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## ONLINE REVIEWS: DO THEY AFFECT CONSUMERS CONFIDENCE?

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### **Abstract**

E-commerce has gradually become a very important business activity. However, the penetration of B2C e-commerce in Indonesia is still below other major Asian countries. Consumer confidence in conducting online transactions is found to be one factor that hinders consumers to be involved in e-commerce. Reading online reviews is one way for consumers to gain more information about an online product or seller. It has become a popular media to promote a product or service. However, the impact of online reviews toward consumer confidence is still mainly unobserved. This study is based on the perspectives of 173 business school students to assess the impact of online review attributes (product reviews, e-commerce reviews, and seller reviews) towards consumer confidence. Data was analyzed using a regression analysis and interaction analysis to assess each variable's contribution towards consumers' confidence as well as the whole model. The role of gender as a moderating variable was also explored. The results show that online reviews significantly influence consumer confidence to use e-commerce. However, gender does not moderate the relationship between online reviews and confidence.

### **INTRODUCTION**

Although B2C e-commerce has become widespread around the world, the penetration of e-commerce in Indonesia is still below other Asian countries such as China, India, and Japan (Setiawan, 2016). In China, e-commerce has reached 13% of the total population, compared to Indonesia's 1% (Setiawan, 2016). E-commerce startups in Indonesia face a lot of challenges, as shown by the high number of failed businesses. The number of new startups founded in 2017 decreased by 23% from the past year (Oddup, 2017). Most failed startups struggled to compete with the existing players (Pratama, 2017).

According to Ahmed, Hussein, Minakhatun, and Islam (2007), the crucial factors that influence the adoption of e-commerce are consumers' trust and confidence. Many people are still not confident to adopt e-commerce due to security and protection concerns (Ahmed et al., 2007). Specifically, people

are not comfortable when they have to make payments by transfer and submit their personal data as part of the transaction requirements. In addition, they are also worried that online transactions cannot fulfill their expectations and the products will not be delivered safely. In other words, consumers have a low level of trust and confidence toward online shopping.

E-commerce can be classified as a complex transaction process because there is a high level of uncertainty involved. When people make online purchases, they cannot get the products straight away. Consumers also have limited knowledge about the quality of the products and the sellers' reputations (Ahmed et al., 2007; Pavlou & Dimoka, 2006; Wong & Hsu, 2008). Therefore, there are many uncertainties involved in e-commerce transactions: payment, delivery, and product. These uncertainties influence consumers' trust and confidence to adopt e-commerce.

The transaction uncertainty might be reduced if consumers have enough information (Park, Lee, & Han, 2006). When consumers acquire sufficient information related to the products, the sellers, and the transaction processes, the level of uncertainty will be decreased accordingly. Online reviews are believed to be one of the information sources which are able to increase consumer understanding and knowledge in conducting e-commerce transactions. Under an online review platform, consumers can write and read opinions and experiences regarding a particular topic. Some platforms also provide rating facilities, which can help consumers to acquire more information. Customer-based online information is deemed to be valuable, informative, and trustable (Yang, Sarathy, & Lee, 2016; Wong & Hsu, 2008).

### **Problem Statement**

There has been growing attention towards the relationship of online reviews and the consumer buying process. Research in this area has been focused on three main topics: the impact of online reviews toward sales, consumer behavior, and consumer perception of information (Park & Nicolau, 2015). More specifically, within the impact of online reviews on consumer behavior, most scholars focused on the issue of the impact of online reviews toward consumer attitude or consumer intention to buy (Park et al., 2006; Wong & Hsu, 2008; Mudambi & Schuff, 2010; Lin, Lee, & Horng, 2011; Park & Nicolau, 2015; Ert, Fleischer, & Magen, 2016; Singh, Irani, Rana, Dwivedi, Saumya, & Kumar Roy, 2017; Stouthuysen, Teunis, Reusen, & Slabbinck, 2018). Only Stouthuysen et al. (2018) examined the relationship of online reviews on trust and consumer intention to buy. Empirical studies related to online reviews and consumer trust or confidence is still scarce, since scholars have mostly studied the direct relationship between reviews and intention to buy (Stouthuysen et al., 2018). Furthermore, consumers' physiological dimension in the relationship between online reviews and buying decisions is still unobserved (Yang et al., 2016). Therefore, it is crucial to obtain a better understanding of consumers' confidence as one of the psychological dimensions in the purchasing process (Wong & Hsu, 2008; Yang et al., 2016).

