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Determination of E-Commerce Shopping Intentions among Students in Manado City: A Theory of Planned Behavior Approach

Paske Victory Modaso[1], Durand Fernandito Freddy Setlight[1], Titya Advianti P. Barek[1]
[1]Akademi Bisnis dan Keuangan Primaniyarta, Indonesia
Email: paskevictorymodaso@gmail.com

Abstract. *This study aims to analyze the determinants of e-commerce shopping intentions among students in Manado City using the Theory of Planned Behavior (TPB) framework. A quantitative explanatory approach was employed, with data collected through structured questionnaires distributed to 90 school and university students who had prior experience using e-commerce platforms. The data were analyzed using multiple linear regression with SPSS. The results indicate that attitude, subjective norm, and perceived behavioral control all have a positive and significant effect on students' e-commerce shopping intentions. Attitude was found to be the strongest predictor, followed by perceived behavioral control and subjective norm. The regression model demonstrates strong explanatory power, with the TPB variables explaining 71.7% of the variance in shopping intention. These findings confirm the relevance of the Theory of Planned Behavior in explaining e-commerce shopping intentions among students in a regional urban context. The study contributes to the literature on digital consumer behavior by providing empirical evidence from Manado City and offers practical insights for e-commerce platforms and educational stakeholders in designing strategies that align with students' psychological and social characteristics.*

Keywords: *E-Commerce, Shopping Intention, Theory of Planned Behavior, Students*

JEL Classification: *D12, D91, M31, O33, L81*

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INTRODUCTION

The development of e-commerce in Indonesia has driven significant changes in consumer patterns, particularly among the younger generation (Weryani et al., 2024; Jannah et al., 2025; Lestari et al., 2024; Dewi & Lusikooy, 2023). Ease of access through digital devices, the availability of product choices, and increasingly efficient payment and logistics systems have made e-commerce a primary channel for daily shopping activities (Delfmann et al., 2002; Gatta et al., 2023). In this context, students, both high school and college students, are a highly relevant group to study because they are digital natives and have a high level of interaction with technology and digital platforms (Downes & Bishop, 2012; Evans & Robertson, 2020).

In this rapidly evolving digital era, the e-commerce sector is growing rapidly throughout Indonesia (Rahman et al., 2024; Supriadi et al., 2024; Fashola & Kusuma, 2024), including in Manado City, which demonstrates an interesting phenomenon where internet use among the younger generation has drastically influenced consumption patterns. However, questions arise regarding the dominant factors driving online shopping intentions among students (Al-Maghrabi & Dennis, 2011).

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However, increased access to e-commerce does not automatically encourage students to make purchases (Han & Li, 2021; Lester et al., 2006). Online shopping decisions still require complex psychological influences, especially because students have limited financial resources, close ties to their social environment, and varying levels of control over consumption (Niu, 2013; Darley et al., 2010; Lăzăroiu et al., 2020; Gifford & Nilsson, 2014). This suggests that students' e-commerce shopping intentions are determined not only by marketing factors but also by attitudes, the social environment, and perceived control over the shopping behavior itself.

The Theory of Planned Behavior (TBP), proposed by Venkatesh et al. (2008), provides a strong theoretical framework to explain the formation of individual behavioral intentions. TBP states that the intention to perform a behavior is influenced by three main factors: attitude toward the behavior, subjective norm, and perceived behavioral control (Setijanto & Bramantoro, 2019; Rhodes & Courneya, 2005; Iqbal, 2020; Kashif et al., 2018; Kobylińska, 2022). Attitude reflects an individual's evaluation of a behavior, subjective norm reflects perceived social pressure from the surrounding environment, and perceived behavioral control reflects the extent to which an individual feels they have the ability and resources to perform the behavior (From Intentions to Actions: A Theory of Planned Behavior).

Several previous studies have revealed internal and external factors influencing online (e-commerce) purchasing decisions, using both the TBP approach and other approaches such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Rahman et al., 2024; Al-Mamary et al., 2024; Sujood et al., 2024; Mishra et al., 2025). However, most of these models still focus on general consumers or urban communities. Research specifically focusing on students, especially in Manado, is still relatively limited. However, local context, social characteristics, economic conditions, and digital infrastructure in the region can influence how students form attitudes, respond to social norms, and assess their behavioral control over e-commerce shopping (Wang & Yang, 2021; Wang & Zhang, 2023; Kowsar et al., 2025).

