Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6, 3171-3192
2024
Publisher: Learning Gate
DOI: 10.55214/25768484.v8i6.2679

Design of determinants of online shopping intentions and behavior of students at private universities in East Jakarta 2024

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Abstract: Globalization and technological advances, especially the internet, have changed people's shopping patterns. Online shopping is now a trend, allowing easy access to products at any time. The Covid-19 pandemic has accelerated this transition, with 74.5% of consumers preferring to shop online rather than offline, creating a new profitable consumption pattern. This study aims to identify significant relationships between latent variables that influence online shopping behavior, including Online Shopping Motivation, Subjective Norms, Perceived Behavioral Control, Consumer Knowledge, Online Shopping Intention, and Online Shopping Behavior. This research design uses a quantitative approach with SEM-PLS to analyze the relationship between variables that influence online shopping behavior of students at Private Universities in East Jakarta, providing an in-depth understanding for e-commerce in more effective marketing strategies. The results of the analysis show that Perceived Behavioral Control plays an important role in increasing online shopping knowledge and intention, supporting the theory of Planned Behavior. In addition, Subjective Norms are proven to influence consumer knowledge and intention, reflecting the impact of the social environment on shopping decisions. Although there is a positive relationship between Online Shopping Intention and Online Shopping Behavior, the results show that intentions are not always realized in action, indicating the complexity of consumer behavior. The implications of this study include the importance of consumer education to increase perceived control, leveraging social norms in marketing strategies through collaboration with influencers, and attention to other factors that influence shopping decisions. This study highlights the need to develop more effective marketing strategies, based on a deeper understanding of the relationships between variables, to increase consumer engagement and conversion on online shopping platforms. These findings contribute to academic and practical understanding in the context of shopping behavior in the digital era.

Keywords: *Consumer knowledge, Online shopping behavior, Online shopping intention.*

1. Introduction

Globalization and the rapid development of information technology, especially the internet, have changed the way people shop. Online shopping is now the norm, allowing consumers to access a variety of products easily, anytime and anywhere. The Covid-19 pandemic has further accelerated this transition, with 74.5% of consumers preferring online shopping to offline shopping, creating a new, profitable consumption pattern.(Madah Marzuki et al., 2023; Samidah & Yulianti, 2023). Brian Marshal, founder and CEO of Sirclo, revealed that the Covid-19 pandemic has significantly changed consumer behavior, driving a shift to digital services to meet basic needs. In a press release on October 22, 2021, he explained that 17.5% of offline consumers have switched to online shopping, with 74.5% of those who previously shopped physically now preferring digital channels(Anggie & Haryanto, 2011; Hassan et al., 2018; Setyoadi & Rahmawati, 2024; Singer & Hidayat, 2021). The growth of the e-commerce sector is also driven by the ease of access to product information through marketplaces, social media, and websites, which makes consumers more informed. Amidst these changes, the omni channel concept

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becomes vital, integrating online and offline shopping experiences to create a seamless process for customers.(Abigail et al., 2024; Никаноров et al., 2018). In the future, online shopping will not only be an alternative, but also a major driver of growth in the global retail industry. Although offline sales are still dominant, projections show that 13% of total global retail sales worth US$ 2.8 trillion in 2024 will be dominated by online shopping.(Setyoadi & Rahmawati, 2024; Wegmann et al., 2023). With the rapid development of technology and changes in consumption patterns presented by large platforms such as Taobao and Amazon, consumers are increasingly facilitated in conducting research and transactions.(Lin & Tao, 2024; Maier & Wieringa, 2020). Therefore, it is important to understand consumer psychology and form a positive mindset in online shopping, which will encourage healthy and rational purchases.

Online shopping among students of Private Universities in East Jakarta in 2024 shows a significant impact of sustainability trends on consumer behavior. Although the technological and consumer behavioral aspects of e-commerce have been widely studied, there is still a gap in connecting sustainability issues such as carbon footprint and eco-friendly packaging with shopping preferences. Post-pandemic behavioral changes, especially among the older generation, are an under-explored focus. This study focuses on factors such as motivation, attitude, subjective norms, and perceived behavioral control that influence consumer knowledge and online shopping intentions. The characteristics of modern consumers who are imaginative and innovative are evident in their decisions, which are not only based on the practical value of the product but also on individual identity. In the digital era, students are active users of the marketplace, so it is important to identify online shopping motivations, social norms, and perceived behavioral control. The varying frequency of online shopping, dominated by the millennial generation, shows that students are not only looking for convenience but also conducting online research and relying on reviews before making a purchase decision. Therefore, understanding students' motivations and shopping behavior is crucial to designing an effective marketing strategy. Factors such as speed, accuracy, and promotions can influence their decisions in choosing a platform. In addition, social expectations from family and friends also play a significant role, emphasizing the need for a personalized and community-based marketing approach. Students with good financial control and adequate product knowledge tend to make wise shopping decisions. Therefore, marketplaces need to provide educational content to improve students' understanding and shopping skills. The comfort and security aspects when interacting with e-commerce platforms must also be considered, as these are determining factors for shopping intentions. Digging deeper into the influence of culture and subculture on shopping behavior can provide strategic insights that are useful for developing e-commerce platforms that are relevant to students' social trends and preferences. By understanding these dynamics, e-commerce companies can improve students' online shopping experiences, facilitate smarter decisions, and respond to evolving consumption patterns.

Halal certification positively increases consumer confidence, encouraging purchase intentions for halal products. (Mahliza, 2022).Consumer trust plays an important role in significantly increasing the intention to purchase halal products. (Hamizar, 2023)Halal certification influences purchase intention directly and indirectly through the consumer trust that is formed. (Saputri & Guritno, 2021)Familiarity, controllability, and risk information contribute to consumer panic buying behavior during the pandemic. (Bramantyo & Utami, 2022)This stimulus forms Risk Perception, which influences consumer intentions and behavior in panic buying. (Setyoadi & Rahmawati, 2024)Product quality, brand image, halal labeling, and purchase intention have a positive and significant influence on purchasing decisions simultaneously. (Prameswari et al., 2019)Product quality and brand image have a significant effect on purchase intention, while halal labeling does not show a significant effect. (Budiman & Andriani, 2021)Perceived usefulness has a positive effect on the attitudes of mobile application users, directly influencing usage. (Sukesi, 2023)Social influence does not have a significant effect on attitudes and intentions to purchase the mobile applications studied. (Pasaribu, 2019)The addition of TAM as a new component shows the importance of trust, ease, and information quality in adopting online shopping applications. (Hakimi et al., 2021)Service quality and food quality act as mediators in the influence of atmospheric on consumer behavioral intentions. (Hapsari & Ciptaningsih, 2022)Subjective norms and perceived behavioral control have a significant effect on attitude and purchase intention simultaneously.