### **Research Objectives**

This study aims to investigate the relationship between online reviews and consumer confidence in B2C e-commerce. Several attributes of online reviews will be examined to see their impact on consumers' confidence. This

study also strives to assess the role of consumer characteristics as a control variable between online reviews and confidence.

## **LITERATURE REVIEW**

### **Consumer Confidence**

Confidence is defined as the state of emotion in which a person feels comfortable, capable, and optimistic to be able to do something. In the context of consumer behavior, especially purchasing decision making, confidence is considered as a consumer consciousness and understanding toward unpredictable situations that are embedded in the buying process (Barber & Odean, 2008). Therefore, confidence is a state of emotion where consumers are perceived to be able to predict what they will get when they have to make a purchasing decision (Haines, 1970). In other words, confident consumers are those who are able to recognize the risks and know how to anticipate a situation when the result is not in accordance with their expectations.

Consumer confidence regarding e-commerce is a set of psychological factors which have an important role in increasing the number of e-commerce users (Wong & Hsu, 2008). Wong and Hsu (2008) proposed a conceptual framework of confidence relying on three fundamental factors: personality-based confidence, history-based confidence, and institution-based confidence. Personality-based confidence is related to a belief that will lead someone in making a decision. History-based confidence is related to the knowledge that consumers have regarding a particular transaction. Institutional-based confidence is related to a consumer's knowledge about the organization and the support system such as guarantee and regulations. Wong and Hsu's factors are complemented by de Jonge, van Trijp, Goddard, and Frewer (2008), who believe that consumer confidence can be represented by five factors: recall or having specific information, perceived product safety, understanding the process, institutional guarantee, and customer background.

### **Online Review**

Mudambi and Schuff (2010) define an online review as a consumer's commentary and opinion about the quality, price, or seller of a particular product which is written or posted on the Internet. The review can be either good or bad. Some online review platforms provide the consumers with several options to create their reviews or feedback which can include texts, images, and symbols. Among those options, written testimonials are deemed as the most useful as they can provide more information (Park & Nicolau, 2015). According to Park & Nicolau (2015), a text review contributes more in generating consumer trust compared to other types of feedback. A text review combined with an image or icon will give more benefits to consumers (Singh et al., 2017).

Early evidence related to the impact of online reviews toward consumer confidence was found by Park et al. (2006). They discovered that consumers' online testimonials about their buying experiences have a strong effect on consumer attitude toward a product. However, this phenomenon can only be seen for low involvement buying decisions. They also found that negative and positive reviews have a significant role in influencing consumers' attitudes. According to Park et al. (2006), although positive reviews deliver

a good feeling to consumers, consumers find them less useful than the negative ones. This was also confirmed by Yang et al. (2016) and De Pelsmacker, van Tilburg, and Holthof (2018). Those studies show that negative reviews are beneficial toward sales. According to Yang et al. (2016), as long as the negative reviews can deliver important information for other consumers, they can have a positive impact on sales. In hotel booking transactions, De Pelsmacker et al. (2018) found that review valence has a significant effect on hotel occupancy.

Online reviews, both positive and negative, can influence consumer perception toward a particular product or seller (Yang et al., 2016). Their study found that consumer attitude is more likely to change after consumers get more information from online reviews. Knowledgeable consumers tend to feel more confident than less informed consumers in making purchasing decisions (Nepomuceno, Laroche, & Richard, 2014). These studies further extend the findings from previous research that showed consumers' positive responses toward well recognized brands. In past studies, it was discovered that consumers gain more confidence when they have to make a purchase decision of a well-known product (Wong & Hsu, 2008). They also reported that useful information from the Internet generates consumer confidence (Wong & Hsu, 2008).

