


How Perceived Risk and Suspicion Moderates the Relationship Between Information Source, eWOM, and Purchasing Decision

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ABSTRACT

This research aimed to examine the customer behavior in online shopping by measuring product characteristics, information sources, perceived risk, electronic word-of-mouth, suspicion, and purchase decision with the moderation effect. The research data were collected using convenience sampling method. Respondents of 312 customers who conducted shopping online have been analysed, and research hypotheses were assessed by employing partial linear square structural equation modelling (PLS-SEM) and hierarchy regression analysis. The study found that there is a relationship among different variables and perceived risk, and suspicion moderates the relationship between information sources, electronic word-of-mouth, and purchase decision. Since the issues of online shopping were still subject to further validation, this study provided an important reference for marketers to develop marketing strategies as well as the theoretical base for further empirical validation.

KEYWORDS

Electronic Word-of-Mouth, Information Sources, Perceived Risk, Product Characteristics, Purchase Decision, Suspicion

INTRODUCTION

In the emerging of information technology and technology for last decades, the context of online shopping has transformed the ways people shop from traditional shopping to the process of using technology as an instrument (Duarte et al., 2018). Online shopping is proved to have more advantages and benefits than traditional shopping style. For business, technology-based platforms provide

DOI: 10.4018/IJCRMM.300833

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effective marketing channels, remove geographical barriers, and reduce the operating costs (Chen & Xie, 2008). On the other hands, customers prefer online-shopping because it is less time-consuming and easier to inspect and select the products, and provides more choices of products (Duarte et al., 2018). Past researches suggested that online-purchase decision-making factors such as information sources and the electronic word of mouth (eWOM) play a crucial role in determining and shaping the customers' attitudes and behaviors (Hussain et al., 2018). Before deciding to purchase, customers tend to conduct their own research of the products, which they are interested in, by either asking their families and friends or looking for some reviews websites and check what other customers comment about their experiences. In-store shopping and online shopping have different characteristics, even though the two compliment and generate each other (Farag et al., 2007). Customers can perceive the product characteristics in a store like the physical product, price, seller and buyer interaction. However, for online shopping, customers tend to focus more on how the product can offer differently than the others such as: the benefits of the products compared to others; how customers perceive the new product into the person's experience, belief, demand; the difficulty to understand and grasp; or how it can provide a trial run and test before purchase. Thus, the online product characteristics can be defined as the capabilities or attributes of the product.

Recently, the evolution and development of the Internet have led to the instruction of a new form of word of mouth: electronic word-of-mouth (eWOM). eWOM is described as all informal communication on the Internet, which is addressed to consumers and related to a particular goods or services or the sellers thereof (Litvin, Goldsmith, & Pan, 2018). Since eWOM is available to all consumers who have can use online platform to share their opinions and comments, it is soon to be considered as one of the most influentially informal media (Huete-Alcocer, 2017). Researchers suggested that eWOM is the most potential tools in purchase decision making (Basri et al., 2016) and in the online-platform customers rely on the eWOM likes product comments and reviews but there are numerous sellers who manipulate those resources for their benefit (Hu, Liu, & Sambamurthy, 2011). Thus, eWOM is an important factor affecting customer's decision but if customers suspect that the given information is being manipulated, it is unlikely that they would trust the information at all. Furthermore, the information sources regarding products is a massive resource, it can come from individual, acquaintances and strangers as a previous research suggests that it is highly possible for peoples to make purchase when they are influenced by others, when they receive enough information and the value they place in the product (Jin & Phua, 2014); even though there are benefits from online shopping but there are also risks and it can affect the decision as well, but there is a lack of research of which criteria can cause the customers to less likely to go shopping online, basically how perception of risk and suspicion can mitigate the online-purchase decision.

In Vietnam, even though the country is less developed than many other countries, e-commerce market is growing significantly and rapidly. Particularly, people aged from 25-30 years play an important role in the rising of online shopping. According to Vietnam E-commerce Report in 2020, the market is valued at US 9 billion, accounted for 6 percent of the total retail business, and attracts about 40 percent of the total population. It is agreed that online shopping will be the major trend in Vietnam and organizations are looking for different methods to catch up with this phenomenon. However, there is still a lack of research regarding the interrelationship between product characteristics, information sources, eWOM and purchase decision in Vietnamese online shopping market. The objective of this study is to provide a comprehensive model that explain the influences of product characteristics, information sources and eWOM on purchase decision. Moreover, even though the behavior intention is widely studied in the literature, most of researches focused more on factors influencing the purchase decision rather than factors that can moderate the purchase decision. This study aims to investigate the moderating effects of perceived risk, suspicion on the relationship between product characteristics, eWOM, and purchase intention.

