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Understanding online shopping adoption: The unified theory of acceptance and the use of technology with perceived risk in millennial consumers context

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ABSTRACT

Online shopping is growing so rapidly and has attracted millennials in various way. Unfortunately, the discussion regarding the adoption of online shopping in millennial consumers' context with perceived risk application was still limited. Therefore, the purpose of this study was to investigate the effect of performance expectancy, expectation efforts, social influence, facilitation conditions, hedonic motivation, price value, habits, and perceived risks on behavioral intentions and use behavior. This study also discusses the effect of perceived risks on financial risk, performance risk, and privacy risk. This study can be classified as explanatory research with purposive sampling and partial least square as sampling techniques and data analysis. This study was designed to focus on individuals who can be classified as an online shopper with a range of age of 18-35 years old. The results show that the millennial generation is influenced by the social environment and habits in shaping their behavioral intention. Millennial consumers are also proving very concerned about their perceived risk of financial, performance, and privacy issues when doing online shopping. Interestingly, six of the factors studied (performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, price value, and perceived risk) do not have any influence on the intention to use online commerce technology.

Keywords: UTAUT 2; Perceived Risk; Online Shopping; Adoption; Behavioral Intention; Use Behavior

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Introduction

The availability of the internet on computers and mobile devices is increasing the growth of e-commerce markets throughout the world. Consumers can more easily access various products from several vendors at any time by shopping online (Hurtado et al., 2019). Today's internet users in Indonesia are mostly carried out by millennials. Millennial consumers are an important issue in the development of the digital world and social media is a communication space for this generation (Khechine et al., 2020). This condition underlies the selection of millennial consumers as the object of this research in adopting e-commerce using the Unified Theory of Acceptance method and Use of Technology in Consumer Context (UTAUT2). UTAUT2 is the development of the UTAUT model concept (Venkatesh et al., 2012). UTAUT2 illustrates how consumers adapt to technology. Millennial consumers also concerned about risk perception in deciding whether they should purchase online or not (Wang & Herrando, 2019). Lestari (2019) and Amrullah & Priyono (2018) even added that perceived risks have a positive effect on attitudes and intentions to adopt e-commerce. Previous research has provided limited understanding regarding the adoption of online shopping in millennial consumers' context with perceived risk application. Therefore, the purpose of this study was to investigate the effect of performance expectancy, expectation efforts, social influence, facilitation conditions, hedonic motivation, price value, habits, and perceived risks on behavioral intentions and use behavior. This study also discusses the effect of perceived risks on financial risk, performance risk, and privacy risk.

Literature Review

Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT has been widely used models to predict behavioral intention. Celik (2016) stated that the UTAUT model proved a robust and valid model in the online shopping context which means that the model can be used to explain the degree of purchase intention and actual purchase. Cimperman et al. (2016) defined UTAUT as "a measure of the strength of one's intention to perform a specified behavior." The UTAUT model argues that an individual adoption on new technology mainly influenced by four factors which is performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Most studied about UTAUT was focus only on a subset of the model (Venkatesh et al., 2012) and not have utilized moderators like age, experience, and gender because it may not be any variation in the moderator for the adoption (Dwivedi et al., 2019).

Madigan et al, (2016) defined performance expectancy (PE) as the degree of individual belief that using technology (internet) will help him or her to attain gains in their shopping activities. Consumers perceived that using the internet for shopping will provide benefits and help them saving time, money, effort, and gain service effectiveness (Venkatesh et al., 2012). Effort expectancy (EE) defined as the level of convenience associated with internet usage (Liu et al., 2018). It means that if consumers found that the use of the internet for online shopping is easy and does not require any effort, the possibility of online shopping adoption will be higher. Previous studies from Venkatesh et al. (2012), Kabra et al. (2017), Jewer (2018) found that there is a significant relationship between performance expectancy and effort expectancy on behavioral intention. Therefore, the proposed hypotheses in this study can be described as follow.