Edelweiss Applied Science and Technology
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(Irwanto et al., 2021)Perceived trust, perceived value, perceived risk, and satisfaction have a significant influence on behavioral intentions among online shoppers. (Billari C. et al., 2005)Positive attitudes and knowledge of zakat have a positive influence on the intention to pay zakat, even in the midst of the Covid-19 pandemic. (Julian S & Susan, 2023)Positive attitudes and perceived control are important for increasing career interest in taxation, ignoring subjective norms. (Nasrudin et al., 2024)Financial literacy as a significant moderator in the influence of attitude on saving intention, without mitigating perceived risk. (Purwianti et al., 2023)Attitude, subjective norms, and behavioral control simultaneously show a positive influence on consumer product repurchase intentions. (Ayuningrum & Nabhan, 2024)Subjective norms do not have a positive direct effect on online purchase intentions or attitudes toward using e-commerce applications. (Lim & Lady, 2023)Attitude has a significant influence on purchase intention, while health awareness and subjective norms do not show a significant influence. (Horas et al., 2023)Performance expectancy has a significant effect on behavioral intentions, influencing consumer decisions in using information technology. (Sari et al., 2022)Perceived usefulness and ease of use contribute to the intention to use the TikTok application, significantly influencing the behavior of generation Z. (Anggelina & Japarianto, 2019)Attitude, subjective norms, and behavioral control have a simultaneous influence on SOGO department store customers' purchase intention, with behavioral control having a stronger influence. (Romadhoni & Guspul, 2020)Attitude has a positive influence on the intention to purchase online transportation services, while subjective norms do not show a significant influence. (Olivia, 2021).

This study faces several weaknesses that need to be considered in interpreting the results. First, the limited focus on women in Jakarta reduces the generalizability of the study results to other populations in Indonesia with different demographic characteristics. In addition, the reliance on qualitative data may limit the ability to measure quantitative relationships between the variables studied. The relatively small sample size (85 respondents) also potentially reduces the statistical power and reliability of the results, increasing the risk of bias and being less representative of the wider population. As a systematic literature review, this study does not include empirical data from respondents or field studies that can provide concrete evidence on the factors that influence customer loyalty and switching. The questionnaire used may have limitations in validity and reliability if not thoroughly tested before distribution. In addition, the results of the study may not be generalizable to all zakat payers or student populations in other areas, given the variations in social and economic contexts. This study is also cross-sectional in nature, which does not allow for definitive conclusions about cause-and-effect relationships, so a longitudinal approach could provide more insight. Overall, this study requires more attention to the methodological design and sample size to improve the accuracy and generalizability of its results.

This study aims to identify and analyze the relationship between Perceived Behavior Control (X3), Subjective Norm (X2), and Online Shopping Motivation (X1) on Consumer Knowledge (Z1) and Online Shopping Intention (Z2), and their impact on Online Shopping Behavior (Y) among students at Private Universities in East Jakarta. Using a quantitative approach and survey method, this study will involve students who actively use online shopping platforms, through a questionnaire that includes questions related to the variables studied. The data obtained will be analyzed using statistical analysis techniques, such as Structural Equation Modeling (SEM). It is expected that the results of this study can provide a better understanding of the factors that influence online shopping behavior, provide recommendations for e-commerce companies to develop marketing strategies that are in accordance with student preferences, contribute to the academic literature on consumer behavior and e-commerce, and increase awareness of sustainability in online shopping.

2. Research Methodology

2.1. Design

This research design uses a quantitative approach with the Structural Equation Modeling Partial Least Squares (SEM-PLS) model, which aims to analyze the relationship between variables such as Online Shopping Motivation, Subjective Norms, Perceived Behavioral Control, Consumer Knowledge, Online Shopping Intentions, and Online Shopping Behavior among Private College Students in East

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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Jakarta.(Masfiyah & Artanti, 2023). SEM-PLS was chosen because it has the advantage of testing complex theoretical models with several latent variables and indicators, even with relatively small sample sizes.(Khaulia, 2021). In addition, this method is able to handle non-normally distributed data and identify causal relationships simultaneously, so that the research results are more accurate and reliable.(Arwani et al., 2021). The opportunity in this research lies in its ability to provide an in-depth understanding of the factors that influence students' online shopping behavior, which can be utilized by e-commerce and digital marketers to develop more effective and personalized strategies, in accordance with the characteristics of this market segment.(Prayoga et al., 2018).

2.2. Population and Sampling

In this study, distribution of research samples taken from four private universities in East Jakarta. Mohammad Husni Thamrin University has the largest population with 1,381 students, thus obtaining 68 samples, reflecting 49.20% of the total population. STIE Kusuma Negara, with a population of 680, contributed 34 samples (24.23%). Borobudur University and Indonesian Christian University (UKI) each have a population of 357 and 389, with a sample size of 18 (12.72%) and 19 (13.86%). The total sample of this study was 139 people from the total population of 2,807 students, providing a proportional representation(Wardana & Sudarmawan, 2023).

Table 1.
Sample proportion.

No	Name of college and region	Population size	Proportion	Number of samples
1	Mohammad Husni Thamrin University	1,381	49.20%	68
2	Kusuma State College of Economics	680	24.23%	34
3	Borobudur University	357	12.72%	18
4	Christian University of Indonesia (UKI)	389	13.86%	19
	Amount	2,807	100%	139

2.3. Procedures and Data Collection

In this study, primary data is used as the main type of data, which is processed in quantitative form. Quantitative data, which consists of numerical information, allows analysis using mathematical and statistical formulas.(Septiani et al., 2024). Data collection is done by distributing questionnaires to respondents. This questionnaire serves to collect information needed for research, with the hope that respondents can provide relevant and accurate answers according to the questions asked.(Irfandhani et al., 2023). The method of collecting data using this questionnaire involves a Likert scale, which consists of five ratings to measure the level of perception and expectations of respondents. Each statement in the questionnaire is arranged systematically, allowing respondents to indicate their attitudes towards the statement.(Siaputra & Isaac, 2020). Respondents were asked to provide their opinions by choosing from the available answer categories, which range from "Strongly Agree" to "Strongly Disagree," with each category having a certain score. With this approach, the data obtained is expected to provide a clear picture of the respondents' attitudes and preferences towards the issues studied.(Baiqun Isbahi et al., 2024).

2.4. Operational Variables

In this study, the variables explored include Online Shopping Motivation (X1), Subjective Norm (X2), Perceived Behavioral Control (X3), Consumer Knowledge (Z1), Online Shopping Intention (Z2), and Online Shopping Behavior (Y). Online shopping motivation includes factors such as ease of finding products, accuracy of information, attractiveness of prices and promotions, and ease of comparing prices in the marketplace.(Kholil & Kuncoro, 2017).

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Table 2.
Operational variables.