This paper is proceeded as followed: first, the research background online shopping and objectives of the study are introduced. The next part focuses on defining the constructs and developing the research

model and hypothesizing the relationships. In the following section, the construct measurements are designed, and the model is tested by using confirmatory factor analysis (CFA) and partial least squares structural equation modeling (PLS-SEM). Finally, the results are presented and the conclusion, contributions, limitations, and future researches are highlighted.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Product Characteristics

The concept product characteristics has been revised with the advancement of human lifestyle, technology, and innovation alike. Bang et al. (2013) classified products based on the customer style of shopping, conveniences, and specialty goods, and the habits of customers. Most marketers suggested that the definition of products should be related to the physical attributes and psychological factors to influence the purchase (Lee, Cheng, & Shih, 2017). However, the researchers mostly focused on the channels distribution and promotional policy, therefore, the theory still has some loopholes. Many researchers have discovered that online shopper and the non-internet shopper could behave differently in shopping online (Hussain et al., 2018; Suki & Suki, 2014). Online shoppers were those who use the internet as a tool to purchase online (Chung et al., 2018). Brun et al. (2013) found that for non-internet shoppers they are concerned about their motivation and attitude to purchase, while the internet shopper tends to seek convenience, innovation and less risk-averse. Therefore, the characteristics of products could be different due to the perception of the customers. Suki and Suki (2014) claimed that product characteristics are important as they are related to every attribute to satisfy the customers' needs and wants. Product characteristics could include tangible objects such as the clothes, a smartphone, or a laptop as well as intangible factors such as the services, the people, the place, the usefulness, or the sensation. In order to provide a better shopping experience, online retailers were turning to merchandise that help their customers to interact with the products online (Duarte et al., 2018). Boateng (2021) even concluded that customers tend to surf the Internet to analyze of the products before the purchase decision. In this study product characteristics were defined as the capability of the online product such as how it is better than others and how the consumer perceives the new product to the person's experience, belief, need; and how it can provide a trial run and test before purchase.

Information Sources

According to Chatterjee (2017), sources referred to anything that can be obtained or discovered and the object that can provide the information can be called an information source, thus, the information sources could come from anywhere and anything that can be obtained. The variety of information sources have caused past researchers to debate the classification of information sources. Particularly, Ghuman and Mann (2015) gave a more in-depth classification about information sources as they found three components: intrapersonal sources, interpersonal sources and third-party sources.

The intrapersonal source referred to the experience of the consumers that they learned from the past and stored in their mind (Rimé et al., 2020). Consumers considered this source reliable as the information collected from the direct interaction and it did not involve or influence by any external party. Tham, Croy, and Mair (2013) further noticed that even though the intrapersonal source is always available, it might be a challenge as customers can't retrieve all of their memories. Thus, Basri et al. (2016) suggested that if customers keep repeating their purchase behaviors, it would be easy to gather information from intrapersonal sources. On the other hand, interpersonal sources were unbiased and reliable sources where the customer could obtain information from family, friends, or acquaintances (Ghuman & Mann, 2015). Mourali, Laroche and Pons (2005) claimed that since the sources are non-commercial sources, they could reduce the doubt of customers. Finally, Ratchford, Talukdar, and Lee (2007) argued that third-party sources are the independent sources that sellers cannot control. These information sources normally include news or reports from radio, TV or magazine about awards or

product ranking in the market. In addition, since information on third-party sources were not meant for the purpose of enhancing customers' purchase behaviors, the information seemed to be unorganized to the requirement of the potential customer (Chen et al., 2016). Thus, the sources were in need of more detail to sink into the minds of consumers. Moreover, Ghamat et al. (2021) mentioned one of the disadvantages of third-party sources as they were not always available and it took more time and effort to obtain the sufficient information. This study employed information sources as all the sources of information that can be obtained from intrapersonal sources, interpersonal sources and third-party sources.

Electronic Word of Mouth

eWOM is a popular concept among research studies and has been defined in many ways. Boateng (2021) suggested that eWOM referred to any positive or negative statement made by the potential, current or former customer about a product, service or its company via the Internet. Munir et al. (2018) presented eWOM as the overall evaluation of products on the review websites and other electronic channels and was considered to exert an impact on sales. Similarly, the eWOM concept referred to the online review, online recommendation, online opinions which has been fundamental with the support of new technology (Duarte et al., 2018). Litvin, Goldsmith, and Pan (2018) further used the term eWOM to describe the variety of methods that people interacted online through social media, blogs, websites, email, product review sites, etc. about a certain product, service and its related attributes. Tham et al. (2013) concluded that the impact of eWOM can be understood through information solicitation, channel variety, and message retention.