H_1: Performance expectancy (PE) significantly affect behavioral intention (BI)

H_2: Effort expectancy (EE) significantly affect behavioral intention (BI)

Venkatesh et al. (2012) defined social influence (SI) as the effect of environmental factors such as the opinions of relatives, friends, and superiors on user behavior with subjective norms. (Tarhini et al., 2016) added that social influences may refer to the social pressure from the external environment which may affect their perceptions and behaviors of engaging in specific actions. Therefore, when they perceived online shopping positively, it can encourage consumers to adopt the use of the internet for online shopping. (Venkatesh et al., 2003) has been defined facilitating conditions (FC) as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" including knowledge, capabilities, and consumer resources (Venkatesh et al., 2012). If internet infrastructure and knowledge that needed in using the internet available, also there is support from social for using the internet, the intended behavior to adopt the internet for online shopping will be increased. Previous studies from Venkatesh et al. (2003), Diño & de Guzman (2015) concluded that there is a significant relationship between social influences and facilitating conditions on behavioral intention. Facilitating conditions also prove significantly affects actual usage behavior (Zuiderwijk et al., 2015).

H_3: Social influence (SI) significantly affect behavioral intention (BI)

H_{4a}: Facilitating condition (FC) significantly affect behavioral intention (BI)

H_{4b}: Facilitating condition (FC) significantly affect use behavior (UB)

Behavioral intention (BI) reflects the extent to which customers are likely to use technology (Venkatesh et al., 2012). Behavior intention is the most powerful determining factor in individual behavior towards technology acceptance (Alalwan et al., 2018).

H_5: Behavioral intention (BI) significantly affect use behavior (UB)

Hedonic Motivation, Price Value, and Habit

Venkatesh et al. (2012) and Tak & Panwar (2017) stated that to be more adaptive to consumer use framework, the original UTAUT model has been extended to UTAUT 2 which added three new constructs namely hedonic motivation, price value, and habit. While hedonic motivation (HM) defined as s the "fun or pleasure derived from using a technology" by (Venkatesh et al., 2012). Price value (PV) and habit (H) can be defined as "consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost for using them" and s "the extent to which people tend to perform behaviors automatically because of learning" (Herrero et al., 2017). Previous studies from (Alalwan et al., 2017), (Herrero et al., 2017), and (Wong et al., 2020) found that behavioral intention was significantly influenced by hedonic motivation, price value, and habit. Not only influences behavioral intentions, (Gupta & Dogra, 2017) also found the significant contribution of habit on actual usage behavior.

H_6: Hedonic motivation (HM) significantly affect behavioral intention (BI)

H_7: Price value (PV) significantly affect behavioral intention (BI)

H_{8a}: Habit (H) significantly affect behavioral intention (BI)

H_{8b}: Habit (H) significantly affect use behavior (UB)

Perceived Risk

Farivar et al. (2018) defined perceived risk as users' beliefs about potential negative consequences or the uncertainty of outcome or consequences (Buehler & Maas, 2018) of an online transaction with a specific website. Featherman & Pavlou (2003) added that perceived risk plays an important role as an inhibitor online purchase decision. A study from (Indiani et al., 2015) and (Zulfikar & Mayvita, 2018) even concluded that perceived risk has a stronger impact on an actual purchase than trust. Perceived risk itself can be divided into three categories namely financial risk, performance risk, and privacy risk. While financial risk (FR) is a potential monetary loss that will be experienced by consumers when shopping online (Salam et al., 2003). Han & Kim (2017) defined performance risk (PFMR) as the risk caused by electronic services (shopping websites) whose performance does not meet consumer expectations. Warkentin et al. (2002) added that privacy risk (PVR) can be defined as the expected losses control of their personal information that caused by their online shopping activities or identity theft (Han & Kim, 2017). These three risks that are felt by consumers are

second-order factors that influence the intention to use the internet to shop online. Thus, the lower degree of perceived risk will impact the higher possibility of the adoption of online shopping (Choi et al., 2013; Tingchi Liu et al., 2013).

H_{9a}: There is a significant influence of perceived risk (PR) on financial risk (FR)