Variables	No.	Code	Sentence	Reference
Online shopping motivation (X1)	1	X1.1	Quickly find products in the marketplace.	(Arwani et al., 2021)
	2	X1.2	Precise and accurate finding of products in the marketplace.	(Prayoga et al., 2018)
	3	X1.3	Product information is easy to find in the marketplace.	(Wardana & Sudarmawan, 2023)
	4	X1.4	Product prices are cheaper in the marketplace.	(Septiani et al., 2024)
	5	X1.5	Interested in discounts and promotions in the marketplace.	(Irfandhani et al., 2023)
	6	X1.6	Easy to compare product prices in the marketplace.	(Siaputra & Isaac, 2020)
Subjective norm (X2)	1	X2.1	Families have expectations regarding products.	(Baiqun Isbahi et al., 2024)
	2	X2.2	Take family expectations into account when shopping.	(Kholil & Kuncoro, 2017)
	3	X2.3	Friends have expectations regarding the product.	(Ramadhanti & Marsasi, 2023)
	4	X2.4	Pay attention to friends' preferences when shopping.	(Andryani & Kurniawati, 2015)
	5	X2.5	Take into account public opinion when shopping.	(Daliman et al., 2019)
	6	X2.6	Family opinions influence shopping decisions.	(Mahliza, 2022)
	7	X2.7	Follow family recommendations when shopping.	(Hamizar, 2023)
Perceived behavior control (X3)	1	X3.1	Able to manage finances for shopping in the marketplace.	(Saputri & Guritno, 2021)
	2	X3.2	Able to manage finances for shopping in the marketplace.	(Bramantyo & Utami, 2022)
	3	X3.3	Able to do physical activities while shopping at the marketplace.	(Setyoadi & Rahmawati, 2024)
	4	X3.4	Have the ability to overcome psychological barriers when shopping.	(Prameswari et al., 2019)
	5	X3.5	Able to maintain focus and calm when shopping in the marketplace.	(Budiman & Andriani, 2021)
	6	X3.6	Financial constraints limit purchases in the marketplace.	(Sukesi, 2023)
Consumer knowledge (Z1)	1	Z1.1	Using information sources to understand the product.	(Pasaribu, 2019)
	2	Z1.2	Regularly access product information in the marketplace.	(Hakimi et al., 2021)
	3	Z1.3	Attend training to understand products in the marketplace.	(Hapsari & Ciptaningsih, 2022)
	4	Z1.4	Product knowledge is sufficient to meet needs.	(Irwanto et al., 2021)
	5	Z1.5	Understanding product features in the marketplace.	(Billari C. et al., 2005)

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Online shopping intention (Z2)	1	Z2.1	Product information is easily accessible in the marketplace.	(Julian S & Susan, 2023)
	2	Z2.2	Comfortable interacting with the marketplace platform.	(Nasrudin et al., 2024)
	3	Z2.3	The payment process is easy to follow in the marketplace.	(Purwianti et al., 2023)
	4	Z2.4	The payment process is easy to follow in the marketplace.	(Ayuningrum & Nabhan, 2024)
	5	Z2.5	The marketplace privacy policy protects personal data.	(Lim & Lady, 2023)
Online shopping behavior (Y)	1	Y.1	Culture influences online product preferences.	(Horas et al., 2023)
	2	Y.2	Buy products that are trending in the environment.	(Sari et al., 2022)
	3	Y.3	Subcultures influence purchasing decisions in the marketplace.	(Anggelina & Japarianto, 2019)
	4	Y.4	Buying products according to social status.	(Romadhoni & Guspul, 2020)
	5	Y.5	Purchasing products online on the recommendation of friends or family.	(Olivia, 2021)
	6	Y.6	Purchased products online after consulting with family.	(Saputri & Guritno, 2021)

Subjective norms include the hopes and expectations of family and friends that influence shopping decisions, while perceived behavioral control focuses on students' ability to manage finances and overcome psychological barriers when shopping. Consumer knowledge relates to access to product information and training followed to understand the product, while online shopping intention includes convenience and security in interacting with the marketplace platform. Finally, online shopping behavior is determined by the influence of culture, subculture, and recommendations from friends or family that shape students' purchasing patterns. This study aims to provide a deeper understanding of the factors that influence online shopping behavior among college students.

2.5. Research Procedures

In this study, SEM was used to analyze the relationship between latent variables using a mediation model, starting with testing the measurement model and continuing with testing the structural model.(Alhawamdeh et al., 2024; Li et al., 2024; Xia et al., 2024). Outer loading analysis shows the correlation between indicators and latent variables, where the ideal value is >0.7 for good convergent validity. However, a value of 0.6-0.7 is still acceptable if there are no other stronger indicators. Indicators with outer loading values <0.6 should be removed.(Ariyantiningsih et al., 2024; Kante & Michel, 2023). Convergent validity is tested through Average Variance Extracted (AVE), with an ideal value of >0.5. In addition, reliability is tested through Composite Reliability (CR) and Cronbach's Alpha, with a minimum value of 0.7. Discriminant validity testing is carried out by comparing AVE and correlation between latent variables using HTMT or Fornell-Larcker Criterion. After construct validity and reliability are achieved, structural model testing is carried out using R-Square (R^2) to assess the variance explained by the model. Path coefficients are analyzed to assess the strength and direction of the relationship between latent variables.

The mediation test was conducted using bootstrapping (5000 samples), to test the significance of direct, indirect, and total influences using t-statistics and p-values.(Agarwal & Dhingra, 2023; Fawaid & Siregar, 2021; Xia et al., 2024). The direct effect is tested to see the relationship between the independent and dependent variables, where t-statistic >1.96 or p-value <0.05 indicates significance. The mediation effect tests the influence of the independent variable on the dependent through the

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ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
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mediator. If the indirect effect is significant, but the direct effect is not, then full mediation occurs. If both effects are significant, then partial mediation occurs.(Ali et al., 2024; Kumar et al., 2022; Xia et al., 2024). The total effect is a combination of direct and indirect effects, which are tested for significance by the same method.(Adela et al., 2024; Pratolo et al., 2020; Xia et al., 2024). The hypothesis is tested based on the path coefficient, t-statistic, and p-value, where significance is determined by the t-statistic value >1.96 and p-value <0.05. This model is declared good if it meets the criteria of outer loading >0.7, AVE >0.5, CR >0.7, and the hypothesis being tested is significant. These results indicate a model that can understand the relationship between variables in depth, including the role of mediators in influencing the relationship between independent and dependent variables.