Therefore, this study is crucial for understanding the psychological factors that determine e-commerce shopping intentions among students in Manado City. Using the Theory of Planned Behavior approach, this study is expected to provide an empirical overview of the role of attitudes, subjective norms, and perceived behavioral control in shaping e-commerce shopping intentions among school and college students (Dodor & Rana, 2009; Ruiz-Herrera et al., 2023; Fauzi et al., 2021; Saenghiran & Chaipoopirutana, 2023). The findings of this study not only contribute to enriching the study of digital consumer behavior but can also serve as a basis for e-commerce players and educational stakeholders in designing marketing strategies and digital literacy strategies that are more suited to student characteristics.

METHODS

Type and Approach

This research used a quantitative approach with an explanatory approach. This approach was chosen because this study aimed to examine the causal relationship between variables in the Theory of Planned Behavior (TPB), namely attitude, subjective norm, and perceived behavioral control, on e-commerce shopping intention (Noor et al., 2020; Hamid et al., 2023; Heptariza, 2020).

Locus and Time

This research was conducted in Manado City, North Sulawesi, focusing on students who had used e-commerce platforms. Data collection was conducted over a specific time period (cross-sectional), so the data reflected the respondents' conditions at the time of the study (Mindell et al., 2012; Ebert et al., 2018; Turunen et al., 2010).

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Population and Sample

The population in this study was all students (pupils and university students) in Manado City who had experience shopping through e-commerce platforms. The sampling technique used was purposive sampling, with the criteria being students or active students in Manado City, having used or experienced shopping through e-commerce platforms, and being willing to complete the research questionnaire. The sample size used in this study was 90 respondents. This sample size was deemed adequate for multiple linear regression analysis with a limited number of independent variables (Kelley & Maxwell, 2003; Bujang et al., 2017; Knofczynski & Mundfrom, 2008).

Research Variables and Operational Definitions

This study involved one dependent variable and three independent variables as follows: (1) Attitude (X1): Students' attitudes toward e-commerce shopping, namely their positive or negative evaluation of shopping activities through e-commerce platforms, as measured by their perceived usefulness, convenience, and enjoyment of online shopping; (2) Subjective Norm (X2): Students' perceptions of social pressure or support from important parties (friends, family, and school/campus environment) regarding e-commerce shopping. Perceived Behavioral Control (PBC): Students' perceptions of the level of ease or difficulty in conducting e-commerce shopping, including the availability of resources, ability, and control over the purchasing process.

Behavioral Intention / BI (Y)

A student's intention to engage in e-commerce shopping in the near future, reflecting an individual's readiness and propensity to engage in such behavior.

Data Collection Techniques

Research data was collected using a structured questionnaire distributed both in person and online. The research instrument was designed based on the TPB construct using a Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Each variable was measured using three indicators. Data were processed using SPSS statistical software through the following steps: (1) Instrument Testing: Validity test using the Product Moment formula and reliability test using Cronbach's Alpha; (2) Classical Assumption Testing: Normality test (Kolmogorov-Smirnov), multicollinearity test (VIF & Tolerance), and heteroscedasticity test to ensure the regression model is unbiased; (3) Coefficient of Determination (R2) Test: Shows how much variation in the dependent variable can be explained by the independent variables; (4) Model Significance Test (F Test): Analysis to determine the significance of the influence of the independent variables on the dependent variable collectively; (5) Multiple Linear Regression Analysis: Used to test the hypothesis with the equation model:

$$BI = \beta 0 + \beta 1AT + \beta 2SN + \beta 3PBC + \varepsilon$$

Partial Significance Test (t Test) to test the influence of each independent variable on the dependent variable individually.

RESULTS AND DISCUSSION

Table 1. Respondent Demographics

Respondent Characteristics	Category	Total (n)	Percentage (%)
Age	15–17 years	18	20,0
	18–22 Years	54	60,0
	≥ 23 Years	18	20,0
Total		**90**	**100**
Sex	Male	38	42,2
	Female	52	57,8

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Total		**90**	**100**
Education Status	Students	34	37,8
	Students	56	62,2
Total		**90**	**100**
E-commerce shopping experience	Once	90	100
	Never	0	0
Total		**90**	**100**
The most frequently used e-commerce platform	Shopee	46	51,1
	Tokopedia	22	24,4
	Lazada	12	13,3
	Bukalapak	5	5,6
	Blibli	3	3,3
	Other	2	2,3
Total		**90**	**100**
Most frequently purchased product types	Clothing & fashion	34	37,8
	Electronics & gadgets	18	20,0
	Beauty & personal care products	16	17,8
	Food & beverage	14	15,6
	Furniture/household equipment	6	6,7
	Other	2	2,1
Total		**90**	**100**