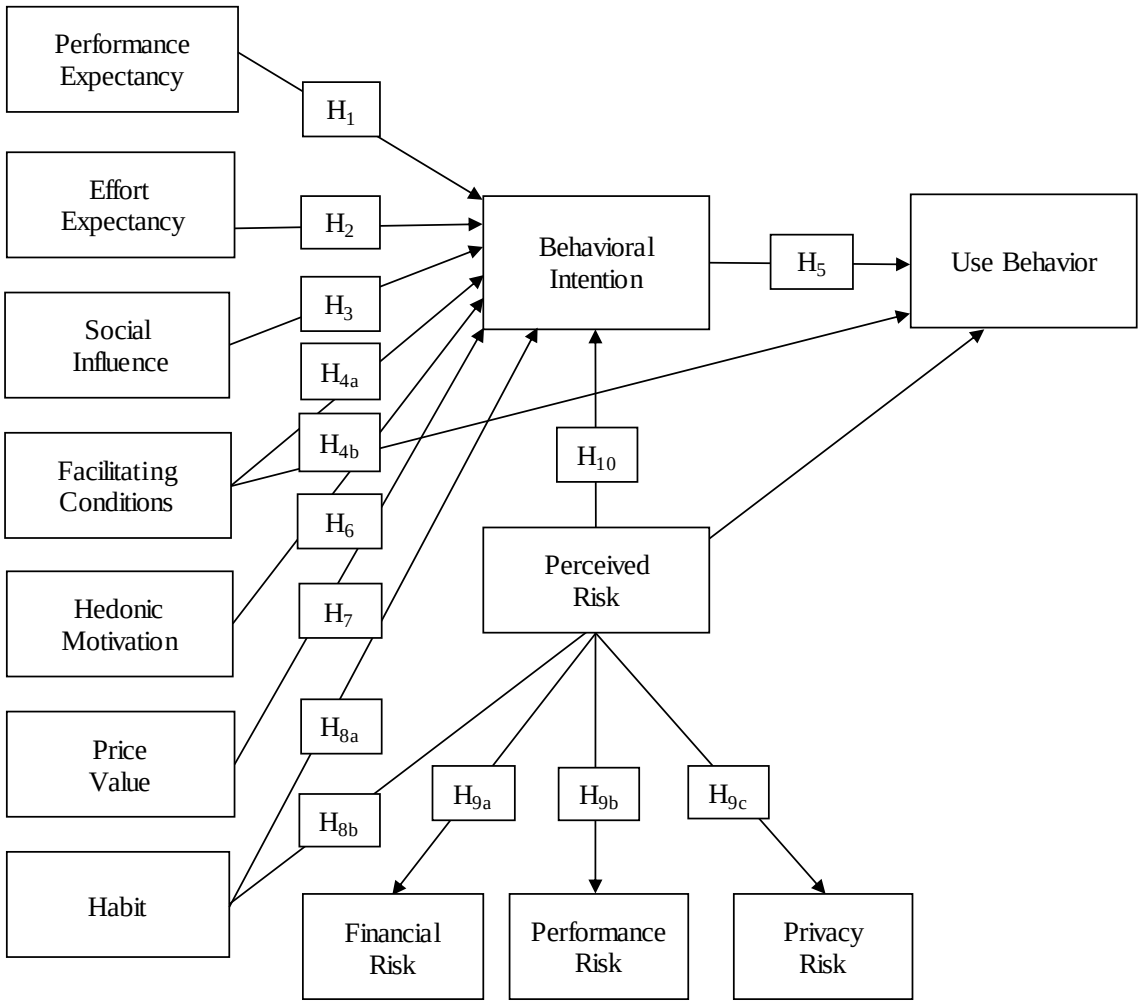
H_{9b}: There is a significant influence of perceived risk (PR) on performance risk (PFMR)

H_{9c}: There is a significant influence of perceived risk (PR) on privacy risk (PVR)

H_{10}: There is a significant influence of perceived risk (PR) on behavioral intention (BI)

Methods

Figure 1. Research Framework



This study can be classified as explanatory research. Purposive sampling and partial least square used as sampling techniques and data analysis. This study was designed to focus on individuals who can be classified as an online shopper with a range of age of 18-35 years old. The rules for taking a minimum number of samples in PLS-SEM are two conditions; the first is based on ten times the number of formative indicators and secondly, it is based on ten

times the number of lines (paths) connecting each latent variable in the study (Helm, 2005). Therefore, the number of collected samples in this study were 150 samples.

Table 1. Validity and Reliability Test

Variable	Outer Loadings	Composite Reliability	AVE	Variable	Outer Loadings	Composite Reliability	AVE
PE1	0.827			PR1	0.791	0.911	0.596
PE2	0.826	0.875	0.700	PR2	0.878		
PE3	0.857			PR3	0.910		
EE1	0.892			PFMR1	0.828	0.892	0.734
EE2	0.930	0.941	0.841	PFMR2	0.856		
EE3	0.928			PFMR3	0.885		
SI1	0.851			FR1	0.832	0.815	0.688
SI2	0.911	0.915	0.782	FR2	0.826		
SI3	0.890			PVR1	0.899	0.934	0.826
FC1	0.839			PVR2	0.945		
FC2	0.893	0.899	0.748	PVR3	0.881		
FC3	0.862			BI1	0.807	0.908	0.711
HM1	0.936			BI2	0.863		
HM2	0.909	0.940	0.840	BI3	0.877		
HM3	0.904			BI4	0.824		
PV1	0.902			UB1	0.896	0.925	0.805
PV2	0.869	0.916	0.784	UB2	0.886		
PV3	0.885			UB3	0.909		
H1	0.874						
H2	0.917	0.928	0.812				
H3	0.912						