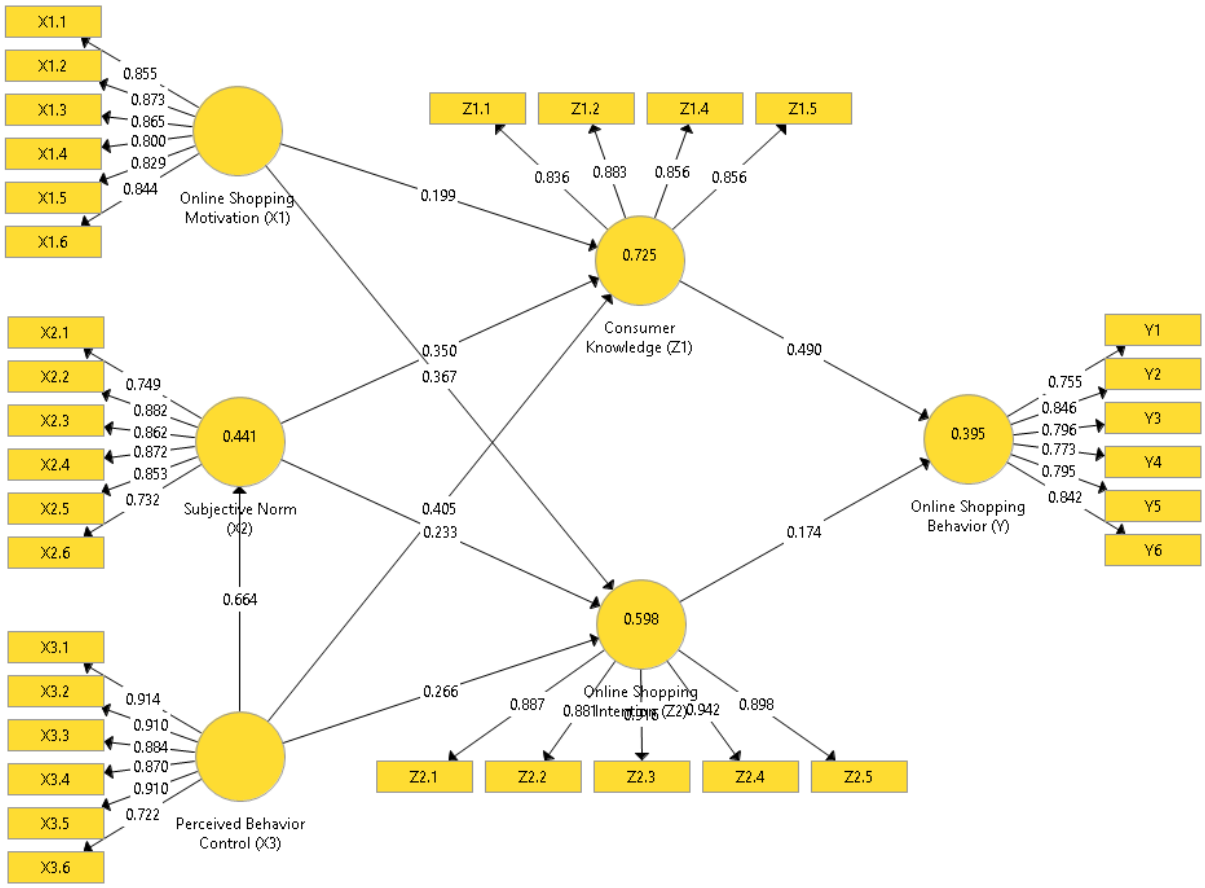

Figure 1.
Structural equation outer model.

3. Results and Discussion

3.1. Results

3.1.1. Outer Model

This Structural Equation Model (SEM) analyzes the relationship between motivation, subjective norms, perceived behavioral control, consumer knowledge, intention, and online shopping behavior. The results of the analysis show various significant relationships between latent variables and their indicators, as well as between the latent variables themselves. First, Online Shopping Motivation (X1) affects Consumer Knowledge (Z1) with a path coefficient of 0.199. Although the effect is positive, the relatively low coefficient value indicates a moderate effect. Subjective Norm (X2) has a stronger effect on Consumer Knowledge (Z1) with a coefficient of 0.367 and also affects Online Shopping Intention (Z2) with a coefficient of 0.233. This emphasizes the importance of social norms in shaping consumer knowledge and intention. Perceived Behavioral Control (X3) shows the most significant effect on Online

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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Shopping Intention (Z2) with a coefficient of 0.664, confirming that when consumers feel they have control over their behavior, the intention to shop online increases significantly. Furthermore, Consumer Knowledge (Z1) influences Online Shopping Behavior (Y) with a fairly high coefficient of 0.490, indicating that a better understanding of online shopping drives more active shopping behavior. Online Shopping Intention (Z2) also has a direct impact on Online Shopping Behavior (Y) with a coefficient of 0.174, although its effect is smaller than the influence of consumer knowledge. Overall, this model highlights that consumer knowledge and perceived behavioral control play a key role in influencing online shopping behavior, while intention and social norms also contribute but with a more limited influence.

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Table 3.
Outer model value.

	Outer loading	Outer loading standard	Outer loading value	Cronbach's alpha	Cronbach's alpha value standard	Composite reliability	Average variance extracted (AVE)	Decision
X1.1	0.855	>0.5	Worthy	0.920	>0.5	0.937	0.714	Worthy
X1.2	0.873	>0.5						
X1.3	0.865	>0.5						
X1.4	0.800	>0.5						
X1.5	0.829	>0.5						
X1.6	0.844	>0.5						
X2.1	0.749	>0.5	Worthy	0.907	>0.5	0.928	0.684	Worthy
X2.2	0.882	>0.5						
X2.3	0.862	>0.5						
X2.4	0.872	>0.5						
X2.5	0.853	>0.5						
X2.6	0.732	>0.5						
X3.1	0.914	>0.5	Worthy	0.935	>0.5	0.949	0.758	Worthy
X3.2	0.910	>0.5						
X3.3	0.884	>0.5						
X3.4	0.870	>0.5						
X3.5	0.910	>0.5						
X3.6	0.722	>0.5						
Y1	0.755	>0.5	Worthy	0.889	>0.5	0.915	0.643	Worthy
Y2	0.846	>0.5						
Y3	0.796	>0.5						
Y4	0.773	>0.5						
Y5	0.795	>0.5						
Y6	0.842	>0.5						
Z1.1	0.836	>0.5	Worthy	0.880	>0.5	0.918	0.736	Worthy
Z1.2	0.883	>0.5						
Z1.4	0.856	>0.5						
Z1.5	0.856	>0.5						
Z2.1	0.887	>0.5	Worthy	0.945	>0.5	0.958	0.819	Worthy

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Z2.2	0.881	>0.5						
Z2.3	0.916	>0.5						
Z2.4	0.942	>0.5						
Z2.5	0.898	>0.5						

Table 4.
Value EligibilityFornell- Lacker criterion.

	Consumer knowledge (Z1)	**Online shopping behavior (Y)**	**Online shopping intention (Z2)**	**Online shopping motivation (X1)**	**Perceived behavior control (X3)**	**Subjective norm (X2)**	**Average variance extracted (AVE)**	**Decision**
Consumer knowledge (Z1)	0.858						0.736	Worthy
Online shopping behavior (Y)	0.618	0.802					0.643	Worthy
Online shopping intention (Z2)	0.734	0.533	0.905				0.819	Worthy
Online shopping motivation (X1)	0.727	0.560	0.716	0.845			0.714	Worthy
Perceived behavior control (X3)	0.787	0.471	0.696	0.750	0.871		0.758	Worthy
Subjective norm (X2)	0.747	0.664	0.645	0.641	0.664	0.827	0.684	Worthy

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DOI: 10.55214/25768484.v8i6.2679

