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THE FACTORS AFFECTING ONLINE PURCHASE INTENTION IN INDONESIA

Muhammad Aras[1], Valentin Ratna Fujianti[1]
and Fergyanto Efendy Gunawan[2,*]

[1]Communication Dept., BINUS Graduate Program – Master of Strategic Marketing Communication
[2]Industrial Engineering Dept., BINUS Graduate Program – Master of Industrial Engineering
Bina Nusantara University
Jl. K. H. Syahdan No. 9, Kemanggisan, Palmerah, Jakarta 11480, Indonesia
{ maras; valentin.fujianti }@binus.ac.id; *Corresponding author: fgunawan@binus.edu

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Abstract. *This research aims to investigate contributing factors and the effects of gender on online purchasing in Indonesia. In Southeast Asia, Indonesia contributes up to 50% of the e-commerce transactions. During 2016-2017, e-commerce users in the nation increased by 11%. In the past two years, some data suggested that men had done more shopping through e-commerce than women. To understand the issue, we adopt the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. This model contains seven independent variables, namely, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonistic Motivation, Price Value, and Habit. The dependent variable is the Behavioral Intention. The model also has three moderating variables, namely, Gender, Age, and Experience. Questionnaires collect the relevant data from a random sample of 218 respondents. Then, the data are used to establish the relationships between the independent and dependent variables statistically, taking into account the Gender as the moderating variable. The findings are of the following. The adopted model of UTAUT2 matches the data at the fitness level of 0.629 in the term of the coefficient determination R^2. The statistical analysis supports the conjectures that Behavioral Intention is affected by Performance Expectancy with the statistical significance of t-stat of 3.118 (associated to p-value of 0.002), by Effort Expectancy with t-stat of 3.117 (0.002), by the Price Value with t-stat of 2.358 (0.019), and Habit with t-stat of 12.626 (0.000). The statistics do not support the conjectures that Behavioral Intention is affected by Social Influence, Facilitating Conditions, and Hedonistic Motivation. No evidence about the roles of Gender on the above relationships is found.*
Keywords: Gender, E-commerce, Behavioral Intention, UTAUT2, Indonesia

1. **Introduction.** Many studies have discussed the factors affecting online purchasing intention, and until now, the issue is still pretty much relevant. For example, References [1, 2, 3] identified the relationship between gender and online purchasing. Reference [4] found that female perceived online shopping to possess higher risk and made them hesitate to participate. Reference [5] established that gender was a factor influencing many web-related activities.

Indonesia is currently the largest e-commerce market in Southeast Asia with a contribution of up to fifty percent of all transactions in this region. By the increasing Internet users and e-commerce penetration, the sector's contribution to the Indonesian economy has increased steadily. Purchases through online business offer several advantages such as cutting transaction costs for either buyers or suppliers, reducing the time between order and delivery, incorporating a purchasing system, and building a direct relationship between the partners and buyers [6].

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The growth of the e-commerce ecosystem symbolizes the role of this industry in Indonesia. In the next few years, various aspects of Indonesia's economy, from employment to consumer shopping habits, will be increasingly affected by e-commerce contributions. Currently, around seventy percent of Indonesia's online transactions still originate from the four largest urban areas in Indonesia, namely, Jakarta, Bandung, Surabaya, and Semarang. However, several trends so far indicate that e-commerce can also be a vehicle for residents in rural areas to increase contributions to the national and international economy.

In Indonesia, the number of e-commerce users has reached 28.1 million by the end of 2017, increasing by 10.56% from a year earlier. The Indonesia government firmly believes that e-commerce has a high economic potential. They consider that e-commerce can help the economic sector. As a result, the government regulates the sector via the Presidential Regulation Number 74 of 2017 concerning Roadmap of the National Electronic Based Trading System (E-Commerce Roadmap) Years of 2017-2019. This regulation intends to encourage and create an integrated e-commerce system.

Of course, the number of consumers who buy through e-commerce has increased sharply. Consumer behavior in shopping between men and women is different. In 2016, the number of e-commerce users was 52.5% of men, and 47.5% were women. Then in 2017, e-commerce users were 51.43% men, and 48.57% were women. This fact is interesting, suggesting that in the last two years, men have done more shopping through e-commerce compared to women. As the affecting factors are not completely clear, based on this fact, we focus our research on this issue, and we adopt UTAUT2 to investigate which factors influence the consumers in deciding to purchase through e-commerce moderated by gender.

