The Role of Digital Literacy and User Interface Design on Impulse Buying at TikTok Shop for University Students in East Java Province

Dewi Suci Mustika*, Nindi Vaulia Puspita, Wahyu Dede Gustiawan

Faculty of Economics & Business, Kadiri University, Indonesia
**Corresponding author. Email: dewisucimustika5@gmail.com*

ABSTRACT
This study aims to analyse the effect of digital literacy and user interface design (UI) on impulse buying at TikTok Shop for university students in East Java Province. This quantitative research uses a causal associative method with data obtained from online questionnaires distributed to 97 respondents selected using purposive sampling technique. Multiple linear regression analysis was used to test the hypothesis after going through validity, reliability, and classical assumption tests. The results showed that digital literacy has no significant effect on impulse buying, while UI design has a significant effect. Simultaneously, digital literacy and UI design have a significant effect on impulse buying at TikTok Shop.

Keywords: *Digital Literacy, User Interface Design (UI), Impulse Buying, TikTok Shop, College Students*

1. INTRODUCTION

The development of digital technology has brought major changes in the world of marketing. Digital marketing is now the main strategy for companies to reach consumers more widely and efficiently (Tinambunan et al., 2025). E-marketing or electronic marketing refers to the application of marketing principles and techniques through electronic media, particularly the internet, which utilises various technologies to connect businesses with their customers (Satriyono et al., 2022). The development of digital technology and communication makes it easier for businesses, including start-up companies, to implement marketing strategies through the internet and social media. The large number of smartphone users who access the internet provides a great opportunity for marketers to introduce products widely to the public. The trend of promotional media is now shifting from conventional methods (offline) to digital (online) (Sudiro et al., 2024).

According to Data Reportal (2022), Indonesia has 204.7 million internet users (73.7% of the population) and 191.4 million social media users (68.9% of the population). As many as 36.2% of users in Indonesia use social media to purchase products or services in the form of e-commerce (Revita Sari, 2024). One of the fastest growing e-commerce platforms is TikTok Shop, which allows buying and selling transactions directly through the TikTok application. TikTok Shop offers an integrated shopping experience without requiring access to an external website (Alifah & Herachwati, 2021). With the demographics of TikTok users in Indonesia dominated by the 18-34 age group, this platform is a potential space for innovative digital marketing strategies (Ginee, 2021). Digital marketing through TikTok is increasingly relevant with the development of this platform which presents unique features such as For You Page (FYP), live streaming, and fast-changing viral trends. This provides greater opportunities for MSMEs to utilise TikTok as a promotional tool. Digital marketing strategies are considered more effective because they allow potential customers to access product information and make transactions digitally without being bound by distance and time. Along with the development of technology, the use of the internet and smartphones has changed communication between businesses and consumers (Satriyono et al., 2024).

One of the rapidly growing e-commerce platforms is TikTok Shop, a feature that allows buying and selling transactions directly through the TikTok application. TikTok Shop offers an integrated shopping experience without requiring access to an external website (Alifah, Herachwati, 2021). With the demographics of TikTok users in Indonesia dominated by the 18-34 age group, this platform is a potential space for innovative digital marketing strategies (Ginee, 2021). Digital marketing through TikTok is becoming more relevant with the development of this platform which presents unique features such as For You Page (FYP), live streaming, and fast-changing viral trends (Islami et al., 2024).

Digital marketing implemented by companies and businesses plays an important role in influencing consumer impulse buying (Azhari & Ardiansah, 2022). Through attractive and persuasive marketing strategies, such as personalised advertisements, time-limited promotions, and easy access to products, consumers are increasingly encouraged to make purchases without planning (Hidayat & Riofita, 2024). Consumers who make impulse purchases online have a tendency to enjoy shopping, mood, and certain situations , so companies can create strategies such as discounts or other promotional programs to increase impulse buying behaviour (Muzdalifah, 2023).

However, in the midst of this development, the level of digital literacy of the Indonesian people is a challenge. Based on the 2022 Digital Literacy Index survey by the Ministry of Communication and Information Technology, Indonesia has an average score of 3.49 on a scale of 5, indicating that people's digital literacy is still in the 'medium' category. Digital literacy encompasses an individual's ability to understand, analyse and use information technology effectively. In the context of e-commerce such as TikTok Shop, a low level of digital literacy can influence consumer impulse shopping behaviour. In line with this, (Gotama & Rindrayani, 2022) and (Fatikasari & Umami, 2024) found that digital literacy affects impulse buying behaviour through online shops.

In addition to digital literacy, user interface (UI) design also plays an important role in influencing consumer behaviour. Research by (Rama & Ariyanti, 2022) shows that partially, user interface design does not have a significant influence on impulsive buying. However, when tested simultaneously together with sales promotion, user interface design has an influence on impulsive buying.

This study aims to analyse the effect of digital literacy and user interface design on impulse buying at TikTok Shop among university students in East Java Province. This research is expected to make a new contribution in understanding the dynamics of impulse buying behaviour in the digital era by integrating the perspective of digital literacy as a variable that influences consumer behaviour in the context of modern e-commerce.