This study used Venkatesh et al. (2012) and Featherman & Pavlou (2003) items to measures each latent variable (Appendix 1a, 1b). Model measurements are used to evaluate data in determining the validity and reliability of data. The construct relationship with each indicator of this study is a reflective measurement model. In the measurement of reflective models, there are two tests of validity, namely convergent validity testing and discriminant validity testing (Primanto, 2019). Test of convergent validity in the evaluation of the

measurement model is obtained through the factor loading (outer loadings), composite reliability that should greater than 0.700, and the minimum value of average variance extracted (AVE) parameter that should reach 0.500. Table 1 shows that the model is valid and reliable due to the value of outer loading and composite reliability that greater than 0.70 with the result of AVE is above the existing standard.

Result and Discussion

Table 2. Partial Least Square Result

Correlation	P-Value	t-Value	t-Statistic	Result	Decision
PE -> BI	0.971	0.036	1.976	t-Value < t-Statistic	H_1 Rejected
EE -> BI	0.317	1.004	1.976	t-Value < t-Statistic	H_2 Rejected
SI -> BI	0.043	2.045	1.976	t-Value > t-Statistic	H_3 Accepted
FC -> BI	0.332	0.974	1.976	t-Value < t-Statistic	H_{4a} Rejected
FC-> UB	0.034	2.141	1.976	t-Value > t-Statistic	H_{4b} Accepted
BI -> UB	0.000	5.157	1.976	t-Value > t-Statistic	H_5 Accepted
HM -> BI	0.377	0.886	1.976	t-Value < t-Statistic	H_6 Rejected
PV -> BI	0.078	1.773	1.976	t-Value < t-Statistic	H_7 Rejected
H -> BI	0.000	8.626	1.976	t-Value > t-Statistic	H_{8a} Accepted
H-> UB	0.018	2.388	1.976	t-Value > t-Statistic	H_{8b} Accepted
PR -> FR	0.000	29.167	1.976	t-Value > t-Statistic	H_{9a} Accepted
PR -> PFMR	0.000	18.672	1.976	t-Value > t-Statistic	H_{9b} Accepted
PR -> PVR	0.000	61.547	1.976	t-Value > t-Statistic	H_{9c} Accepted
PR -> BI	0.146	1.460	1.976	t-Value < t-Statistic	H_{10} Rejected

This study proved the direct relationship of the proposed hypotheses of H_3, H_{4b}, H_5, H_{8a}, H_{8b}, H_{9a}, H_{9b}, H_{9c}. The t-value of that direct relationship was greater than t-statistic which means that all the proposed hypotheses mentioned above were accepted. This study supports a part of the conclusion of previous studies from Venkatesh et al. (2003), Venkatesh et al. (2012), Diño & de Guzman (2015), Kabra et al. (2017), Jewer (2018) who stated there is a significant relationship between social influences, and behavioral intention (adopting online shopping). This study also successfully prove Gupta & Dogra (2017) and Alalwan et al. (2018) argument that stated that there is a significant relationship between habit, behavioral intention, and use behavior. Similar to the result of Kim & Zhang (2016), Choi et al. (2013) and Tingchi Liu et al. (2013) study, financial risk, performance risk, and privacy risk

significantly proved to affect perceived risk in this study. Our study revealed that respondents in this study were largely influenced by the endorsement of their peer group (family and friend) in deciding whether they should try online shopping or not. They also have all technology and human resources (like mobile devices, internet, know-how to utilize the internet, also supportive peer groups) which make them more confident to make an actual purchase (not only limited on behavioral intention) through the online channel. The majority of respondents in this study also can be classified as tech-savvy, a technology geek that familiar with the use of the internet and always up-to-date with the technology they use (Narasuman et al., 2011). Therefore, as the usage of the internet become a habit on the millennial generation, it appears that habit will automatically guide future behavior in using the internet to purchase products. Ouellette & Wood (1998) concluded that there is a significant direct effect between past behavior and intention on future behavior. Millennial customers also prove very concerned about their perceived risk of financial, performance, and privacy issues when doing online shopping in this study.