### **Product, E-commerce, and Seller Reviews**

Reviews on products, sellers, and e-commerce sites are considered as the main aspects of online reviews. These reviews are believed to have a strong influence on consumer perception (Park & Nicolau, 2015).

#### **Product reviews.**

The study of the impact of a product's reviews on consumers' intention to buy confirmed that positive or negative reviews will influence consumers' buying decisions (Maslowska, Malthouse, & Viswanathan, 2017). This study also revealed that reviews on prices also affected a consumer's buying intention. The effect of price reviews is moderated by review valence (Maslowska et al., 2017). They also found that transactions for a higher price product are sensitive to review valence. When there are many negative reviews, the consumer's intention to buy will decrease. According to Hwa Lee (2012), consumers perceive that reading online reviews about a product can bring a lot of benefits for them, including being able to reduce the risks which are embedded in the transactions. Furthermore, Hwa Lee (2012) pointed out that online reviews on product specifications or quality can also affect consumers' understanding about the cost to find information. However, when a product review only talks about the good things, it will make the level of consumer distrust toward the online reviews higher.

**H1:** *Online product reviews influence consumers' confidence to make e-commerce transactions.*

#### **E-commerce reviews.**

From previous research done by Yoo, Sanders, and Moon (2013), it was revealed that positive reviews on e-commerce sites will generate consumer trust. They also found that this impact even has much significance for consumers who seek lower price products. Moreover, according to Yoo et al. (2013), whether the consumers write or read the e-commerce reviews, both

will help them to interact with each other. This interaction can produce a positive impact toward a consumer's attitude toward e-commerce and in the end can increase a consumer's loyalty. Meanwhile, based on a study conducted by Lee and Lin (2005) about consumer perception toward online shopping, it was found that consumer trust is the major issue that influences transactions. Therefore, many consumers usually try to find information about e-commerce trustworthiness before they make a decision to buy online. Another aspect which is also a major consideration for consumers to make online transactions is e-commerce reliability (Lee & Lin, 2005). Their study discovered that product delivery is one of several important factors which influence a consumer's perception of e-commerce reliability.

**H2:** *Reviews on e-commerce sites influence consumers' confidence to make e-commerce transactions.*

### **Seller reviews.**

From other previous studies, it was also found that the seller's reputation has a strong influence on the customers' payment execution (Melnik & Alm, 2002). According to Melnik and Alm (2002), when a seller is able to increase one's rating twofold, it will increase consumers' payment execution by 18 percent. Another study conducted by Tam and Ho (2005) confirmed that text comments are able to influence a seller's reputation. According to Tam and Ho (2005), the credibility of sellers will drop when consumers read negative reviews. On the other hand, positive reviews can generate consumer trust in sellers. This study was also confirmed by (Houser & Wooders, 2006), who found that the seller's reputation has a significant impact on the price of a product in an online auction. Therefore, the following hypothesis is made.

**H3:** *A seller's reviews influence consumers' confidence to make e-commerce transactions.*

Thus, it is also believed that all together these online review attributes will affect consumer confidence in making online transactions.

**H4:** *Overall, online review attributes influence consumer confidence to make e-commerce transactions.*

### **Customer characteristics.**

From a study by de Jonge, van Trijp, van der Lans, Renes, and Frewer (2008), it was found that consumer characteristics, such as gender, age, education level, and demographics have a significant effect on consumer confidence. de Jonge et al.'s finding was strengthened by a study which took consumer characteristics such as female consumers into consideration in analyzing consumers' confidence (Bearden, Hardesty, & Rose, 2001). Females tend to be more open in expressing their feelings to their friends. Thus, they have a higher amount of trust than males toward information from their social network. Therefore, females are easily influenced by the information (Bearden et al., 2001). Based on those previous studies, the following hypotheses are proposed:

**H5:** *The interactions between gender and product reviews will affect the relationship between product reviews and consumers' confidence.*

**H6:** *The interactions between gender and e-commerce reviews will affect the relationship between product reviews and consumers' confidence.*

**H7:** *The interactions between gender and seller reviews will affect the relationship between product reviews and consumers' confidence.*

## MATERIALS AND METHODS

The data for this study was collected using a convenience sampling method from the student population of a private university in Jakarta which are mainly also the e-commerce consumers. The justification to take a convenience sampling was because the university students were easy to reach and they were likely to participate in a study which taken in the campus (Etikan, Musa, & Alkasim, 2016).