The results of the validity and reliability tests on the research variables show that all indicators meet the eligibility requirements as a measure of latent variables. Based on the Outer Loading analysis, Online Shopping Motivation (X1) has an Outer Loading value between 0.800 and 0.873, indicating that the indicators are very feasible. Cronbach's Alpha of 0.920 and Composite Reliability of 0.937 also indicate very good reliability. The AVE value of 0.714 indicates adequate convergent validity, because it exceeds the threshold of 0.5. In the Subjective Norm variable (X2), the Outer Loading values of the indicators range from 0.732 to 0.882, with Cronbach's Alpha of 0.907 and Composite Reliability of 0.928, indicating very high reliability. The AVE of 0.684 also confirms sufficient validity. Perceived Behavioral Control (X3) has a high Outer Loading value, ranging from 0.722 to 0.914, indicating that all indicators are very feasible. Cronbach's Alpha of 0.935 and Composite Reliability of 0.949 also indicate very strong reliability, with an AVE value of 0.758, indicating very good validity. In the Online Shopping Behavior variable (Y), the Outer Loading values of the indicators range from 0.755 to 0.846, with a Cronbach's Alpha of 0.889 and a Composite Reliability of 0.915. The AVE value of 0.643 indicates that this variable has good validity. For the Consumer Knowledge variable (Z1), the Outer Loading value is above 0.836, with a Cronbach's Alpha of 0.880 and a Composite Reliability of 0.918, indicating very good reliability. AVE of 0.736 also indicates strong validity. The Online Shopping Intention variable (Z2) shows a very high Outer Loading value, ranging from 0.881 to 0.942. Cronbach's Alpha of 0.945 and Composite Reliability of 0.958 confirm very good reliability, with an AVE value of 0.819 which is very adequate. All variables in the model have very good validity and reliability. High Cronbach's Alpha and Composite Reliability values, as well as AVE values exceeding 0.5, indicate that all indicators are suitable for measuring the latent variables represented, so that this model as a whole can be considered valid and reliable.

The table above shows the results of discriminant validity testing through Average Variance Extracted (AVE) analysis and correlation between latent variables. All variables in this study have an AVE value above 0.5, indicating good convergent validity, meaning that the indicators used are able to measure the variable construction accurately. Consumer Knowledge (Z1) has the highest correlation with itself (0.858) and an AVE of 0.736, indicating very good validity. Correlations with other variables are also significant, such as with Online Shopping Intention (Z2) (0.734) and Perceived Behavioral Control (X3) (0.787). Online Shopping Behavior (Y) has an internal correlation of 0.802 and an AVE of 0.643, indicating that the indicators are able to adequately explain the variable variance. Correlations with other variables are also reasonable, such as with Consumer Knowledge (Z1) (0.618). Online Shopping Intention (Z2) has a very high correlation with itself (0.905) and an AVE of 0.819, indicating very strong validity. Its correlation with other variables, such as Online Shopping Motivation (X1) (0.716), is also significant. Online Shopping Motivation (X1) has a correlation value of 0.845 with itself and an AVE of 0.714, indicating the feasibility of the indicator as a measure of this variable. Perceived Behavioral Control (X3) and Subjective Norm (X2) each have high correlations with themselves (0.871 and 0.827) and an AVE above 0.5, indicating strong validity. All variables have adequate validity and reliability, indicating that this model is worthy of use for further research...

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
DOI: 10.55214/25768484.v8i6.2679

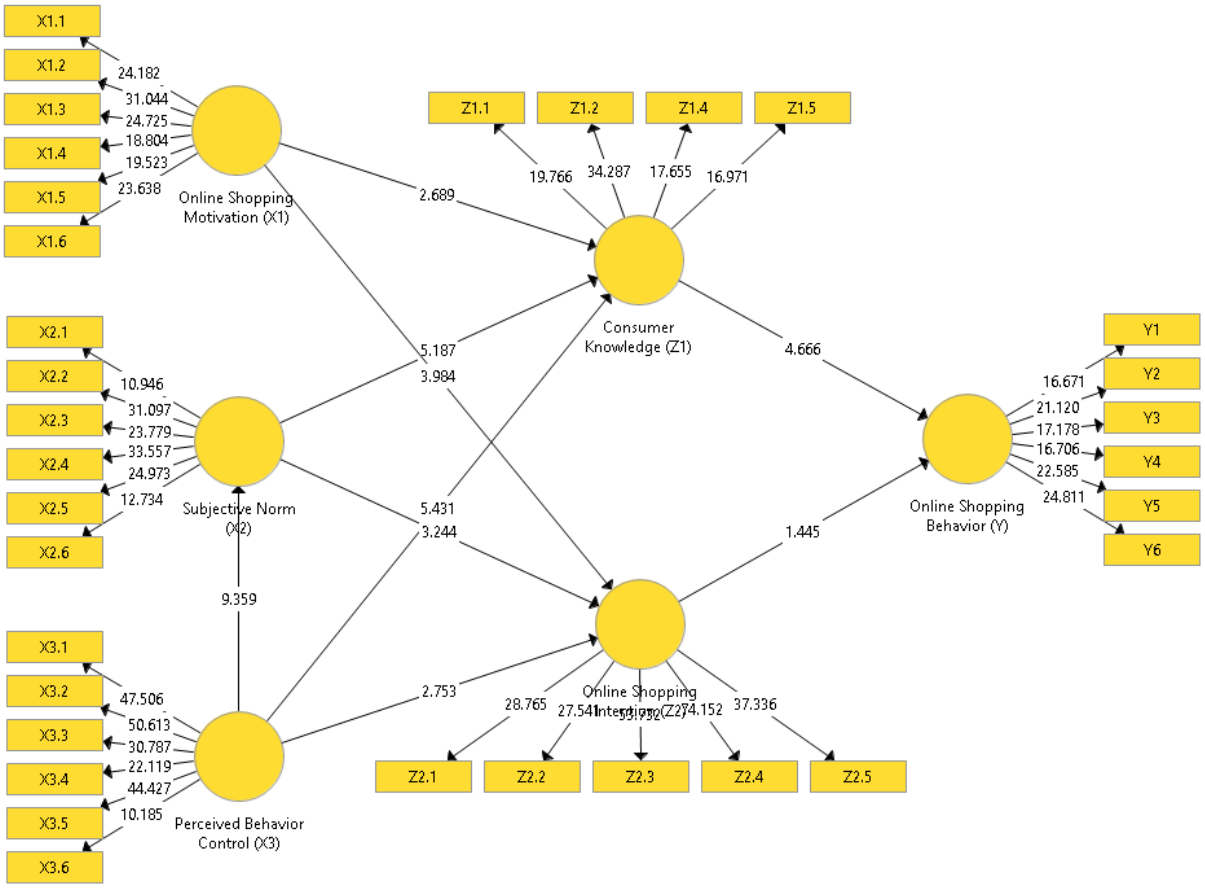

Figure 2.
Structural equation inner model.