We believe that the existing body of works, as described in the following, has not discussed the issue despite its importance.

Reference [7] investigated whether gender was a significant predictor of intention to purchase on the web. Based on the diffusion of innovation theory, they found six constructs that were thought to be the influence of men and women in adopting web shopping. Those constructs were Relative Advantage, Complexity, Compatibility, Result Demonstrability, Visibility, and Image. Then, they used MANCOVA to test the relationship between gender and the variables. The results indicated that men were more likely to use the web for making purchases, and men's perceptions of the characteristics of web shopping are more favorable than women's. Specifically, men rate the compatibility, relative advantage, result demonstrability, and trustworthiness of Web shopping higher, and its complexity lower than do women.

Furthermore, the reference also saw that man and woman were different in their beliefs regarding the use of information technology-related innovations, including e-commerce. They wanted to access how gender moderates these differences, so they use the diffusion of innovation theory as their research framework where they focus on: beliefs that are thought to influence adoption decisions. Further known, the decision to make use of an innovation is influenced by a variety of beliefs, including beliefs about the characteristics of the focal innovation. These are perceived relative advantage, compatibility, complexity, perceived observability, and perceived image. Results indicate that gender does moderate the influence of beliefs on use intentions in the context of consumer e-commerce.

Reference [1] considered that moderating effects of gender in e-commerce adoption were a vital topic. The study research had two objectives: first, this study tested a more complex model to clarify the gender role in e-commerce adoption based on sociolinguistic literature. Moreover, second, this study posits the strong positive influence of perceived enjoyment based on self-determination theory. Then he tests Social Norms in Theory of Reasoned Action (TRA) and Perceived Enjoyment in Self-determination Theory, to know whether they have effects on purchase intention. He gave an online survey to 322 undergraduates student in the northern region of the US. The results indicate that female

customer is more sensitive to social norms while male customers are more sensitive to perceived enjoyment.

Reference [8] found that the moderating effect of inconsistent reviews in the relationship between emotional trust and purchase intention in the online shopping context is stronger for female consumers than for male consumers. Men and women have different perceptions of security issues in the online shopping environment, resulting in different purchase behavior. Meanwhile, Reference [2] demonstrated that gender differences affected the relationship between the interactivity, vividness, diagnosticity, and perceived risk, and subsequently on consumer attitude and online purchase intentions. They investigated and explained which factor affects gender in purchasing online, and the result shows that men are more affected by the interactivity of a website that women are. In contrast, women are more affected by vividness, diagnosticity of the information, and perceived risk.

In addition to those, the following studies had also addressed the issue of gender in e-commerce adoption, albeit leading to various conclusions. Reference [9] studied that in general, the moderating effects of gender in the relationships between the intention to adopt Internet shopping technology and its determining factors among non-shoppers in Jordania. It found that gender played essential roles in the intention to adopt from the aspects of perceived ease-of-use, social influence, trust, perceived risk, privacy, and security. Reference [10] discovered for the case of Spanish consumers, gender affected the intention to adopt from the aspects of effort expectancy and social influence only for digital goods. As for non-digital goods, gender had no influence. Reference [11] established that for the intention to use the mobile payment, gender influenced only from the aspects of usefulness, trust, and attitude. Reference [6] found that both men and women might adopt online shopping but for a different reason. Men paid attention to relative advantage aspect and women on compatibility aspect. Reference [12] found that for men, online purchasing correlated well with online duration. As for women, it depended on their anxiety with computer and attitude towards money. Reference [5] developed a framework describing why women were less satisfied than men with the online shopping experience. For them, three factors were crucial, namely, emotion, trust, and convenience. Reference [13] started his study from the belief that trust is the antecedent to online shopping. For the case, he found payment security, the confidentiality of information, and integrity of returns and refunds were the elements of trust, equally relevant for both men and women. From those studies, it is hard to conclude how gender influences the online purchasing intention.