Final year undergraduate students were asked to participate in this study. They were asked to voluntarily join the survey through a Google form. In the survey, a set of questions using a five-point Likert scale were used to obtain the information from the respondents. Additional demographic questions complemented the survey to gather information related to their gender, the type of device that they use, and their duration of Internet access per week.

This research consisted of two studies. In the first study, a regression analysis was used to see the relationship of online review attributes toward confidence. Before the research variables were analyzed, all indicators which measured the variables were tested using CFA to see their measurement validity. Furthermore, in the second study, the interactions between all online review attributes and gender in affecting confidence were assessed. An interaction analysis was performed to see the effects of gender in moderating the relationship of online reviews toward confidence.

All items in the survey instruments were tested prior to the study for their reliability. A Pearson correlation coefficient test was used to see the relationships among items in each variable construct. The internal consistency of indicators as a set of scale was tested using Cronbach's alpha. Only indicators that really measured the variables were included in the next analysis.

The measurement of the confidence variable was adapted and modified from studies by Wong and Hsu (2008) and de Jonge et al. (2008). Consumer perception towards online reviews was measured using a scale adopted from Hwa Lee (2012), Lee and Lin (2005), and Tam and Ho (2005). Three online review attributes were used as independent variables: product review, e-commerce review, and seller review. The effects of each review category on confidence were regressed to find out the effects on consumers' confidence. This study also analyzed the effects of gender as a moderating variable on online reviews and consumers' confidence.

Table 1. *Construct Definitions*

Construct	Definition	References
Product Review	Comment and feedback about product	Hwa lee (2012)
E-Commerce reviews	Comments and feedback about e-commerce or online shopping platform	Lee & Lin (2005)

<b>Seller Review</b>	Comment and feedback about seller	Tam & Ho (2005)
<b>Confidence</b>	Consumer confidence to make online transaction	Wong & Hsu (2008) and de Jong et al., (2008)

**RESULTS AND DISCUSSIONS**

**Demographic Profile of Respondents**

In total, there were 177 respondents who voluntarily joined this study. Since there were three predictors, this sample size can be considered large enough (Field, 2009). Sixty-two percent of the respondents were female and 38 percent were male (Figure 2). According to the types of devices that they used to access e-commerce sites, 68% of the respondents used their cell phones, 20% of the respondents preferred to use their laptops, 4% of them used PCs, and 8% of the respondents did not respond to this question (Figure 3).