Information solicitation was defined as the willingness to be influenced by the information provided (Kasavana & Teodosic, 2010). Solicitation of information was important as it reduced the risk and enhances the decision-making process. Thus, customers would solicit information from online communities (Doh & Hwang, 2009). When someone initiated the online search, it meant that they were ready to be affected by that information, in spite of whom they solicited the information from (Doh & Hwang, 2009). Channel variety was further defined as the information that individuals obtain through the communication channel of online-community (Xiang & Gretzel, 2010). Smith et al. (2007) claimed that the Internet was a large online community with various members and users, which could give more diversification. Despite some of the disadvantages of eWOM, Aarsal et al. (2010) insisted that the channel variety of eWOM provided more credibility for the decision maker, even though the senses of more information did not always equal reliability. Finally, message retention referred to the extent to access or re-access to the information (Steffes & Burgee, 2008). eWOM messages could be stored and provided to a broader audience convenience accessibility (Smith et al., 2007). It was straightforward for information searchers to access the storage and exploited the information all they wanted if the information has not been removed, that is, and also retrievable when the information was needed (Chen & Xie, 2008).

Perceived Risk

Qalati et al. (2021) defined perceived risk as the consumer's comparison to expectations gained and losses. Therefore, the unanticipated consequences can occur from seller and buyer which he or she was not certain, also could lead to undesirable results (Liljander, Polsa, & van Riel, 2009). The risk could be high when a customer tried to purchase unknown products rather than the one that they used to use. That is why when there was risk, involved customers would likely select what suited them the best. Sohn, Lee, and Yoon (2016) argued that perceived risk is a "multidimensional phenomenon" which could be divided into various different risk components. Since there were always some risks involved in the process of shopping, customers would look for various methods to reduce it. Hong and Yi (2012) found that in shopping online, the risks and risk reduction play essential roles in purchase decisions. Taking the above literature, this study aims to conduct an analysis of three critical risk components that is functional risk, social risk and financial risk by Hong and Yi (2012).

Steffes and Burgee (2008) stated that functional risk was the consumer's fear that the product did not live up to its reputation promises and disappointing performance. Erdem and Swait (2004) suggested that the extent of risk perceived in function relied upon experience and search. Inexperienced products gave customers a higher functional risk perception, as they provided more vagueness, therefore, gave more doubt to the product function (Glynn & Chen, 2009). Social risk was defined as the possibility of image or status loss after purchase a particular product (Zielke & Dobbelsstein, 2007). Rimé et al. (2020) explained that customers would believe and purchase more familiar products as they seemed to be safer. On the contrary, customers perceived the unknown products to be unsafe and uncertain, and it could put their social standing at risk. Finally, Zielke and Dobbelsstein (2007) defined financial risk as the possibility of a monetary loss from a poor purchase choice/decision. Shapiro et al. (2019) further explained that financial risk is associated with the purchasing a product or service with an unworthy price. Jaafar, Lalp, and Naba (2012) also mentioned the financial risk of the consumers as when the products are better perceived with a cheaper price. Liljander et al. (2009) agreed that financial risk normally is linked to the perceived price and quality.

Suspicion

Various researchers have pointed out the suspicion on the Internet. Information was not generated by experts, and it often lacked the authorization to indicate the identity of the author or professional establishments (Luca & Zervas, 2016). Furthermore, there were no regulations for online information posting, and that information could be easily compromised, duplicated, misrepresented, or anonymously with false identity. Therefore, Pektas and Hassan (2020) suggested that consumers may be skeptical about the accuracy of the information in digital platform because they were afraid of being deceived.

In addition to advertisements, the reliance on product reviews to make purchase decisions have increased enormously. Many organizations chose to manipulate the online information to increase their sales by posting good reviews or deleting the bad one (Hu et al., 2011). Barbado et al. (2019) found almost half are fake reviews from the internet, and they assumed that consumers were aware the manipulation takes place but they decided to go with their own instinct and define how they saw fit according to themselves instead (Martens & Maalej, 2019). However, Hu et al. (2011) claimed that consumers might not be able to detect those manipulation since the nature of the review was uncertain because if the review was done by previous buyers, it may not be not fake or manipulated. To gain the customer's trust and increase sales, organizations or sellers may manipulate the information on different areas of the internet platforms. The two common manipulating behaviors of organizations include adding the fake positive reviews (Sabnis & Valkanas, 2016) and deleting negative reviews (Zhuang, Cui, & Peng, 2018). Ahluwalia and Burnkrant (2004) suggested that when the manipulators restricted the message contents by adding fake positive reviews it left more trail of manipulative intent, thus inflating stronger suspicion. On the other hand, deleting negative reviews leaved little evidence for information searchers, although less amount or absence of it could still arouse suspicion (Hu et al., 2012).

Moreover, if suspicion of manipulation rose, would the customers reevaluate their decision of the review also remain unexplored. Studies of consumer information processing assumed that the fall short of expectation could lead to suspicion of manipulation, and the communication manner of sellers also assisted consumers to assess the salience of its nature as well (Thompson, 2009).