2. RESEARCH METHODS

This study uses a quantitative approach with a causal associative research type to analyse the effect of digital literacy, user interface (UI) design, and digital marketing on impulse buying at TikTok Shop for college students in East Java Province during the period February-April 2025; data were obtained through questionnaires distributed online to at least 97 respondents selected using purposive sampling technique based on certain criteria, and analysed using multiple linear regression after validity, reliability, and classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation), then hypothesis testing (t test and F test) to test the partial and simultaneous influence of the independent variable on the dependent variable, as well as the coefficient of determination (R2) to measure how much variation in the dependent variable can be explained by the independent variables. Data processing tools using SPSS version 25.

3. RESULTS AND DISCUSSION

3.1 Validity Test

The validity test is carried out to ensure that the research instrument (questionnaire) is able to measure what should be measured. Based on the results of testing with SPSS, the calculated r value for all statement items on the Digital Literacy (X1), User Interface Design (X2), and Impulse Buying (Y) variables is greater than r table, which is 0.168 ($\alpha = 0.10$, df = 95), so that all statement items are declared valid and suitable for use in this study.

3.2 Reliability Test

Table 1. Reliability Test

Variabel	Cronbach's Alpha	Reliability Criteria	Status
Literasi Digital (X1)	0,742	≥ 0,60 (Reliabel)	Reliable
UI Design (X2)	0,768	≥ 0,60 (Reliabel)	Reliable
Impulse Buying (Y)	0,756	≥ 0,60 (Reliabel)	Reliable

Based on the results of the reliability test using Cronbach's Alpha, all research variables have an alpha value above 0.60, which indicates that the questionnaire instruments for the Digital Literacy, UI Design, and Impulse Buying variables are reliable and reliable. This means that the question items in the questionnaire are consistent in measuring the intended construct and are suitable for data collection in this study.

3.3. Data Analysis Methods

3.3.1. Multiple Linear Regression Analysis

Table 2. Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.399	2.999		1.043	.300
	Shopping Enjoyment	-.018	.100	-.023	-.175	.861
	Price Discounts	.576	.154	.488	3.753	.000
a. Dependent Variable: Impulsive Buying						

Hypothesis Testing 1:

Based on the Sig. value of 0.861> 0.10 and the t value of -0.175 < t table, it can be concluded that H1 is rejected, which means that there is no significant influence between Digital Literacy (X1) on Impulse Buying (Y).

Hypothesis 2 Testing:

Based on the Sig. value of 0.000 < 0,10 dan nilai t hitung sebesar 3,753 > t table, it can be concluded that H2 is accepted, which means that there is a significant influence between UI Design (X2) on Impulse Buying (Y).

Hypothesis 3 Testing:

Based on the ANOVA test results, a significance value of 0.000 <0.10 is obtained, so it can be concluded that the hypothesis is accepted, which means that Digital Literacy and UI Design simultaneously have a significant effect on Impulse Buying.

3.3.2. Classical Assumption Test

3.3.2.1. Normality Test

The normality test is conducted to test whether the residual data is normally distributed. Based on the Kolmogorov-Smirnov test results, a significance value of 0.025 (less than 0.10) is obtained, which indicates that the residual data is not normally distributed.

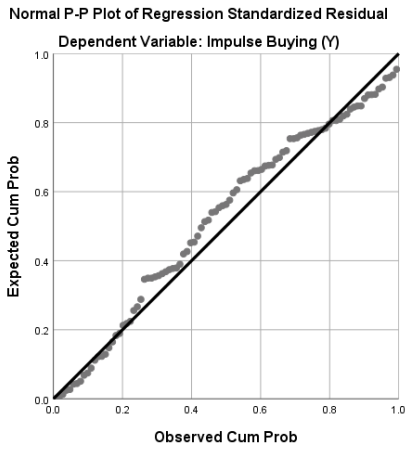


Figure 1. Results of The Normalcy Test

3.3.2.2. Multicollinearity Test

Table 3. Multicollinearity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.399	2.299		1.043	.300		
	X1	-.018	.100	-.023	-.175	.861	.488	2.048
	X2	.576	.154	.488	3.753	.000	.488	2.048
a. Dependent Variable: Y								

The test results show that the Tolerance value of both variables is greater than 0.10 and the Variance Inflation Factor (VIF) value of both variables is less than 10. Thus, it can be concluded that the regression model does not experience multicollinearity, and the Digital Literacy and UI Design variables are suitable for further analysis.