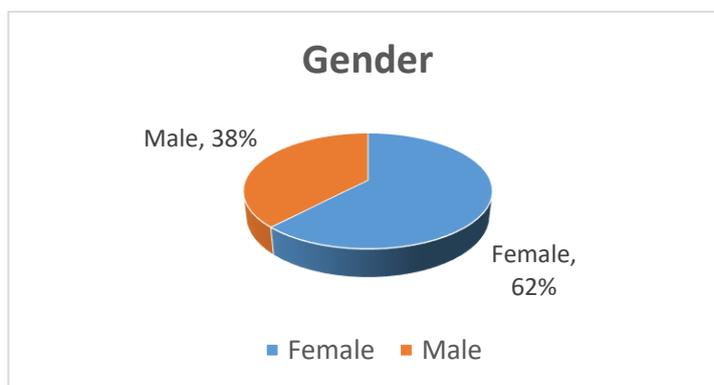


Figure 1. Respondents by Gender

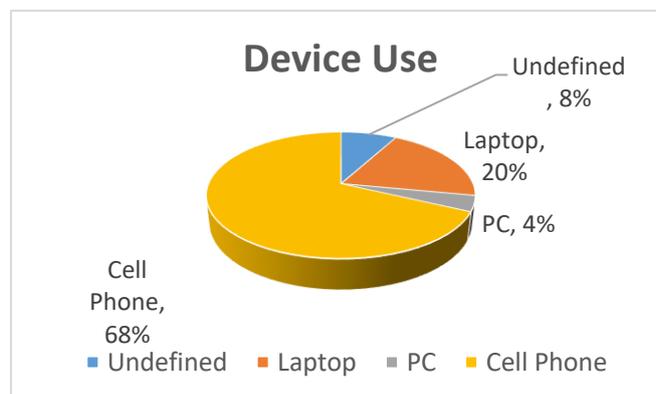


Figure 2. Respondent Device to Access E-Commerce

Based on their gender, there were differences in devices used. It was found that most of the female respondents preferred to use cell phones (74%) compared to the male respondents (26%) (Table 2). While among female respondents 84% of female respondents would rather use cell phones and 10% preferred to use laptops to access e-commerce sites. The rest of the female respondents used PCs (2%) and tablets (4%) (Table 3). Among the male respondents, 52% of them preferred to use their cell phones, 38% chose

to use laptops, and 10% would rather use PCs. None of the male respondents used tablets (Table 3).

Table 2. *Male and Female Respondent Percentage by Device Use*

Gender	Cell Phone	Laptop	PC	Tab
Female	74%	32%	25%	100%
Male	26%	68%	75%	0%
Tota	100%	100%	100%	100%

Table 3. *Device Use Comparison between Male and Female Respondents*

Device	Female	Male
Cell Phone	84%	52%
Laptop	10%	38%
PC	2%	10%
Tab	4%	0%
	100%	100%

### Normality

One of the assumptions that should be fulfilled regarding a regression analysis is the data should be normally distributed. The data distribution was analyzed using SPSS 21, and the results are presented in Table 4. The skewness index ranges from -0.04 (trust in seller) to 1.789 (price comparison). Meanwhile, the kurtosis index is spread from -1.149 (trust in seller) to 6.741 (price comparison). According to Harrington (2009), if the skewness value is less than 3 and the kurtosis index is bigger than 10, the data set can be considered as normal and it does not become a problem for a confirmatory factor analysis. There is no skewness index greater than 3 or a kurtosis value bigger than 10.

### Reliability

The reliability of each item in the questioner was tested in order to know its consistency to measure respondents' perceptions. The Pearson's r correlation coefficient was considered as a good method to use. The value of Pearson's r correlation varied from +1 to -1. From Table 5, it can be seen that each item in the questioner is reliable since the value of Pearson's r is above 0.6 (Muijs, 2004), and all of them are statistically significant with a p-value of less than 0.05.

This study also utilized a Cronbach's Alpha reliability test to see the internal consistency of all the indicators to measure the construct. It can be seen that the Cronbach's Alpha value ranges from 0.5 to 0.8, which is considered as good. However, based on the *Cronbach's Alpha, if item deleted*, there were several indicators should be deleted in order to increase the Cronbach's Alpha values, which are Q1.2, Q2.4, Q2.5, and Q3.5. Therefore, those items were not included in further analysis.

Table 4. *Descriptive Data*

Item By subscale		Mean	Median	Skewness	Kurtosis
<b>Product's Review</b>					
Product quality informtion	Q1.1	1.30	1.00	1.004	-0.476
Price comparison	Q1.2	1.45	1.00	1.789	6.741
Product Spesification information	Q1.3	1.45	1.00	1.100	1.179
<b>E-commerce's Review</b>					
Information about shipment	Q2.1	1.58	2.00	0.922	1.049
Payment method	Q2.2	2.12	2.00	0.934	0.850
Easy to acces	Q2.3	2.22	2.00	0.891	0.267
E_comerce layout	Q2.4	2.09	2.00	0.884	-0.103
Waranty	Q2.5	1.49	1.00	2.002	4.826
<b>Seller's Review</b>					
Recommended product	Q3.1	2.03	2.00	0.987	0.737
Star Rating	Q3.2	2.34	2.00	0.475	-0.976
Recommended Seller	Q3.3	2.40	2.00	0.694	-0.289
Testimony	Q3.4	1.70	2.00	1.242	2.558
Easy to contact	Q3.5	1.82	2.00	1.106	0.450
<b>Confidence</b>					
Confidence buying online	Q4.1	2.54	2.00	0.694	-0.289
Comfortable with online transasaction	Q4.2	2.42	2.00	0.486	-0.860
Trust on seller	Q4.3	2.94	3.00	-0.044	-1.149
Trust on the payment method	Q4.4	2.38	2.00	0.612	-0.216
Trust on the internet and e-commerce acces speed	Q4.5	2.43	2.00	0.404	-0.540

