activities as key drivers of online shopping preference, alongside the nuanced roles of product features and social influences. The results underscore the need for online retailers to prioritize security and develop targeted promotional strategies to enhance consumer engagement and trust.

6.0 Conclusion

In this study, we investigate the impact of social media advertisements on online shopping preferences among Nilai shoppers. We consider online shopping preferences as our dependent variable, with security, privacy, product features, social influence, and promotion as independent variables. Data collection involved distributing questionnaires

via Google Forms to Nilai residents until reaching our target of 272 respondents. Before distribution, the questionnaires underwent reliability and validity tests. Two experts reviewed them for validity, while Cronbach's alpha was calculated using SPSS for reliability. The results showed acceptable Cronbach's alpha values above 0.7 for all variables. To address our first objective, we used Pearson correlation, revealing low correlations between some variables, like promotion and product features, indicating less association. Conversely, security showed a high correlation with privacy and product features. For our second objective, multiple linear regression was employed. The analysis demonstrated that security, product features, social influence, and promotion significantly influence online shopping preferences at a 5% significance level. The model's R-squared value of 0.564 indicates that it explains 56.4% of the variability in independent variables. Among the independent variables, only privacy failed to reject the null hypothesis according to the significance test (p-value). However, this study has limitations, as data was collected only from Nilai and only five variables were considered. Future research should aim for broader representation by including data from other states or the entire country and incorporating more variables to enhance the model's comprehensiveness.

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