In summary, a deeper understanding of gender difference in consumer e-commerce decision making is helpful for researchers and practitioners to gain insights into online consumer purchase behavior. This research is performed to find out which factors are influencing purchase intention through e-commerce. More specifically, we seek to understand whether gender influences the relationships between the intention of purchasing via e-commerce and its determining factors: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonistic Motivation, Price Value, and Habit. We anticipate that Gender affects the relationships considering the nation scoring poorly in the World Economic Forum's Gender Gap Index. Indonesia with patriarchal culture consists of nearly 50 percent women, but their participation in economic, politic, and education is rather low.

We structure the paper as the following. Section 2, Research Method, discusses the adopted theory from which the issue will be addressed, the definition of each construct in the adopted theory, the data acquisition procedure, and the statistical analysis method. Section 3, Research Results and Discussion, discusses the major findings including the three established regression models and a recommendation for business practices, and finally, Section 4, Conclusions, briefly states the issue discussed by the paper and its important findings.

2. **Research Method.** We use a quantitative research method to establish the factors affecting online purchasing behavior and Gender as a potential moderating factor. In looking to the problem, we adopt Reference [8]'s framework called the Unified Theory of Acceptance and Use of Technology 2 or UTAUT2, as shown in Figure 1.

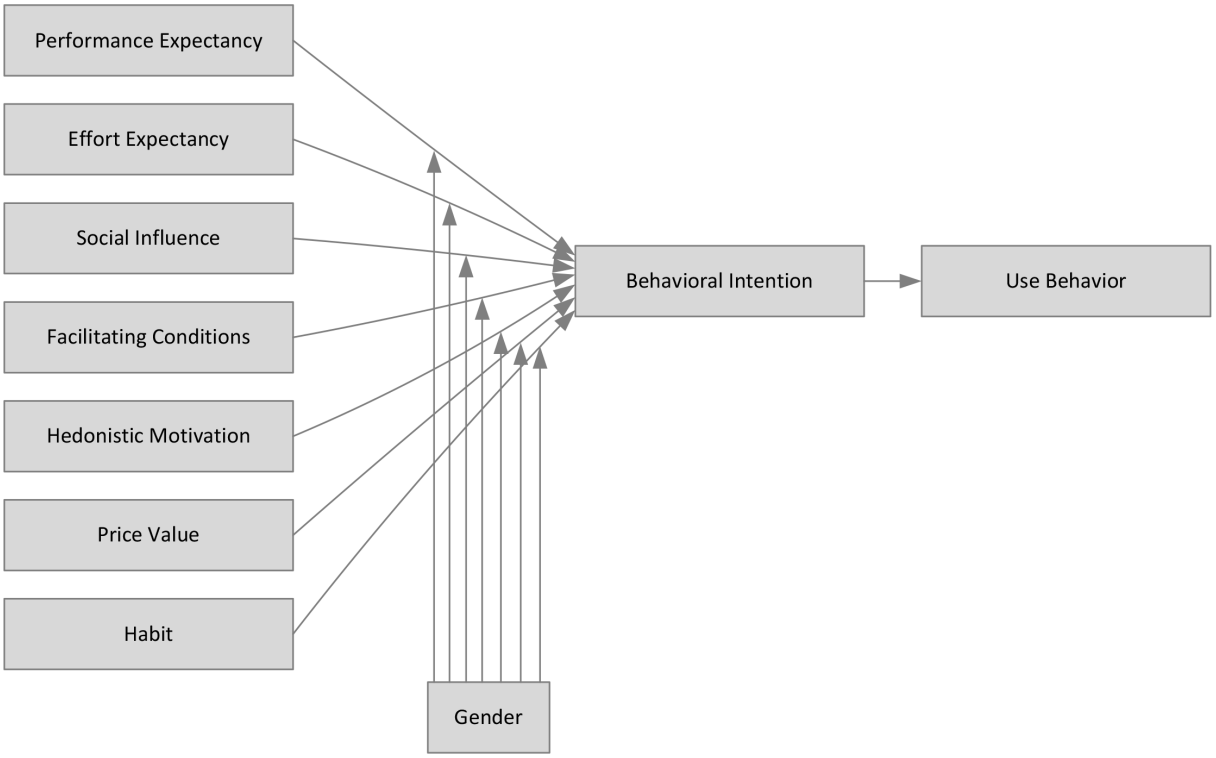

FIGURE 1. The research framework adopted from Reference [8]

The model has seven constructs and three moderating variables, namely, Age, Gender, and Experience. In this research, only Gender is relevant; thus, the remaining moderating variables are neglected.