Table 5. Pearson's R Correlation Coefficient and Cronbach's Alpha

Variable	Indicators	Peason's r correlation coefficient	p-value	Cronbachs Alpha	Cronbachs Alpha if item deleted
Product's Review	Q1.1 Product quality information	0.857	0.000	0.672	0.352
	Q1.2 Price comparison	0.580	0.007		
	Q1.3 Product Specification information	0.869	0.000		
E-commerce's Review	Q2.1 Information about shipment	0.577	0.008	0.633	0.591
	Q2.2 Payment method	0.704	0.001		
	Q2.3 Easy to access	0.860	0.000		
	Q2.4 Ecommerce layout	0.517	0.020		
	Q2.5 Warranty	0.515	0.020		
Seller's Review	Q3.1 Recommended product	0.630	0.003	0.506	0.415
	Q3.2 Star Rating	0.543	0.013		
	Q3.3 Recommended Seller	0.759	0.000		
	Q3.4 Testimony	0.719	0.000		
	Q3.5 Easy to contact	0.313	0.179		
Confidence	Q4.1 Confidence buying online	0.888	0.000	0.852	0.785
	Q4.2 Comfortable with online transaction	0.898	0.000		
	Q4.3 Trust on seller	0.746	0.000		
	Q4.4 Trust on the payment method	0.673	0.001		
	Q4.5 Trust on the internet and e-commerce access speed	0.760	0.000		

### Validity

In order to get a valid variable measurement, a confirmatory factor analysis was conducted. The analysis was performed using Amos 21. The results showed that a factor loading of Q1.2 (price comparison) was not high enough; therefore, Q1.2 was removed. The remaining indicators for the latent variables were then tested to see the goodness of fit model.

Table 6 shows the correlation among latent variables, and it can be seen that the estimated correlation values are between -0.195 and 0.297. This result indicates that all the variables are correlated to each other. The correlation values among variables are not too high. As a result, it shows that all the latent variables measure the same constructs, but they are not highly correlated to each other.

Furthermore, the relationships of all the indicators toward the latent variables are shown in the standardized factor loading table (Table 7). The table shows that all the loading factors are above 0.40, and they are all significant with a *p-value* of less than 0.05. A loading factor above 0.4 indicates a good predictor of the latent variables (Harrington, 2009). Only two indicators have a loading factor below 0.5. In measuring the e-commerce review variable, the Q2.1 indicator has an estimated result of 0.422; and the Q3.3 indicator has a loading factor of 0.455 in measuring the seller review variable. However, according to Harrington (2009), a loading factor of around 0.32 – 0.45 is considered as adequate to meet the requirement as an acceptable fit.

Another important parameter from CFA which can show the validity of the variable construct is the goodness fit of the model. Amos produced several indexes to measure the goodness of fit of the model. Table 8 shows all the goodness of fit values from various measurements and their thresholds. From Table 8, it can be justified that the model is a good fit for the data observed.