Source: Processed data

Based on respondent characteristics, the majority of students involved in this study were aged 18–22, an age group with high exposure to digital technology and online shopping activities. Gender composition showed a slightly higher proportion of female respondents than male respondents, reflecting the active participation of female students in shopping activities through e-commerce platforms. In terms of educational status, respondents were predominantly university students, although students also made up a significant portion of the study sample. This composition reflects a relatively homogeneous student population in terms of developmental stage and digital lifestyle.

All respondents in this study had experience shopping through e-commerce, so the data obtained fully represents a group of students familiar with online transactions. The most frequently used platform was the Shopee marketplace, while the most frequently purchased product types were personal consumption products such as clothing and fashion, followed by other categories such as electronics, beauty products, and food and beverages. This usage pattern indicates that e-commerce has become part of students' daily shopping activities, therefore the characteristics of the respondents involved are considered relevant and appropriate for examining e-commerce shopping intentions in the context of this study.

Validity and Reliability of Instruments

Table 2. Instrument Validity

Variable	Indicator	r count	Sig.	Information
Attitude	AT1	0,895	0,000	Valid
	AT2	0,822	0,000	Valid
	AT3	0,869	0,000	Valid
Subjective Norm	SN1	0,870	0,000	Valid

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	SN2	0,817	0,000	Valid
	SN3	0,863	0,000	Valid
Perceived Behavioral Control	PBC1	0,869	0,000	Valid
	PBC2	0,759	0,000	Valid
	PBC3	0,877	0,000	Valid
Behavioral Intention	BI1	0,933	0,000	Valid
	BI2	0,878	0,000	Valid
	BI3	0,928	0,000	Valid

Source: SPSS output data

Table 3. Instrument Reliability

Variable	Number of Items	Cronbach's Alpha (Standar ≥ 0,70)	Calculation Results	Info
Attitude (AT)	3	≥ 0,70	0,826	Reliable
Subjective Norm (SN)	3	≥ 0,70	0,798	Reliable
Perceived Behavioral Control (PBC)	3	≥ 0,70	0,781	Reliable
Behavioral Intention (BI)	3	≥ 0,70	0,898	Reliable

Source: SPSS output data

In tables 2 and 3 of the validity and reliability tests, all indicators have calculated r values greater than the table r and a significance level <0.05, so all statement items are declared valid and suitable for use in further analysis. Cronbach's Alpha values for all variables are above the minimum limit of 0.70, indicating that the research instrument has good internal consistency and is declared reliable.

Classical Assumption Test

Table 4. Normality Test (Kolmogorov-Smirnov)

Test Method	Statistics	Sig Value.	Standard	Information
Kolmogorov–Smirnov	Asymp. Sig. (2-tailed)	0,182	> 0,05	Normally distributed data

Source: Processed data

Table 5. Multicollinearity Test (VIF and Tolerance)

Variable	Tolerance	Standard	VIF	Standard	Information
Attitude (AT)	0,393	> 0,10	2,545	< 10	There is no multicollinearity
Subjective Norm (SN)	0,419	> 0,10	2,389	< 10	There is no multicollinearity
Perceived Behavioral Control (PBC)	0,501	> 0,10	1,994	< 10	There is no multicollinearity

Source: SPSS output data

Table 6. Heteroscedasticity Test

Independent Variables	Sig. Value	Standard	Information
Attitude (AT)	0,417	> 0,05	There is no heteroscedasticity
Subjective Norm (SN)	0,474	> 0,05	There is no heteroscedasticity
Perceived Behavioral Control (PBC)	0,092	> 0,05	There is no heteroscedasticity

Source: SPSS output data

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In the classical assumption test, the results of the normality test using the Kolmogorov–Smirnov method showed a significance value of 0.182, which is greater than the 0.05 significance limit. Thus, the research data can be declared normally distributed and meet the normality assumption required in parametric statistical analysis. Furthermore, the results of the multicollinearity test (table 3.2) show that all independent variables have tolerance values above 0.10 and Variance Inflation Factor (VIF) values below 10. This finding indicates that there is no strong linear relationship between the independent variables, so each variable can stand alone in explaining data variation without causing multicollinearity problems. The results of the heteroscedasticity test (table 3.3) also show significance values greater than 0.05 for all independent variables. This indicates that the residual variance is constant and does not exhibit any particular pattern, thus meeting the assumption of homoscedasticity..