The first construct is Performance Expectancy (PE) defined as the degree to which using a technology product would provide benefits to customers in performing their activities. Thus, the first hypothesis is:

H_1: The Performance Expectancy influences the Behavioral Intention.

The second construct is Effort Expectancy (EE) defined as the degree of ease associated with consumers' use of the technology. The second hypothesis is:

H_2: The Effort Expectancy influences the Behavioral Intention.

The third construct is Social Influence (SI) defined as the extent to which consumers perceive those essential others, e.g., family and friends, believe that they should use the technology or is defined as the use of the technology influenced by others. The hypothesis is:

H_3: The Social Influence influences the Behavioral Intention.

The fourth construct is Facilitating Condition (FC) referring to consumers' perceptions of the resources and support available to perform behavior [14, 15, 16]. The hypothesis is:

H_4: The Facilitating Condition influences the Behavioral Intention.

The next construct is Hedonistic Motivation (HM) defined as the fun or pleasure derived from using the technology [17]. In the consumer context, the Hedonistic Motivation has also been found to be an essential determinant of technology acceptance and use. The hypothesis is:

H_5: The Hedonistic Motivation influences the Behavioral Intention.

The next construct is Price Value (PV) defined as the individuals' cognitive trade-off between the perceived benefits of the applications and the monetary cost for using them. In other words, the Price Value is positive when the benefits of adopting a particular system are perceived to be higher than the financial cost. The hypothesis is:

H_6: The Price Value influences the Behavioral Intention.

The final construct is Habit (HI) defined as the extent to which people tend to perform behaviors automatically because of learning accumulated from their experience in using certain technology and to which people tend to perform behaviors automatically because of learning [18, 19]. The hypothesis is:

H_7: The Habit influences the Behavioral Intention.

Reference [14] claimed that Age and Gender were specified to explain usage intention and usage behavior because research shows that such demographic variables influence online users' evaluations and behaviors. Meanwhile, the moderating variable Experience, as conceptualized in prior research, reflects an opportunity to use a target technology and is typically operationalized as the passage of time from the first use of technology by an individual [20]. This paper only focuses on the moderating effect of Gender. We ignore Experience because we assume that Habit has represented the consumer's experience in using e-commerce.

The required data are acquired by using questionnaires distributed randomly to a sample of 218 respondents. The data are analyzed by the multivariate regression analysis technique.

As for the regression analysis, we consider a dependent variable Y and k independent variables, namely, $X_1, X_2, \ldots, X_k$. In the analysis, we fit the linear model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + \epsilon$. The model coefficients $\beta_0, \beta_1, \ldots, \beta_k$ are estimated by minimizing the sum squares of the errors ϵ.

Then, the obtained model is subjected to a number of statistical tests for validity. The first is the R^2 statistic, called the coefficient of determination, indicating the fitness of the regression model to the data. It is computed by the following formulas:

$$R^2 = 1 - \frac{\mathrm{SSE}}{\mathrm{SS}_{YY}},$$
$$\mathrm{SS}_{YY} = \sum_i \left(Y_i - \bar{Y}\right)^2, \text{ and}$$
$$\mathrm{SSE} = \sum_i \left(Y_i - \hat{Y}_i\right)^2.$$

In the current case, Y_i is the value of dependent variable for the i-th respondent, $\bar{Y}$ is the sample average, and $\hat{Y}_i$ is the model prediction.

The second is the F statistic. It measures the significance of the all independent variables to the dependent variable. It tests the following hypotheses:

$$\mathrm{H}_0 : \beta_1 = \beta_2 = \cdots = \beta_k = 0;$$
$$\mathrm{H}_\mathrm{a} : \text{At least one of the coefficients is not zero.}$$

We expect to reject the null hypothesis as failing in doing so signifies that Y is not preditable by the Xs. For the test, we calculate the F statistic by the formula:

$$F = \frac{\mathrm{SSR}/k}{\mathrm{SSE}/(N-k-1)},$$

where k is the number of independent variables, N is the number of observation, and SSR is the sum of squares of regression, and it can be obtained by $\mathrm{SSR} = \mathrm{SS}_{YY} - \mathrm{SSE}$.