Table 6. *Correlation of Latent Variables*

Latent variables		Estimate
product	<--> e_commerece	0,282
product	<--> Seller	0,135
Confidence	<--> product	-0,195
e_commerece	<--> Seller	0,298
Confidence	<--> e_commerece	0,274
Confidence	<--> Seller	0,297

Table 7. *Standardized Loading Factor*

			Estimate
Q12	<---	product	0,727
Q13	<---	product	0,659
Q21	<---	e_commerce	0,422
Q22	<---	e_commerce	0,58
Q23	<---	e_commerce	0,746
Q31	<---	Seller	0,698
Q32	<---	Seller	0,636
Q33	<---	Seller	0,445
Q45	<---	Confidence	0,644
Q44	<---	Confidence	0,646
Q43	<---	Confidence	0,693
Q42	<---	Confidence	0,767
Q41	<---	Confidence	0,673

Table 8. *Goodness of Fit*

	Value	Rule of thumb	References
$\chi^2$	106.365		
RMSEA	0,068	0.08 or less	Browne and Cudeck, 1993)
CFI	0.899	Close to 1	McDonald and Marsh (1990)
TLI	0.844	Close to 1	Bentler and Bonett (1980)
IFI	0.905	Close to 1	(Bollen, 1989b)
NFI	0.810	0.9 or less	(Bentler & Bonett, 1980,
CMIN/DF	1.803	5 or less	Wheaton et al. (1977)

### Regression Analysis

From the results of the regression analysis, it was found that all the independent variables are statistically significant with all  $p$ -values, being less than 0.05 (Table 12). This finding confirms Hypothesis 1, Hypothesis 2, and Hypothesis 3, which state that the product reviews, e-commerce reviews, and seller reviews influence consumers' confidence to make e-commerce transactions. All the values from the regression analysis results show that product reviews, e-commerce reviews, and seller reviews affect consumers' confidence to make online transactions. However, the product review variable has a negative coefficient, which means it moves in the opposite direction toward confidence. When the consumers get more information about a product, their confidence actually decreases instead of increases. Other variables like e-commerce reviews and seller reviews are positively correlated with confidence.

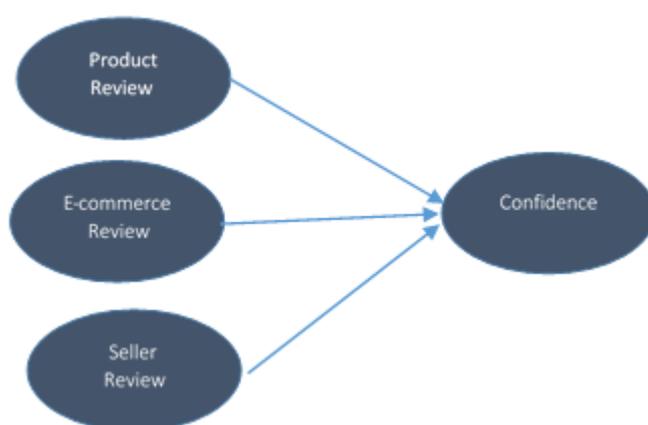


Figure 3. *Theoretical Framework*

The overall model is also found to be statistically significant with a  $p$  – value < 0.05 (table 11). Therefore, Hypothesis 4 is also confirmed: all together, product reviews, e-commerce reviews, and seller reviews influence consumer confidence. However, the value of R square is low ( $R^2 = 0.108$ ) (Table 10). This result indicates that other variables affect consumer confidence in engaging in online transactions, while online reviews are part of those variables.

Table 9. *Indicators and Variables of the Study*

Variable	Indicators	Reference
<b>Product's Review</b>	Product quality information	Hwa Lee (2012)
	Price comparison	
	Product spesification information	
<b>E-Commerce's Review</b>	Information ababout shipment	Lee & Lin, 2005
	Payment method	
	Easy to access	
	E-commerce layout	
	Warranty	
<b>Seller's review</b>	Recommended product	Tam & HO, 2005
	Star rating	

	Recommended seller	
	Testimony	
	Easy to contact	
<b>Confidence</b>	Confidence buying online	Wong & Hsu, 2008
	Comfortable with online transaction	
	Trust on seller	
	Trust on the payment method	
	Trust on the internet and e-commerce access speed	

Table 10. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,329 <sup>a</sup>	,108	,092	,67949

a. Predictors: (constant) Seller\_Review, Product\_Review, E\_Commerce\_Review...