Coefficient of Determination

Table 7. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.847[a]	0.717	0.707	1.34672

Source: SPSS output data

The regression analysis results showed an R value of 0.847, indicating a very strong relationship between the independent variables in the model and the dependent variable, e-commerce shopping intention. The R value indicates that the combination of attitude, subjective norms, and perceived behavioral control variables is closely related to variations in respondents' shopping intentions. Thus, the model used is able to represent a strong structural relationship between the constructs of the Theory of Planned Behavior in the context of e-commerce shopping among students in Manado City.

The R Square value of 0.717 indicates that 71.7% of the variation in e-commerce shopping intention can be explained by the independent variables included in the research model. This percentage is considered high in consumer behavior research, considering that individual intentions and behavior are generally influenced by various complex psychological, social, and situational factors. This value indicates that the research model has strong explanatory power, making the variables within the Theory of Planned Behavior framework relevant to explaining e-commerce shopping intention among students.

The Adjusted R Square value is 0.707. This value indicates that after adjusting for the number of independent variables in the model, approximately 70.7% of the variation in e-commerce shopping intentions can still be consistently explained. The relatively small difference between R Square and Adjusted R Square indicates that the regression model does not experience overfitting and that the independent variables used actually provide a meaningful contribution in explaining the dependent variable. This indicates that the Theory of Planned Behavior approach is able to capture the main factors that shape e-commerce shopping intentions in students, while the remaining unexplained variation can be attributed to other factors outside the model that are not included in this study.

Model Significance Test (F Test)

Table 8. F Test

Model	Source	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	395.149	3	131.716	72.625	0.000[b]
	Residual	155.973	86	1.814		
	Total	551.122	89			

Source: SPSS output data

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The F-test results showed an F-value of 72.625 with a significance level of 0.000, well below the 0.05 threshold. This finding indicates that the regression model used in this study is simultaneously significant, meaning that the variables of attitude, subjective norms, and perceived behavioral control collectively have a significant ability to explain variations in e-commerce shopping intentions among students in Manado City. The relatively high F-value indicates that the variation explained by the model is substantially greater than the unexplained variation. In other words, the combination of variables within the Theory of Planned Behavior framework forms a coherent explanatory structure and is not a coincidence. This indicates that the relationship between the independent and dependent variables does not occur randomly, but rather follows a systematic pattern as formulated in the theoretical model.

Multiple Linear Regression Analysis

Table 9. B Coefficient and t Test (Partial)

Model	Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1	(Constant)	-0.090	0.758		-0.118	0.906
	Attitude (AT)	0.455	0.094	0.444	4.856	0.000
	Subjective Norm (SN)	0.201	0.094	0.190	2.147	0.035
	Perceived Behavioral Control (PBC)	0.365	0.095	0.312	3.846	0.000

Source: SPSS output data

The results of the multiple linear regression analysis produce the following regression equation:

BI = -0,090 + 0,455(AT) + 0,201(SN) + 0,365(PBC)

This regression equation illustrates the functional relationship between the independent variables within the TPB framework and the dependent variable, e-commerce shopping intention. The regression coefficient (β0) for each variable indicates the magnitude of the absolute change in e-commerce shopping intention resulting from a one-unit change in each independent variable, assuming other variables are held constant. The Attitude coefficient (β = 0.455) indicates that every one-unit increase in positive attitude toward e-commerce shopping leads to a 0.455-unit increase in shopping intention. This coefficient value reflects that students' cognitive and affective evaluations of e-commerce shopping, such as perceived benefits, convenience, and a generally positive outlook, contribute substantially to shaping their intention. Conceptually, this finding confirms that e-commerce shopping intention stems from internal personal assessments, where students consider the benefits and perceived value of online shopping activities.