Purchase Decision

Kim and Gupta (2009) defined purchase decision as the extent of willing to purchase the products online regarding the circumstances considering conveniences and payment methods. Information processing approaches could be used to describe how consumers make purchase decision (Hansen, 2005; Lin et al., 2019; Zhuang et al., 2018). Customers would try to find the information, and evaluate it before selecting an option either to purchase or not. Various research models have been developed to describe this behavior. The purchase decision-making process was constructive and shaped by

the consumer in the context of decision making (Lin et al., 2019). It was therefore different between individuals, decisions, and contexts. Exploring consumer information processing behavior in traditional purchase, which occurred through in-store shopping, had long attracted the attention of researchers (Akpoymare, Adeosun, & Ganiyu, 2012), resulting in comprehensive knowledge of behavior. Basri et al. (2016) found that online consumer purchase behavior, in particular, was a complex phenomenon as it relied heavily on information gathering, evaluation of a significant amount of information, using decision aid systems and making a purchase in a self-service environment.

Hypotheses Development

Customers were usually going through multiple sources to find out more about the product they want to buy or interest (Jin & Phua, 2014). No and Kim (2015) found that there were positive differences between attributes and information sources in the context of tourism; while Schleenbecker and Hamm (2013) found that product information sources had positive effects on product characteristics in-term of marketing. Furthermore, researchers also concerned the relationship between product characteristics and eWOM so far. Previous studies augured that the characteristics of the product (i.e., the subject of eWOM communications) would influence how consumers receive and analyze the eWOM content (Jeon & Park, 2003; Park & Lee 2009). Kuan, Yang, and Cheng (2005) further discovered that eWOM would be either increase or weaken by services and quality of products that customers found commendable or outrageous, it merely meand that the relationship between eWOM and product characteristics depended on how the customer perceived to the product to be. Akpoymare et al. (2012) also found that in order to influence the purchase decision, customer must depend on the perception of product attributes. Therefore, this study proposes:

H1: product characteristics positively affect information sources.

H2: product characteristics positively affect eWOM.

Goodrich and De Mooij (2014) implied that the use of information sources that impact the online purchase decision varied across cultures. No and Kim (2015) supported the previous study by describing that before making a purchase, people would research a lot of information about the product first. Shankar et al. (2016) also confirmed this theory by finding product information that triggered the consumers' interests and purchase. In addition, Goodrich and De Mooij (2014) asserted that eWOM as an internet channel, could deliver the original and influential suggestion to the consumer's product decision. A lot of people would go to the internet to search for the product they wanted to buy and asked for suggestions and the eWOM assists those people in making their decision. Munir et al. (2018) suggested that eWOM had a positive impact on purchase decisions but through social media. Instead of trying to test for themselves first they would try to see how the others who experienced the product had to say (Tanimoto & Fujii, 2003).

Pektas and Hassan (2020) stated that the sharing of personal experience and recommendation would serve as the critical source for other people to determine to buy the products or not. Dai et al. (2019) further explained that the use of review even was more essential for experiential purchases with intangible products. Finally, Basri et al. (2016) solidified the theory by finding that eWOM was an essential resource for a potential purchaser. Therefore, this study proposes:

H3: information sources positively affect purchase decisions.

H4: eWOM positively affects purchase decisions.

Consumers would buy the same brand as a safe means of avoiding risk or loss (Chen & Xie, 2008). Bhukya and Singh (2015) suggested that the perceived risks had negative effects on consumers' intention to purchase, while Beneke et al. (2012) found that only some risks could affect the purchase

decision. Also supporting this theory, Glynn and Chen (2009) agreed that perceived risks significantly affected customer purchase decisions dramatically. Chen and Huang (2017) suggested that perceived risk could serve as a moderator in the formation of online purchase decision and its antecedent. Furthermore, Qalati et al. (2021) study witnessed a substantial moderating effect of perceived risk between trust in information and information sources and online purchase intention. Previous studies had suggested that the perceived risk can impact the purchase decision significantly but regarding the informational perceived risk still needed to be tested. Therefore, this hypothesis proposes:

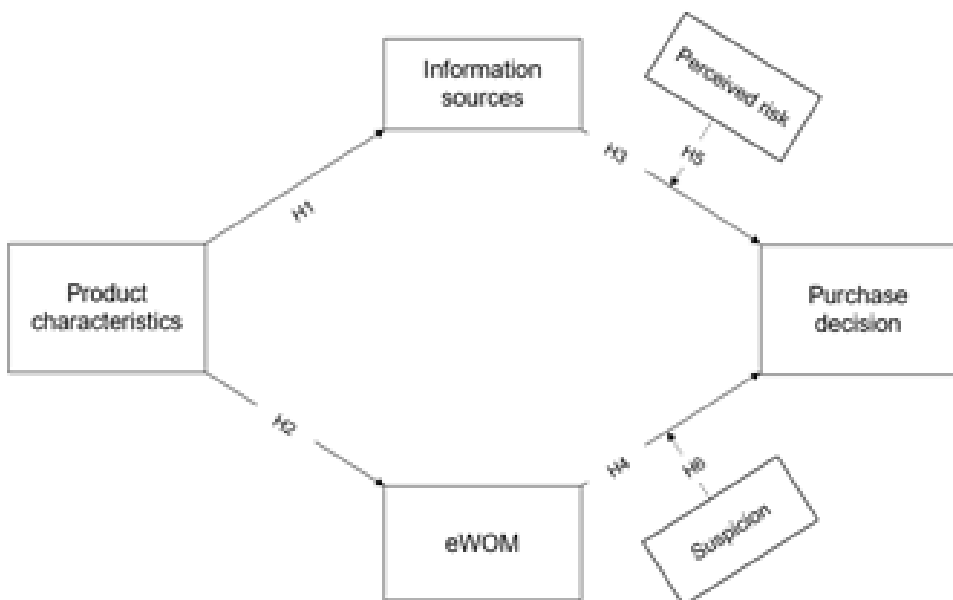
H5: perceived risk moderates the relationship between information sources and purchase decisions.