3.3.2.3. Heteroscedasticity Test

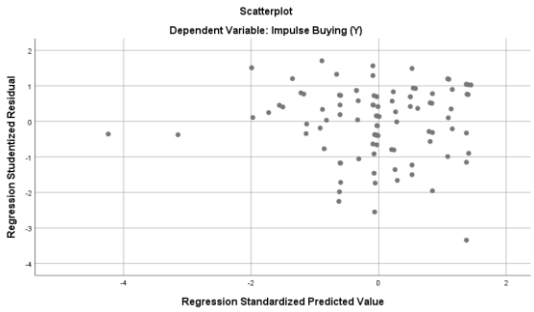


Figure 2. Results of The Heteroscedasticity Test

The test results show that all significance values are greater than 0.10, so there are no symptoms of heteroscedasticity in the regression model. Thus, the regression model fulfils the classical assumptions related to heteroscedasticity.

3.3.2.4. Autocorrelation Test

Runs Test

	Impulse Buying (Y)
Test Value[a]	14
Cases < Test Value	45
Cases >= Test Value	52
Total Cases	97
Number of Runs	40
Z	-1.898
Asymp. Sig. (2-tailed)	.058

a. Median

Figure 3. Autocorrelation Test Results

Based on the results of the autocorrelation test analysis using the Runs Test method, a significance value (Asymp. Sig.) of 0.058 was obtained. Because this value is smaller than the significance limit of 0.10, it can be concluded that the regression model used has autocorrelation symptoms. This shows that the residual values between observations are not random.

3.4. Hypothesis Test

3.4.1. The t-test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.399	2.299		1.043	.300
	Literasi Digital (X1)	-.018	.100	-.023	-.175	.861
	UI Design (X2)	.576	.154	.488	3.753	.000

a. Dependent Variable: Impulse Buying (Y)

Figure 4. t test results

1. Digital Literacy (X1)

The results of the analysis show that the significance value of the Digital Literacy variable is 0.861, which is greater than 0.10. This means that Digital Literacy does not have a significant influence on impulse buying behaviour.

2. User Interface Design (X2)

UI Design has a significance value of 0.000, which is far below the 0.10 threshold. Thus, it can be concluded that UI Design has a significant effect on impulse buying.

3.4.2. F-test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	370.347	2	185.174	13.495	.000[b]
	Residual	1289.879	94	13.722		
	Total	1660.227	96			

a. Dependent Variable: Impulse Buying (Y)

b. Predictors: (Constant), UI Design (X2), Literasi Digital (X1)

Figure 5. F Test Results

1. Simultaneous Test

The p-value for the simultaneous test is 0.000, which is smaller than 0.10. This indicates that the regression model as a whole is significant, so Hypothesis 3, which states that there is a simultaneous influence between the independent variables on impulse buying, is accepted.

3.4.3. Determination Coefficient Test (R-squared)

Table 4. Test Results of the Coefficient of Determination (R-squared)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472a	.223	.207	3.704
a. Predictors: (Constant), UI Design (X2), Literasi Digital (X1)				

The R Square value of 0.223 indicates that 22.3% of the variation in Impulse Buying behaviour (Y) can be explained by the Digital Literacy (X1) and UI Design (X2) variables, while the remaining 77.7% is influenced by other factors. The Adjusted R^2 value of 0.207 is used to correct the R^2 to avoid being too optimistic, especially if there are many independent variables. Overall, this regression model is quite good, although the contribution is not very large, it still shows that UI Design and Digital Literacy have a meaningful influence on impulse buying, especially with the significant F test results.

4. DISCUSSION

The results showed that digital literacy does not have a significant influence on students' impulse buying behaviour on TikTok Shop (Sig. value = 0.861 > 0.10). This suggests that although the level of digital literacy is important to understand information technology effectively, this factor does not directly drive impulse buying on the platform. In contrast, user interface (UI) design has a significant influence on impulse buying (Sig. value = 0.000 < 0.10), indicating that attractive visual and navigational elements can reinforce spontaneous purchase decisions.

Simultaneously, digital literacy and UI design have an effect on impulse buying with an F test significance value of 0.000 <0.10. This shows that the two variables complement each other in influencing consumer behaviour at TikTok Shop. However, the contribution of the two variables to impulse buying is only 22.3% based on the R^2 value (Adjusted R^2 = 20.7%), so there are other factors that influence the impulse buying behaviour of college students.

Other factors such as time-limited promotions or discounts can be the main drivers of impulse purchases at TikTok Shop (Hidayat & Riofita, 2024). In addition, certain consumer or situational moods also play a role in encouraging impulse buying (Muzdalifah, 2023). This is in line with (Ardita et al., 2024), who found that promotional strategies, particularly limited-time offers and price discounts, significantly influence impulse buying behavior among students. Therefore, companies need to consider a combination of marketing strategies that involve UI design elements along with promotions.

5. CONCLUSION

The R Square value of 0.223 indicates that 22.3% of the variation in Impulse Buying behaviour (Y) can be explained by the Digital Literacy (X1) and UI Design (X2) variables, while the remaining 77.7% is influenced by other factors. The Adjusted R^2 value of 0.207 is used to correct the R^2 to avoid being too optimistic, especially if there are many independent variables. Overall, this regression model is quite good, although the contribution is not very large, it still shows that UI Design and Digital Literacy have a meaningful influence on impulse buying, especially with the significant F test results.

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