3.1.2. Inner Model

The path diagram shown is a Structural Equation Modeling (SEM) model that identifies the relationship between latent variables in online shopping behavior. There are five latent variables that are the main focus: Online Shopping Motivation (X1), Subjective Norm (X2), Perceived Behavioral Control (X3), Consumer Knowledge (Z1), Online Shopping Intention (Z2), and Online Shopping Behavior (Y). Each variable is measured by a number of indicators indicated by yellow boxes, and the numbers on the path connecting the latent variable and its indicators indicate the loading factor, or how strongly the indicator reflects the variable being measured. Online Shopping Motivation (X1) is positively related to Consumer Knowledge (Z1) with a path coefficient of 2.689, indicating that the higher a person's motivation to shop online, the greater the knowledge they have about online shopping. In addition, Online Shopping Motivation also affects Online Shopping Intention (Z2) with a path coefficient of 2.753. Subjective Norm (X2) shows a significant influence on Consumer Knowledge (Z1) and Online Shopping Intention (Z2), with path coefficients of 5.187 and 5.431, respectively, meaning that social norms around individuals have a strong impact on shaping online shopping knowledge and intention. Perceived Behavioral Control (X3) also has a significant contribution to Online Shopping Intention (Z2) with a coefficient of 9.359, indicating that individuals' perceptions of their control or ability to shop online affect their intention to do so. Online Shopping Intention (Z2) directly affects Online Shopping Behavior (Y) with a coefficient of 1.445, confirming that strong intentions are positively related to actual behavior in online shopping. Consumer Knowledge (Z1) also has a direct influence on Online Shopping Behavior (Y) with a coefficient of 4.666, indicating that good knowledge about online shopping can encourage such shopping behavior. Overall, this model shows a significant

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
DOI: 10.55214/25768484.v8i6.2679

relationship between motivation, subjective norms, perceived behavioral control, consumer knowledge, online shopping intention, and online shopping behavior. All paths show significant relationships with strong path coefficient figures, indicating the relevance and validity of the relationships between variables in this study.

Table 5.
Partial path hypothesis value.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
Consumer knowledge (Z1) -> Online shopping behavior (Y)	0.490	0.502	0.105	4.666	0.000	Hypothesis accepted
Online shopping intention (Z2) -> Online shopping behavior (Y)	0.174	0.160	0.120	1,445	0.149	Hypothesis rejected
Online shopping motivation (X1) -> Consumer knowledge (Z1)	0.199	0.202	0.074	2,689	0.007	Hypothesis accepted
Online shopping motivation (X1) -> Online shopping intention (Z2)	0.367	0.367	0.092	3.984	0.000	Hypothesis accepted
Perceived behavior control (X3) -> Consumer knowledge (Z1)	0.405	0.403	0.075	5.431	0.000	Hypothesis accepted
Perceived behavior control (X3) -> Online shopping intention (Z2)	0.266	0.261	0.096	2,753	0.006	Hypothesis accepted
Perceived behavior control (X3) -> Subjective norm (X2)	0.664	0.658	0.071	9,359	0.000	Hypothesis accepted
Subjective norm (X2) -> Consumer knowledge (Z1)	0.350	0.351	0.068	5.187	0.000	Hypothesis accepted
Subjective norm (X2) -> Online shopping intention (Z2)	0.233	0.236	0.072	3.244	0.001	Hypothesis accepted

The table above presents the results of the hypothesis test from the Structural Equation Modeling (SEM) model that describes the influence between latent variables in online shopping behavior. The results of this statistical test include the Original Sample (O), Sample Mean (M), Standard Deviation (STDEV), T Statistics (|O/STDEV|), and P Values, which are used to decide whether the hypothesis is accepted or rejected. Here is the description:

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1. Consumer Knowledge (Z1) → Online Shopping Behavior (Y): The path coefficient of 0.490 with a T Statistics value of 4.666 and a P Value of 0.000 indicates that the influence of Consumer Knowledge on Online Shopping Behavior is significant. The hypothesis is accepted, which means that the higher the consumer knowledge, the greater the likelihood of online shopping behavior.
2. Online Shopping Intention (Z2) → Online Shopping Behavior (Y): The path coefficient of 0.174 with T Statistics of 1.445 and P Value of 0.149 indicates that the influence of Online Shopping Intention on Online Shopping Behavior is not significant. The hypothesis is rejected, indicating that online shopping intention does not directly affect online shopping behavior in this model.
3. Online Shopping Motivation (X1) → Consumer Knowledge (Z1): Coefficient 0.199 with T Statistics 2.689 and P Value 0.007 shows a significant influence of Online Shopping Motivation on Consumer Knowledge. Hypothesis is accepted.
4. Online Shopping Motivation (X1) → Online Shopping Intention (Z2): Coefficient 0.367 with T Statistics 3.984 and P Value 0.000 indicates a significant relationship between Online Shopping Motivation and Online Shopping Intention. Hypothesis is accepted.
5. Perceived Behavioral Control (X3) → Consumer Knowledge (Z1): Coefficient 0.405 with T Statistics 5.431 and P Value 0.000 indicates a highly significant relationship between Perceived Behavioral Control and Consumer Knowledge. Hypothesis is accepted.
6. Perceived Behavioral Control (X3) → Online Shopping Intention (Z2): The coefficient of 0.266 with T Statistics 2.753 and P Value 0.006 indicates that the influence of Perceived Behavioral Control on Online Shopping Intention is significant. The hypothesis is accepted.
7. Perceived Behavioral Control (X3) → Subjective Norm (X2): Coefficient 0.664 with T Statistics 9.359 and P Value 0.000 indicates a very significant influence of Perceived Behavioral Control on Subjective Norm. Hypothesis is accepted.
8. Subjective Norm (X2) → Consumer Knowledge (Z1): Coefficient 0.350 with T Statistics 5.187 and P Value 0.000 shows a significant influence of Subjective Norm on Consumer Knowledge. Hypothesis is accepted.
9. Subjective Norm (X2) → Online Shopping Intention (Z2): Coefficient 0.233 with T Statistics 3.244 and P Value 0.001 shows that Subjective Norm significantly influences Online Shopping Intention. Hypothesis is accepted.

Table 6.
Hypothesis value of mediation path.

	Original sample (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**	**Decision**
Perceived behavior control (X3) -> Subjective norm (X2) -> Consumer knowledge (Z1)	0.233	0.230	0.048	4.817	0.000	Hypothesis accepted
Online shopping motivation (X1) -> Consumer knowledge (Z1) -> Online shopping behavior (Y)	0.098	0.101	0.043	2.277	0.023	Hypothesis accepted
Perceived Behavior control (X3) -> Consumer knowledge (Z1) -> Online shopping behavior (Y)	0.198	0.201	0.053	3,732	0.000	Hypothesis accepted
Subjective norm (X2) -	0.172	0.178	0.057	3.036	0.003	Hypothesis

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ISSN: 2576-8484
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> Consumer knowledge (Z1) -> Online shopping behavior (Y)						accepted
Perceived behavior control (X3) -> Subjective norm (X2) -> Consumer knowledge (Z1) -> Online shopping behavior (Y)	0.114	0.117	0.039	2.902	0.004	Hypothesis accepted
Online shopping motivation (X1) -> Online shopping intention (Z2) -> Online shopping behavior (Y)	0.064	0.060	0.047	1,344	0.180	Hypothesis rejected
Perceived behavior control (X3) -> Online shopping intention (Z2) -> Online shopping behavior (Y)	0.046	0.038	0.034	1,348	0.178	Hypothesis rejected
Subjective norm (X2) -> Online shopping intention (Z2) -> Online shopping behavior (Y)	0.040	0.040	0.035	1.146	0.252	Hypothesis rejected
Perceived behavior control (X3) -> Subjective norm (X2) -> Online shopping intention (Z2) -> Online shopping behavior (Y)	0.027	0.027	0.024	1,097	0.273	Hypothesis rejected
Perceived Behavior control (X3) -> Subjective norm (X2) -> Online shopping intention (Z2)	0.155	0.156	0.053	2,912	0.004	Hypothesis accepted

Based on the results of the statistical analysis conducted, there are several hypotheses that have been successfully accepted and rejected regarding the relationship between various variables in online shopping behavior.