The Subjective Norm coefficient (β = 0.201) indicates that a one-unit increase in perceived social support from the surrounding environment is followed by a 0.201-unit increase in e-commerce shopping intention. This coefficient is relatively smaller than other variables, indicating that social pressure or support does play a role, but its contribution is moderate. Substantively, this reflects that even though students live in a connected social environment, the decision to shop via e-commerce remains more determined by personal considerations than by social incentives alone. The Perceived Behavioral Control coefficient (B = 0.365) indicates that every one-unit increase in perceived behavioral control increases e-commerce shopping intention by 0.365 units. This value indicates that aspects of ability and availability of resources such as internet access, devices, payment methods, and ease of transaction play a significant role in shaping intention. In the context of students, the perception that e-commerce shopping is easy

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and within individual control is crucial, as this group often faces limited resources and financial flexibility.

The regression constant of −0.090 indicates the value of e-commerce shopping intention when all independent variables are set at zero. Although this situation does not practically occur in the context of social research, the constant value still serves as a mathematical starting point in the regression equation. A small constant value close to zero indicates that e-commerce shopping intentions are almost entirely shaped by the existence of attitude variables, subjective norms, and perceived behavioral control, not by fixed factors outside the model. Overall, this regression equation shows that students' e-commerce shopping intentions are the result of a combination of internal considerations (attitudes), social environmental influences (subjective norms), and perceived individual abilities (behavioral control). The magnitude of the B coefficient provides a concrete picture of how each dimension quantitatively contributes to shaping intentions, so that the regression equation serves not only as a predictive tool but also as an empirical representation of the psychological mechanisms described by the Theory of Planned Behavior.

Partial Test (t)

A t-test was conducted to determine the partial effect of each independent variable on the dependent variable, namely e-commerce shopping intention. The t-value is used to indicate the strength of the partial effect, while the significance value (Sig.) is used to determine the statistical significance of this effect. The t-test results show that attitude has a t-value of 4.856 with a significance level of 0.000, which is below the 0.05 threshold. The relatively high and positive t-value indicates that attitude has a strong and unidirectional partial effect on e-commerce shopping intention. This indicates that an increase in positive attitudes toward e-commerce shopping is significantly followed by an increase in students' shopping intentions. Thus, attitude plays a major role in shaping students' tendency to intend to shop through e-commerce platforms.

Furthermore, subjective norm showed a t-value of 2.147 with a significance level of 0.035. A t-value greater than the critical value and positive indicates that subjective norms have a significant partial effect, although their strength is relatively lower compared to the other variables. This finding suggests that social support or pressure from the surrounding environment still plays a role in shaping e-commerce shopping intentions, but its influence is moderate. In other words, subjective norms function as a supporting factor that strengthens intentions, not as the primary driver. Meanwhile, perceived behavioral control has a t-value of 3.846 with a significance level of 0.000, indicating a significant and positive partial effect on e-commerce shopping intentions.

This relatively high t-value reflects that students' perceptions of the ability and ease of online shopping play a strong role in shaping intentions. This finding indicates that shopping intentions will increase when students perceive adequate control over the e-commerce transaction process. Overall, the t-test results indicate that all three independent variables make a significant partial contribution to e-commerce shopping intentions. Differences in t-values between variables reflect variations in the strength of the partial effects, indicating that each construct in the Theory of Planned Behavior plays a distinct but complementary role in shaping e-commerce shopping intentions among students in Manado City.

CONCLUSION

Based on data analysis of 90 respondents, consisting of school and college students, it can be concluded that the Theory of Planned Behavior framework proved relevant and effective in explaining the formation of e-commerce shopping intentions among students. The results showed that attitude significantly influenced e-commerce shopping intentions. This finding indicates that students' evaluations of e-commerce shopping, both in terms of benefits, convenience, and a generally positive outlook, are the primary basis for forming intentions to make online purchases.

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In other words, students' e-commerce shopping intentions are strongly influenced by how they assess the experience and value offered by the e-commerce platform. Furthermore, subjective norms also significantly influenced e-commerce shopping intentions. This suggests that although shopping decisions are personal, students still consider the views and social support from their surroundings, such as peers, family, and the wider social environment. This social support plays a role in strengthening the acceptance of e-commerce shopping as a normal and socially acceptable behavior. Furthermore, perceived behavioral control was shown to have a significant influence on e-commerce shopping intentions. These findings confirm that students' perceptions of the ability and ease of e-commerce shopping, including the availability of access to technology, devices, and payment methods, are important factors in forming intentions. Students who perceive they have adequate control and resources tend to demonstrate higher e-commerce shopping intentions. Overall, this study concludes that e-commerce shopping intentions among students in Manado City are shaped by a combination of internal factors (attitudes), social factors (subjective norms), and individual control factors (perceived behavioral control).

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