Hu et al. (2011) stated that many businesses tried to manipulate their prospects and customers may not be able to detect those manipulations, but some rejected those findings. Even though the manipulation occurred the online recommendation was still credible for the consumer (Martens & Maalej, 2019) and for the rival firm, they could take that manipulation information to their advantage to improve their own product. Previous studies suggested if the fake reviews from eWOM would raise suspicion, and thus compromised the actual positive effect of eWOM (Zhao & Zhang, 2020). As a result, consumers tended to disengage from the intention to purchase the products. Pektas and Hassan (2020) also confirmed the moderating effect of consumers' suspicion on the relationship of eWOM communication and intention to purchase. Taking it into account of the suspicion of the customer to manipulation and how it affects the purchase decision is still questionable. Therefore, this hypothesis proposes:

H6: suspicion moderates the relationship between information sources and purchase decisions.

Based on the results of the literature review, this study developed a research framework, as shown in Figure 1.

Figure 1. Research framework



RESEARCH METHODOLOGY

The Measurement of Research Constructs

To test the hypotheses, six research constructs and demography of respondents were employed from the literature review. All items were measured by a 7-point Likert scale, from 1 = strongly disagree to 7 = strongly agree. The questionnaire was made in English and translated into Vietnamese for respondents' convenience. The product characteristic construct was measured by six items from Haque et al. (2009). The information source construct was measured by seven items from Ghuman and Mann (2015). The eWOM construct was measured by eight items from Tham et al. (2013). The Purchase decision construct was measured by seven items from Kim and Gupta (2009).

This study also identified perceived risk and suspicion as two moderators that could moderate the influences of information sources and eWOM on purchase decisions. To measure perceived risk, this study included 4 items of functional risk, 5 items of social risk, and 5 items of financial risk modified from Pachrapha and Ractham (2012). To measure suspicion, this study included 4 items of adding positive review and 5 items of deleting negative review modified from Zhuang et al. (2018).

Questionnaire Sampling

The questionnaire was pretested in a pilot study that included Marketing master students from a university in Vietnam as participants. Based on suggestions and recommendations of the master students, the questionnaire items were rephrased and put on the final version of the questionnaire.

In the official test, data were collected from a convenience sample of employed individuals from five universities in Vietnam. Over a three-month period, the respondents were contacted via an email and text-based messenger invitation and a web-based questionnaire. Of the 341 questionnaires returned, 12 were eliminated due to unrealistic data and 17 were eliminated due to the respondents never participating in online shopping. More than 47% of the respondents were female; about 78.85% respondents were less than 30 years of age; and almost half of respondents reported earning less than 400USD per month. About half of the respondents obtained a Bachelor degree. Finally, 33.33% of respondents conduct online shopping 2-5 times per month, followed by 25.96% conduct shopping online from 6-10 times per month. The characteristics of the respondents are shown in Table 1.

Data Analysis

Data analysis procedure included the factor analysis, confirmatory factor analysis (CFA) and Partial Least Squares based structure equation modelling method (PLS-SEM). To verify the dimensionality and reliability of the research, several analysis processes were conducted, including factor loading, Eigenvalue, accumulated explained variance, item-to-total correlation, coefficient alpha (α). Hair et al. (2011) suggested that the factor in the assessment must fulfill the following criteria: factor loading >0.6 ; Eigenvalue >1 , accumulated explained variance >0.6 , Item-to-total correlation >0.5 , and coefficient alpha(α) >0.7 . All the research items passed the requirement can be used for further analysis.