3.2. Hypothesis Accepted

1. Perceived Behavior Control (X3) → Subjective Norm (X2) → Consumer Knowledge (Z1): The results show a significant relationship with T = 4.817 and p < 0.001, indicating the influence of perceived behavioral control on subjective norms which has an impact on consumer knowledge.

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2. Online Shopping Motivation (X1) → Consumer Knowledge (Z1) → Online Shopping Behavior (Y): A moderate relationship was found with T = 2.277 and p = 0.023, indicating that online shopping motivation can increase consumer knowledge which in turn influences online shopping behavior.
3. Perceived Behavior Control (X3) → Consumer Knowledge (Z1) → Online Shopping Behavior (Y): A significant effect was detected with T = 3.732 and p < 0.001, indicating that perceived behavioral control has a direct effect on consumer knowledge and shopping behavior.
4. Subjective Norm (X2) → Consumer Knowledge (Z1) → Online Shopping Behavior (Y): A strong relationship was identified with T = 3.036 and p = 0.003, indicating that subjective norm contributes to consumer knowledge and online shopping behavior.
5. Perceived Behavior Control (X3) → Subjective Norm (X2) → Consumer Knowledge (Z1) → Online Shopping Behavior (Y): Significant with T = 2.902 and p = 0.004, indicating that this model describes complex interactions between variables.
6. Perceived Behavior Control (X3) → Subjective Norm (X2) → Online Shopping Intention (Z2): Found significant with T = 2.912 and p = 0.004, indicating that the influence of perceived behavioral control on online shopping intention is also significant.

3.3. Hypothesis Rejected

1. Online Shopping Motivation (X1) → Online Shopping Intention (Z2) → Online Shopping Behavior (Y): T = 1.344 and p = 0.180, indicating that motivation does not have a direct effect on shopping intention and behavior.
2. Perceived Behavior Control (X3) → Online Shopping Intention (Z2) → Online Shopping Behavior (Y): T = 1.348 and p = 0.178, does not show a significant influence.
3. Subjective Norm (X2) → Online Shopping Intention (Z2) → Online Shopping Behavior (Y): T = 1.146 and p = 0.252, not significant.
4. Perceived Behavior Control (X3) → Subjective Norm (X2) → Online Shopping Intention (Z2) → Online Shopping Behavior (Y): T = 1.097 and p = 0.273, indicating that there is no significant relationship.

Overall, these results suggest that factors such as perceived behavioral control, subjective norms, and consumer knowledge have a significant influence on online shopping behavior. However, motivation and intention do not show a direct impact, indicating the complexity of the consumer decision-making process in the era of online shopping.

Table 7.
R^2 path value decision.

	R square	R square adjusted
Consumer knowledge (Z1)	0.725	0.719
Online shopping behavior (Y)	0.395	0.387
Online shopping intention (Z2)	0.598	0.589
Subjective norm (X2)	0.441	0.437

R-squared (R^2) is an important statistical tool to measure how well the independent variables in a regression model explain the variation in the dependent variable. In this analysis, each dependent variable exhibits a different level of explanatory power by the model. Consumer Knowledge (Z1) has an R^2 value of 0.725, meaning that 72.5% of the variance in consumer knowledge can be explained by the independent variables. The slightly lower Adjusted R^2 value of 0.719 indicates that the model remains robust even after adjusting for the number of variables. Online Shopping Behavior (Y) shows an R^2 value of 0.395, meaning that only 39.5% of the variance in online shopping behavior can be explained by the variables in this model. The Adjusted R^2 value of 0.387 indicates that there are other factors that may be more influential and are not included. Online Shopping Intention (Z2) has an R^2 of 0.598, indicating that 59.8% of the variation in online shopping intention can be explained. The Adjusted R^2 of 0.589 confirms the robustness of the model after adjustment. Subjective Norm (X2) with R^2 0.441

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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indicates that 44.1% of the variation in subjective norms can be explained by the independent variables, while R^2 Adjusted 0.437 indicates a fairly good model relevance. Overall, the varying R^2 values indicate that the regression models have different abilities in explaining the variance of the dependent variable. Consumer knowledge (Z1) is the best explained, while online shopping behavior (Y) shows lower potential, indicating the need for further exploration to understand the factors that influence this behavior.

Table 8.
Fit model eligibility.

	Saturated model	Estimated model
SRMR	0.063	0.080
d_ULS	2.235	3,620
d_G	1,581	1,658
Chi-Square	1,100,807	1,120,617
NFI	0.765	0.761

In statistical model analysis, several fit indices are used to evaluate the suitability of the estimated model to the observed data. Based on the results given, there is a comparison between the saturated model and the estimated model which shows that the saturated model has better performance. SRMR (Standardized Root Mean Square Residual): The saturated model has an SRMR of 0.063, while the estimated model reaches 0.080. An SRMR value below 0.08 is considered good, so the saturated model fits the data better. d_ULS (Squared Euclidean Distance): The d_ULS value for the saturated model is 2.235, while the estimated model reaches 3.620. The lower the d_ULS value, the better the model is in explaining the data, so the saturated model shows a better fit. d_G (Geodesic Distance): The saturated model has a d_G of 1.581, compared to 1.658 for the estimated model. A lower value in the saturated model indicates a better fit. Chi-Square: The Chi-Square value for the saturated model is 1,100,807, while the estimated model is at 1,120,617. A lower Chi-Square value indicates a better model fit, reinforcing that the saturated model is more accurate. NFI (Normed Fit Index): The saturated model has an NFI of 0.765, slightly better than the estimated model which reached 0.761. Although both values indicate room for improvement, the saturated model is still closer to the ideal fit. Overall, the results show that the saturated model is better at representing the observed data than the estimated model, with all indicators showing more favorable values for the saturated model.

4. Discussion

This study identifies the relationship between latent variables that influence online shopping behavior, focusing on Online Shopping Motivation, Subjective Norm, Perceived Behavioral Control, Consumer Knowledge, Online Shopping Intention, and Online Shopping Behavior. The results of the analysis show a significant relationship between these variables, which enriches our understanding of the factors that play a role in consumer shopping behavior in the digital era. The most striking result is the significant influence of Perceived Behavioral Control (X3) on Online Shopping Intention (Z2) and Consumer Knowledge (Z1). With path coefficients of 9.359 and 0.405, respectively, these results indicate that when individuals feel they have greater control over their ability to shop online, they tend to have better knowledge and stronger intentions to shop. This is in line with the Theory of Planned Behavior, which emphasizes that individuals' perceptions of control contribute significantly to their intentions and behaviors. This study emphasizes the importance of providing adequate education and support to consumers to improve their perceptions of control, which in turn can improve their knowledge and intentions to shop online. Subjective Norm (X2) is also proven to have a significant influence on Consumer Knowledge (Z1) and Online Shopping Intention (Z2), with path coefficients of 0.350 and 0.233. This indicates that social norms around individuals, such as the opinions of friends or family about online shopping, can influence their knowledge and intentions. This phenomenon emphasizes the importance of the social aspect in consumer decision making. Consumers who are surrounded by individuals who are positive about online shopping tend to develop the same attitude, so marketers can

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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DOI: 10.55214/25768484.v8i6.2679

take advantage of social recommendations or influencers to build a positive image of their products or services.