The third is the t statistic for each independent variable. It signifies the significance of the independent variable to the dependent variable. We compute the statistic for each independent variable. For example, for the indepedent variable X_1, it tests the hypotheses:

$$\mathrm{H}_0 : \beta_1 = 0;$$
$$\mathrm{H}_\mathrm{a} : \beta_1 \neq 0.$$

Under the condition of $\mathrm{H}_0 : \beta_1 = 0$, the statistic is computed by the formula:

$$t = \frac{b_1 - \beta_1}{s_b}, \tag{1}$$

where $s_b = s_e/\sqrt{\mathrm{SS}_{XX}}$, $\mathrm{SS}_{XX} = \sum X_1^2 - (\sum X_1)^2/N$, and $s_e = \sqrt{\mathrm{SSE}/(N-2)}$. The procedure should be repeated for X_2 until X_k.

Finally, we note that the multivariate regression model is established on the assumptions that the residual data, the difference between the data Y and its prediction $\hat{Y}$, are random, homoscedastic, and normally distributed. Those should also be checked to validate the model.

3. **Research Results and Discussion.** We start our analysis with a multivariate model of

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_7 X_7, \tag{2}$$

where Y denotes Behavioral Intention, X_1 is Performance Expectancy, X_2 is Effort Expectancy, X_3 is Social Influence, X_4 is Facilitating Condition, X_5 is Hedonistic Motivation, X_6 is Price Value, and X_7 is Habit. We refer this model as Model 1.

By using Model (2), we ignore the moderating variables and only take into account the seven independent variables. The regression analysis suggests that the model fits rather well to the data with the value of the coefficient determination R^2 of 0.634 with the standard error of 0.411.

The potential dependence of Behavioral Intention to the seven independent variables is evaluated by an F test and a couple of t tests. The F test results, with the value of the F statistics of 52.552, and the associated p value of 0.000, suggest that the dependence exists at least with one of the seven independent variables (see Table 1).

TABLE 1. The result of the F test of fitting Model (2)

	Sum of Squares	df	Mean Square	F-stat	p-value
Regression	62.128	7	8.875	52.552	0.000
Residual	35.805	212	0.169		
Total	97.933	219			

TABLE 2. The results of the t tests of fitting Model (2). The shaded rows are statistically significant variables.

	Unstd. Coef.		Std. Coef.	t-stat	p-value	Correlations			Collinearity	
	B	SE	β			Zero-order	Partial	Part	Tol.	VIF
(Const.)	−0.215	0.325		−0.662	0.509					
X_1	0.152	0.062	0.124	2.458	0.015	0.456	0.166	0.102	0.679	1.472
X_2	0.165	0.072	0.119	2.279	0.024	0.423	0.155	0.095	0.629	1.590
X_3	0.036	0.035	0.050	1.051	0.294	0.392	0.072	0.044	0.760	1.315
X_4	0.036	0.091	0.021	0.396	0.693	0.406	0.027	0.016	0.594	1.684
X_5	0.086	0.069	0.072	1.260	0.209	0.557	0.086	0.052	0.534	1.873
X_6	0.128	0.064	0.101	2.021	0.045	0.455	0.137	0.084	0.687	1.456
X_7	0.425	0.042	0.556	10.097	0.000	0.744	0.570	0.419	0.570	1.756

The dependence of Behavioral Intention to Performance Expectancy, Effort Expectancy, Price Value, and Habit is statistically significant as depicted in Table 2. The table also shows the VIF statistics, which are important to evaluate the potential collinearity among the independent variables. No collinearity is found.

The analysis demonstrated above, shows that the variables X_1, X_2, X_6, and X_7 are statistically significant. The variables X_3, X_4, and X_5 are statistically insignificant. In the next step, we eliminate the variables X_3, X_4, and X_5, and fit a simpler model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_6 X_6 + \beta_7 X_7. \tag{3}$$

We refer this model as Model 2. The fitness level of the model is $R^2 = 0.630$, practically the same with the first model. The other statistics, such as the F and t statistics, presented in Tables 3 and 4, are improving when compared to those of the first model.