RESULTS AND FINDINGS

Evaluation of the Measurement Model

This study employed PLS-SEM to analyze interrelationships between observed and latent variables. Following Hair et al. (2011), this study checked several criteria to measure the reliability and validity of the measurement model, including AVE should be greater than 0.5; CR must be higher than 0.6; and the Cronbach's alpha coefficient which should be greater than 0.7. As shown in Table 2, The AVEs of the construct range from 0.598 to 0.805, which demonstrate a satisfactory reliability and convergent validity of the research constructs. The Cronbach's alpha coefficients range from 0.697

Table 1. The demographic of respondents

Demographic Variables		Frequency (n=312)	Percent
Gender	Male	145	46.47
	Female	167	53.53
Age	Under 22	67	21.48
	22 to 30	179	57.37
	31 to 40	45	14.42
	over 40	21	6.73
Education	High school	97	31.09
	Bachelor degree	156	50.00
	Post graduate degree	59	18.91
Income	Below \$200	56	17.95
	From \$200 to \$400	95	30.45
	From \$401 to \$600	106	33.97
	From \$601 to \$800	23	7.37
	Over \$800	32	10.26
Online shopping frequencies	Rarely	21	6.73
	Once a month	56	17.95
	2-5 times a month	104	33.33
	6-10 times a month	81	25.96
	More than 10 times a month	50	16.03

to 0.881, and confirm the internal consistency of the measurement items. The CR coefficients are ranged from 0.662 to 0.812, which shows that the variance shared by the respective indicators is robust. Furthermore, coefficient of determination (R^2) measures the amount of explained variance of each endogenous latent. R^2 for the three latent variables are as follows: 0.419 for information source, 0.552 for eWOM, and 0.612 for purchase decision which are considered moderate. Based on the above discussions, it is concluded that the reliability and convergent validity of the research model are appropriate, which enabled the author to proceed to an evaluation of the structural model.

Evaluation of the Structural Model: Hypothesis Testing

Using a sample of 392 participants, a non-parametric bootstrapping procedure was performed with PLS-SEM with 5,000 sub-samples to obtain the statistical significance of each path coefficient for hypothesis testing. As shown in Table 3, product characteristics are shown to have a positive and significant influence on information sources ($\beta=0.434$, $t\text{-value}=9.324$) and eWOM ($\beta=0.306$, $t\text{-value}=3.124$), thus supporting H1 and H2. The result also shows the positive and significant relationship on information sources and purchase decisions ($\beta=0.643$, $t\text{-value}=14.694$) and supports H3. Finally, eWOM is found to have a positive and significant impact on purchase decisions ($\beta=0.341$, $t\text{-value}=5.453$) and supports H4.

Table 2. Reliability test and internal consistency

Construct	Average Variance Extracted	Composite Reliability	Cronbach's Alpha	Coefficient of Determination
Product characteristics	0.805	0.810	0.881	—
Information source	0.668	0.812	0.697	0.419
eWOM	0.745	0.754	0.745	0.552
Purchase decision	0.612	0.695	0.875	0.612
Perceived risk	0.598	0.662	0.765	—
Suspicion	0.639	0.768	0.785	—

The Moderating Effects of Perceived Risk and Suspicion

In order to test the moderating role of both two factors, this research uses Hierarchy regression analysis on the SPSS tool to conduct data analysis. Furthermore, this research is based on Baron and Kenny's process (1986) to test the role of moderator variables by adding independent variables, moderating variables, and interactive effect variables (independent \times moderating variable).

Table 4 shows the moderating role results of perceived risk on the relationship between information sources and purchase decisions. The result proves that in Model 1, information sources ($\beta=0.665$, $p<0.001$) positively and significantly affect purchase decisions. Model 2 shows that perceived risk ($\beta=0.438$, $p<0.001$) positively and significantly affect purchase decisions. Model 3 displays that information sources ($\beta=0.418$, $p<0.001$) and perceived risk ($\beta=0.518$, $p<0.001$) positively and significantly affect purchase decisions. Model 4 indicates that the interaction effect of information sources and perceived risk ($\beta=0.672$, $p<0.001$) positively and significantly affect revisit intention. Besides that, the values of D.W range from 1.5 to 2.5, while VIF is smaller than 2. Therefore, the regression line is linear and there is no autocorrelation and multicollinearity phenomenon. Based on these results above, the moderating role of perceived risk is supported.

To further understand the moderating effect, this study adopted the method of Aiken and West (1991), to set the moderating effects of low and high perceived risk on a low (1)/high (2) median as a benchmark. Figure 2 shows that both information sources and perceived risk have a positive effect on purchase decisions and as such the purchase decision will increase with an increase in perceived risk. However, compared with low information sources, those with high information sources enjoy less growth in the purchase decision with an increase in low perceived risk. The implication being that a low perceived risk has a stronger impact on purchase decisions than high perceived risk.