However, not all hypotheses in this study were accepted. The results showed that Online Shopping Intention (Z2) did not have a significant effect on Online Shopping Behavior (Y). The low path coefficient (0.174) and insignificant T Statistics (1.445) indicate that intention is not always translated into action. This highlights the complexity of consumer behavior that is influenced by various external and internal factors, as well as the possibility of barriers that affect the transition from intention to action. Previous studies have also shown that situational factors, such as ease of access, price, and promotional offers, can play a greater role in influencing shopping behavior than intention alone. In addition, the R-squared (R^2) analysis shows that Consumer Knowledge (Z1) has the highest level of explanation (72.5%), while Online Shopping Behavior (Y) can only be explained by 39.5% by the variables in this model. This indicates that there are still other factors that have the potential to influence online shopping behavior that have not been taken into account in this study. Future research can explore these factors, such as the influence of digital advertising, product offerings, and user experience, to provide a more comprehensive picture of online shopping behavior. Overall, this study makes an important contribution to the understanding of online shopping behavior by demonstrating significant relationships between motivation, subjective norms, perceived behavioral control, consumer knowledge, and shopping intention. These findings are not only relevant to academics, but also to marketing practitioners who want to understand and utilize the factors that influence consumers' decisions to shop online. Implementing marketing strategies that consider social aspects and perceived control can be key to increasing consumer engagement and conversion on online shopping platforms.

This study is in line withThe Influence of Halal Certification and Consumer Trust. Halal certification was found to have a significant positive influence on consumer trust. This trust, in turn, contributes directly and indirectly to the purchase intention of halal products. This research shows that not only halal certification drives trust, but also the trust that is built will drive consumer intention to purchase halal products. This strengthens the importance of halal certification in building a trustworthy product image, especially among Muslim consumers who are very concerned about the halal aspect of the products they consume. Furthermore, positive purchase intention has a direct effect on the consumption behavior of halal products. Research shows that this intention can be influenced by various stimuli that arise during the pandemic, including familiarity with the product, individual control over the situation, and the level of information received about the risks involved in line with the findings(Baiqun Isbahi et al., 2024). In this context, the formation of risk perception becomes important, because it shapes how individuals understand and evaluate the risks they face, which will then influence their intentions and behavior in making purchases in line with the findings.(Ramadhanti & Marsasi, 2023). In a deeper analysis, there are various stimuli that influence purchasing behavior, including familiarity with the product, control of the situation, and information about risks. These three factors contribute to the formation of attitudes towards purchasing and can act as mediators in the decision-making process in line with(Mahliza, 2022)For example, familiarity with a particular product or brand may make consumers more likely to make a purchase, while control over the situation may reduce anxiety and increase confidence in decision-making.(Saputri & Guritno, 2021). One of the significant findings in this study is that service quality and food quality act as strong mediators in the influence of atmospheric on behavioral intention. This suggests that consumer experience is not only influenced by the product itself, but also by environmental and atmospheric factors that create a more holistic experience for consumers in line with(Andryani & Kurniawati, 2015). In this context, a pleasant and quality atmosphere can increase purchase intentions, while a less attractive atmosphere can reduce these intentions in line with(Daliman et al., 2019). Product quality and brand image were also found to have a positive and significant influence on purchase intention. Although halal labeling did not show a significant influence on purchase intention directly, the interaction between product quality, brand image, and purchase intention becomes important in the context of purchasing decisions in line with the findings(Kholil & Kuncoro, 2017).

On the other hand, in the use of digital applications, the factors of perceived usefulness and perceived ease of use are more dominant in influencing user attitudes towards the application. This

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
DOI: 10.55214/25768484.v8i6.2679

study revealed that not all hypotheses were accepted, especially that Online Shopping Intention (Z2) did not have a significant effect on Online Shopping Behavior (Y), with a low path coefficient (0.174) and insignificant T Statistics (1.445). This shows that intention does not always lead to action, reflecting the complexity of consumer behavior influenced by internal and external factors, as well as the existence of barriers that inhibit the transition from intention to action. It was found that Consumer Knowledge (Z1) explained 72.5% of Online Shopping Behavior (Y), while the model was only able to explain 39.5%, indicating the need to explore other factors that may influence online shopping behavior, such as digital advertising, product offerings, and user experience. In addition, halal certification has a significant positive effect on consumer trust, which contributes directly and indirectly to the intention to purchase halal products. Purchase intention has a direct effect on consumption behavior, influenced by product familiarity, individual control, and information about risks. Factors such as service quality and food quality act as mediators in the influence of atmosphere on purchase intention, with a pleasant atmosphere increasing purchase intention, while a less attractive atmosphere decreasing it. The interaction between product quality, brand image, and purchase intention also shows its importance in purchasing decision making. In the context of digital applications, perceived usefulness and perceived ease of use are dominant in influencing user attitudes. This study provides valuable insights for marketing academics and practitioners regarding the factors that influence consumer decisions in online shopping.

5. Conclusion and Suggestions

This study identified significant relationships between various latent variables that influence online shopping behavior, including Online Shopping Motivation, Subjective Norm, Perceived Behavioral Control, Consumer Knowledge, Online Shopping Intention, and Online Shopping Behavior. The results of the analysis indicate that Perceived Behavioral Control plays an important role in increasing online shopping knowledge and intention, in line with the theory of Planned Behavior. In addition, Subjective Norm is also proven to influence consumer knowledge and intention, indicating that the social environment has a significant impact on shopping decisions. However, although online shopping intention shows a positive relationship with shopping behavior, the results of the analysis indicate that intention does not always transition into shopping actions, indicating the complexity of consumer behavior.

The findings of this study have several important implications for both academics and marketing practitioners. The Importance of Consumer Education: Increasing consumers' perceived control over online shopping can be done through education and training programs that equip them with the necessary knowledge and skills. This can lead to increased consumer knowledge and intention to shop online, which in turn can have a positive impact on shopping behavior. The Influence of Social Norms: Marketers can leverage social norms by integrating social elements into their marketing strategies, such as collaboration with influencers or recommendations from existing users. Reinforcing a positive image of the product through consumer testimonials and stories can help build trust and increase online shopping intentions. Focus on Other Factors: Given that Online Shopping Intention does not always have a direct effect on Online Shopping Behavior, practitioners need to consider other factors that may influence shopping decisions. Further research can explore additional variables such as user experience, product quality, and situational factors that may be more influential in driving shopping behavior. Marketing Strategy Development: Marketing strategies that are based on a deeper understanding of the relationships between variables in online shopping behavior can be more effective. Creating campaigns that reflect consumer needs and preferences based on the variables identified in this study can increase engagement and conversions on online shopping platforms. Thus, this study not only adds academic insight into online shopping behavior but also provides practical guidance for marketers to design more effective strategies in influencing consumer shopping decisions in the digital era.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
DOI: 10.55214/25768484.v8i6.2679

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Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 3171-3192, 2024
DOI: 10.55214/25768484.v8i6.2679