Table 11. ANOVA

Model		Sum of Squares	df	Mean Square	F	Significance
1	Regression	9,452	3	3,151	6,824	,000 <sup>b</sup>
	Residual	78,027	169	,462		
	Total	87,480	172			

a. Dependent Variable: Confidence  
b. Predictors: (constant) Seller\_Review, Product\_Review, E\_Commerce\_Review...

Table 12. Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significance
		B	Std. Error	Beta		
1	(Constant)	2,174	,245		8,870	,000
	Product_Review	-,321	,117	-,205	-2,754	,007
	E_Commerce_Review	,204	,086	,178	2,367	,019
	Seller_Review	,221	,076	,213	2,886	,004

a. Dependent Variable: Confidence

**Interaction Analysis**

In order to see the effect of gender as a moderating variable toward consumer confidence, the data was analyzed using PROCESS macro for SPSS (Hayes, 2013). Table 13 shows the results of the moderating analysis through Hayes’ PROCESS. The model summary in the table shows that the interaction between gender and product review is statistically insignificant in affecting confidence with a *p-value* greater than 0.05. The other two variables show similar results. Therefore, it can be concluded that gender does not

affect the relationship between online review attributes and confidence. These results refute H5, H6, and H7.

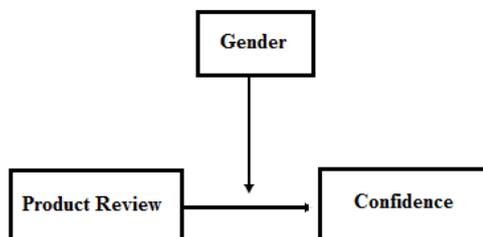


Figure 4. Gender Product Review Interactions

Table 13. Interaction Analysis Results

Independet Variable	Model 1	Model 2	Model 3
	Prod x Gen	Ecom X Gen	Sell X Gen
Intercept			
b01	3.083		
b02		2.4719	
b03			2.0144
Main Effect			
Product_review	-0.3627		
E-commerce_review		0.0658	
Seller_review			0.2844
Gender	-0,4239	-0.6632	0.2097
Interaction			
Gender X Producr Review	0.323		
Gender X E-commerce Review		0.3118	
Gender X Seller Review			-0.1120
R <sup>2</sup>	0.0316	0.0478	0.0531
F	1.8409	2.8275*	3.1570*
p-value	0.1833	0.0776	0.4742

### CONCLUSIONS

The results provide empirical evidence that online reviews have a significant impact on consumer confidence to make online transactions. All the online review attributes: product reviews, e-commerce reviews, and seller reviews are proven to statistically affect consumer confidence. The indicators to measure the confidence and online review attributes can also be considered as a valid construct based on the results of the CFA test. As a latent variable, confidence has a high goodness of fit, which indicates that all indictors have high validity to measure variable confidence.

Although the r-square of the whole model is low, it is relatively insignificant to the current study. This study aimed to explore the relationship between online reviews and confidence, not to find out the antecedent variables of consumer confidence or to predict the factors that influence consumer confidence to engage in online transactions. From the r-square, it

can be seen that there are unobserved variables which might influence consumers' confidence toward e-commerce instead of online reviews. This might provide a further avenue for future research.

An interesting finding from this study is the negative correlation between product reviews and confidence. This result extends studies by Maslowska et al. (2017) and Hwa Lee (2012) about review valence. According to Hwa Lee (2012), if consumers read too many positive reviews about a particular product, it can actually decrease their level of trust. This study can be considered as early evidence that there might be too many good product reviews compared to bad reviews on online review sites. Therefore, the relationship between reading online product reviews in the end decreases consumer confidence.

Previous studies on gender and attributes of online reviews show inconsistent findings. In this context, one possibility to explain this finding is due to the similarities of the respondents. The respondents are students, who have common characteristics between the two genders related to e-commerce.

Several issues make the results of this study have limited generalizability. The respondents are limited to students from one university, which is not representative of all the consumers. As students, they have very similar traits in age and socio-economic background. However, the findings of this study can contribute to the literature of consumer behavior and information systems. This study provides empirical evidence of the relationship between online reviews and consumer confidence. E-commerce professionals may find the results of this study useful to manage their product online reviews as a business strategy.

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