Note: IS = information sources, RP = perceived risk

Similarly, the same method was applied to test the moderating effect of suspicion. Table 5 shows the moderating role results of suspicion on the relationship between information sources and purchase decisions. The result proves that in Model 1, information sources ($\beta=0.665$, $p<0.001$)

Table 3. Evaluation of structural model and hypothesis testing

Hypo.	Path	Standardize Estimate	t-value
H1	Product characteristics @ Information sources	0.434	9.324***
H2	Product characteristics @ eWOM	0.306	3.124***
H3	Information sources @ Purchase decision	0.643	14.694***
H4	eWOM @ Purchase decision	0.341	5.453***

Table 4. The moderating role of perceived risk

Independent Variable	Dependent Variable Purchase Decision			
	Model 1	Model 2	Model 3	Model 4
	(β)	(β)	(β)	(β)
Information sources	0.665***		0.418***	0.425***
Perceived risk		0.438***	0.518***	0.306***
Information sources * Perceived risk				.672***
R ²	0.652	0.518	0.586	0.696
Adj-R ²	0.650	0.517	0.584	0.693
F-value	45.519	54.323	64.290	81.321
D-W	1.117	1.268	1.225	1.326
VIF Range	1	1	1.216	1.143

Source: Original study.

positively and significantly affect purchase decisions. Model 2 shows that perceived risk ($\beta=0.438$, $p<0.001$) positively and significantly affect purchase decisions. Model 3 displays that information sources ($\beta=0.418$, $p<0.001$) and perceived risk ($\beta=0.518$, $p<0.001$) positively and significantly affect purchase decisions. Model 4 indicates that the interaction effect of information sources and perceived risk ($\beta=0.672$, $p<0.001$) positively and significantly affect to revisit intention. Besides that, the values of D.W range from 1.5 to 2.5, while VIF is smaller than 2. Therefore, the regression line is linear and there is no autocorrelation and multicollinearity phenomenon. Based on these results above, the moderating role of perceived risk is supported.

Figure 3 further shows that both eWOM and suspicion have a positive effect on purchase decisions and as such the purchase decision will increase with an increase in suspicion. However, compared with low eWOM, those with high eWOM enjoy less growth in the purchase decision with an increase in low suspicion. The implication being that a low suspicion has a stronger impact on purchase decisions than high suspicion.

Figure 2. Moderating effect of perceived risk

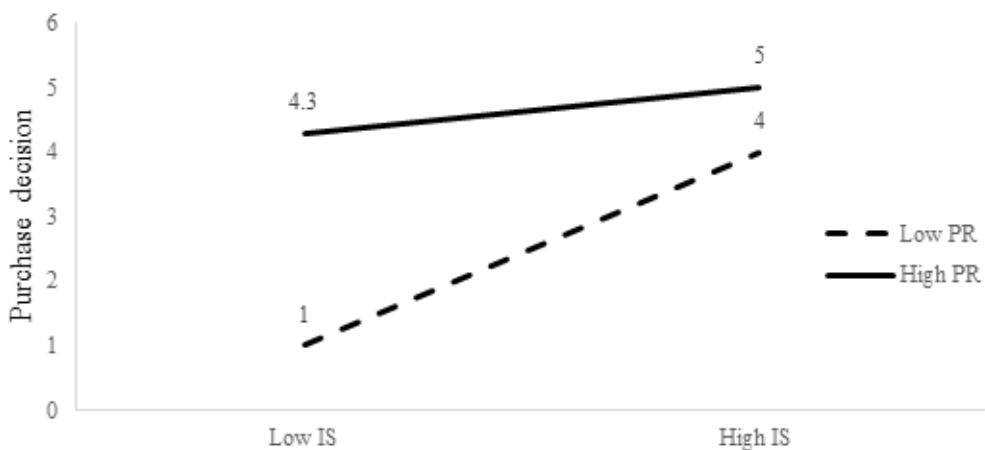


Table 5. The moderating role of suspicion

Independent Variable	Dependent Variable Purchase Decision			
	Model 1	Model 2	Model 3	Model 4
	(β)	(β)	(β)	(β)
eWOM	0.395***		0.357***	0.331***
Suspicion		0.317***	0.623***	0.398***
eWOM * Suspicion				0.579***
R ²	0.574	0.422	0.609	0.583
Adj-R ²	0.572	0.421	0.607	0.580
F-value	51.654	46.781	71.439	69.842
D-W	1.234	1.381	1.309	1.416
VIF Range	1	1	1.195	1.255

Source: Original study.

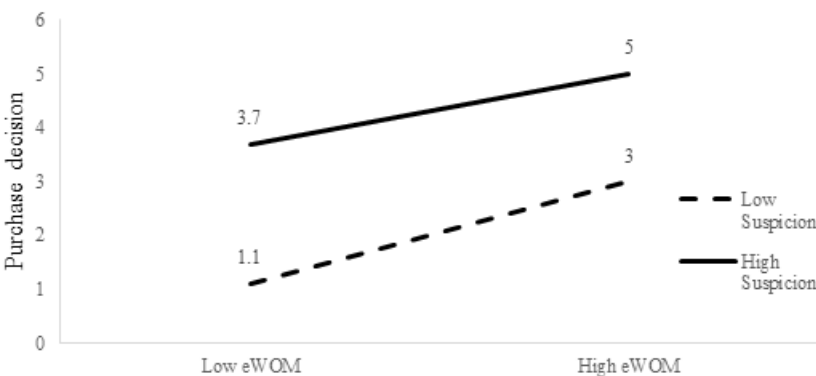
CONCLUSIONS AND SUGGESTIONS

Conclusion

The main objective of this study is to provide a comprehensive model that explains the influences of product characteristics, information sources and eWOM on purchase decisions. According to the results, a number of conclusions have been drawn from the study. This study found that product characteristics significantly impact information sources, which is in line with previous study results of Schleenbecker and Hamm (2013); Jin and Phua (2014); No and Kim (2015). When online shoppers look for a particular product, they will try to obtain as much information as possible from different sources. Akpoyomare et al. (2012) also concluded that product characteristics significantly associated with electronic word of mouth, the same result as this study. It indicates that the results of this study are congruent with the results of previous studies, that the more the potential buyer sees that the product is good and better than others the more they want to share that information on the internet (Park & Lee 2009).