Table 3. The result of the F test of fitting Model (3)

	Sum of Squares	df	Mean Square	F-stat	p-value
Regression	61.614	4	15.403	91.183	0.000
Residual	36.319	215	0.169		
Total	97.933	219			

Table 4. The results of the t tests of fitting Model (3)

	Unstd. Coef.		Std. Coef.	t-stat	p-value	Correlations			Collinearity	
	B	SE	β			Zero-order	Partial	Part	Tol.	VIF
(Const.)	−0.067	0.292		−0.230	0.819					
X_1	0.184	0.059	0.149	3.118	0.002	0.456	0.208	0.129	0.750	1.332
X_2	0.204	0.066	0.148	3.117	0.002	0.423	0.208	0.129	0.763	1.311
X_6	0.141	0.060	0.111	2.358	0.019	0.455	0.159	0.098	0.774	1.292
X_7	0.460	0.036	0.602	12.626	0.000	0.744	0.653	0.524	0.759	1.317

Finally, we introduce Gender (X_8), as a moderating variable, to Model 2. The resulting model is written:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_{18} X_1 X_8 + \beta_{28} X_2 X_8 + \beta_{68} X_6 X_8 + \beta_{78} X_7 X_8. \tag{4}$$

We refer this model as Model 3. The statistics related to Model 3 are of the following.

It has the fitness level of $R^2 = 0.634$, marginally increasing by 0.6% from that of Model 2. Table 5 shows the value F statistic at a value of 40.351, with a p-value of 0.000, is still significant but much lower than that of Model 2, see Table 3, suggesting a refusal of the new variable to be taken into account. The assessment is supported by the t tests as shown in Table 6. None of the relationships between Y and X_1, X_2, X_6, or X_7 is moderated by the Gender.

Up to this point, we have finalized computing all relevant statistics for proving or disproving the conjectures. There is sufficient evidence suggesting that the Habit is the most relevant predictor to the Behavioral Intention followed by others. The Performance Expectancy and the Effort Expectancy are equally relevant. The aspect of Price Value also affects Behavioral Intention.

Table 5. The result of the F test of fitting Model (4)

	Sum of Squares	df	Mean Square	F-stat	p-value
Regression	62.051	9	6.895	40.351	0.000
Residual	35.882	210	0.171		
Total	97.933	219			

TABLE 6. The result of the t tests of fitting Model (4)

	Unstd. Coef.		Std. Coef.	t-stat	p-value	Correlations			Collinearity	
	B	SE	β			Zero-order	Partial	Part	Tol.	VIF
(Const.)	1.250	0.404		−0.308	0.758					
X_1	0.104	0.089	0.084	1.169	0.244	0.456	0.080	0.049	0.337	2.967
X_2	0.191	0.090	0.139	2.128	0.034	0.423	0.145	0.089	0.411	2.431
X_6	0.201	0.078	0.159	2.570	0.011	0.455	0.175	0.107	0.458	2.184
X_7	0.450	0.049	0.588	9.119	0.000	0.744	0.533	0.381	0.419	2.387
X_8	−0.277	0.607	−0.207	−0.456	0.649	−0.040	−0.031	−0.019	0.008	118.359
X_1X_8	0.133	0.121	0.404	1.092	0.276	0.039	0.075	0.046	0.013	78.403
X_2X_8	0.041	0.134	0.126	0.308	0.758	0.023	0.021	0.013	0.010	96.759
X_6X_8	−0.121	0.126	−0.364	−0.953	0.342	0.008	−0.066	−0.040	0.012	83.571
X_7X_8	0.007	0.075	0.017	0.091	0.927	0.162	0.006	0.004	0.048	20.937

From a business standpoint, any marketing program to increase the frequency of customers to use online purchasing is exceptionally crucial. It can be realized not by seasonal marketing campaigns but with a continuous effort to engage with the customers frequently.

4. **Conclusions.** With more than 28 million customers, growing at a massive rate of more than 10%, e-commerce is the leading business front in Indonesia. A similar trend can also be found in many developing nations across the globe. This research contributes insight into the business platform, suggesting the need for continuous marketing campaigns in order to increase the frequency of using the services, and finally, establishing the customer habit. In doing so, a gender-tailored campaign program seems to be unnecessary.

The UTAUT2 theory suggests that the Behavioral Intention and its determining factors are moderated not only by Gender, but also by Age, Experience, and Voluntariness of Use. In the context of Indonesia e-commerce's users, this study has addressed the first moderating variable. As for future research, one may look into the other moderating variables.

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