Moreover, this study also found information sources to impact the purchase decision. Shankar et al. (2016) also support this finding by confirming product information as the trigger of the consumers'

Figure 3. Moderating effect of suspicion



interests and purchase, which means the more customers obtain information regarding the product, the more likely they will make a purchase decision. In addition, this study proved that eWOM significantly affects purchase decisions, which also has been supported by Munir et al. (2018). It's indicated that the higher the influence from that information from the internet the higher their decision to buy the product will be (Pektas and Hassan (2020).

This study also aims to investigate the moderating effects of perceived risk and suspicion on the relationship information sources, eWOM, and purchase decision. The results of this study revealed that perceived risk positively moderates on the relationship between information sources and purchase decisions. The previous finding of Erdem and Swait (2004); Glynn and Chen (2009); Beneke et al. (2012) also supported this finding. The result indicates that when online shoppers take information sources into consideration, perceived risk plays a vital role in influencing purchase decisions. The results of this study also demonstrate that suspicion had a moderation effect on the relationship between electronic word of mouth and purchase decision. The previous finding of Martens and Maalej (2019) also supported this finding. The result shows that when online shoppers take electronic word of mouth into consideration, suspicion can influence purchase decisions greatly.

Research Discussion and Implication

This study aimed to investigate the impact of other variables on purchase decisions. The significance among product characteristics, information sources and purchase decisions which has been proven in the upper section can reveal some meaningful things when practicing e-commerce. Product characteristics directly affect information sources and purchase decisions. In the other words, if an online shopper gets a favorable impression of the products, they would go and ask around for more information from different sources regarding the product, then it would enhance their possibility to purchase the product depending on the impression they got from the product and due to the information obtained. Customers usually go through multiple sources to find out more about the product they want to buy or are interested in. Customers are reported to rely on information sources to consider making the purchase online. This study provides another contribution to e-commerce literature as it confirms the significant relationship among eWOM, product characteristics, and purchase decision. Product characteristics directly affect electronic word of mouth and purchase decisions. As a matter of fact, online shoppers would still seek for more recommendations and suggestions from other people regarding the product even when they see that the product is goods before purchase. Particularly, customers seem to believe eWOM more because they are reliable. The two main focus of moderation contribution to e-commerce in this study is the significant finding among information sources, perceived risk, purchase decision and the significant finding among electronic word of mouth, suspicion, purchase decision. The first one shows that there is a significant effect of perceived risk on the relationship between information sources and purchase decisions. From the result, it illustrated that even when online shoppers can obtain a lot of information regarding the product but when there are risks involved, they still rethink their decision whether or not to purchase, it's also show that if the level of risks is low it will influence the customers decision to purchase more than high risk, in which, the degree of risks perceived by individual impact directly to the purchase decision. The second result shows that there is a significant effect of suspicion on the relationship between electronic word of mouth and purchase decision. The result reveals that online shopper tends to believe or trust others people or sources from online but when the information somehow arouse their suspicion, they still need to consider whether or not to purchase the product depend on the level of suspicion, if the level of suspicion is low the customer decision to purchase will be affect more than high suspicion. It is suggested that even though the manipulation occurred the online recommendation is still credible for the consumer.

Research Limitation and Future Research Suggestion

This study has several limitations. Firstly, the sample size consists of university students which can't generalize the result. The convenience sampling method is another limitation of this study. Sample size is 312 which is also a small number. Hence, the further study should be done with a larger size and different sample group in order to increase representation of all generational groups. Researchers also can choose another sampling method such as questionnaire or on-site survey to gain more perspective from the respondents. Second, since purchase decisions involve a lot of factors, some factors did not include in this study, such as: product features, advertising, etc., which can be considered as potential factors influencing customer's purchase decision. Future studies should consider analyzing the effects of other factors to have a multi-dimensional perspective. Third, the model of this study did not examine the influence of demographic factors as the observational variable of the model. This leads to a lack of diversity in the research model, thus future studies may consider investigating the demographic factors into the research model to examine their impact on purchase decisions.

FUNDING AGENCY

The publisher has waived the Open Access Processing fee for this article.

ACKNOWLEDGE

This research is funded by University of Economics Ho Chi Minh City' Vietnam.

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