Meanwhile, this study failed to prove the direct relationship of the proposed hypotheses of H_1, H_2, H_{4a}, H_6, H_7, H_{10}. The t-value of that direct relationship was lower than t-statistic which means that all the proposed hypotheses mentioned above were rejected. Although this study failed to supports the conclusion of previous studies from Venkatesh et al. (2003), Venkatesh et al. (2012), Diño & de Guzman (2015), Kabra et al. (2017), Jewer (2018), the result of this study is similar with Siddique (2012), Jambulingam (2013), Sahu & Singh (2017), Herrero et al. (2017), Somba et al. (2018) finding which concluded that performance expectancy, effort expectancy, facilitating conditions, hedonic motivations, and price value had no significant effect on behavioral intention. Nowadays, millennial believes that the internet is easy to access and provide a better experience. Thus, completing an online transaction is no longer becoming an issue in online commerce (Yu & Chen, 2018). As a result of that, performance expectancy, effort expectancy, and facilitating conditions is no longer a determining factor that would influence behavioral intention as it used to.

This study also concluded that the adoption and the use of technology (online commerce) were not influenced by hedonic motivation and price value. Pham et al. (2018) and Kapferer et al. (2014) argue that an individual with hedonic personality will tend to see the pleasure, joyfulness, luxurious, and exclusive experiences that brand offers first. They are not looking for a new technology of online shopping that affordable only, they are looking for technology that can give them pleasures, exclusivity, and enhances their satisfaction. Octaviani &

Gunawan (2018) and Octarina et al. (2019) added that the high level of risk perceptions that consumers feel does not affect the intention of consumers to buy a product online which means that perceived risk had no significant effect on behavioral intention. (Primanto et al. (2018) argues that the good reputation of the online marketplace is enough to make consumer believes in making a purchase decision. Therefore, consumers perceived risk will be lower when the marketplace vendor is more well-know.

Conclusion and Suggestion

The results of this study indicate that the millennial generation is influenced by the social environment and habits in shaping their behavioral intention. It means that respondents in this study were largely influenced by the endorsement of their peer group (family and friend) and as the usage of the internet becomes a habit on the millennial generation, it appears that habit will automatically guide future behavior in using the internet to purchase products. Millennial consumers are also proving very concerned about their perceived risk of financial, performance, and privacy issues when doing online shopping. They also believe that the internet is easy to access and provide a better experience. Therefore, performance expectancy, effort expectancy, and facilitating conditions are no longer a determining factor that would influence behavioral intention as it used to. Regarding the absence effect of hedonic motivation, price value, perceived risk on the adoption and the use of online commerce technology it indicates that they are looking for online commerce technology that can give them measurement, exclusivity, and enhances their satisfaction not just affordable. They also believe that the well-known reputation of an online marketplace is enough to make them purchasing through online channels.

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Appendix 1a. Questionnaire Items

Variable	Code	Item
Performance Expectancy	PE1	Using Internet for online shopping useful in my daily life.
	PE2	Using the internet to shop online helps me buy products faster
	PE3	Using the internet to shop online increases my productivity
Effort Expectancy	EE1	Online shopping is easy to learn
	EE2	The interaction process of online shopping is easy to understand
	EE3	It is easy for me to use the internet to online shopping
Social Influence	SI1	My best friend recommended to me to shop via internet/online
	SI2	My neighbourhood recommended to me to shop via internet/online.
	SI3	My peers recommended to me to shop via internet/online
Facilitating Condition	FC1	I do have resources which required to online shopping
	FC2	I have enough knowledge to use the internet in online shopping
	FC3	I have a friend or group who is willing to help with online shopping
Hedonic Motivation	HM1	Using the internet for shopping gives me pleasure
	HM2	Using the internet for shopping really entertained me
	HM3	I enjoy shopping using the internet
Price Value	PV1	I think the cost in using the internet for online shopping is affordable
	PV2	I think the cost in using the internet for online shopping is reasonable
	PV3	The costs I incurred to use the internet in shopping are comparable with the benefits that I get
Habit	H1	Using the internet to shop online has become a habit for me
	H2	Using the internet to shop online has become a necessity for me
	H3	If I want a product, I will use the internet for online shopping
Perceived Risk	PR1	Using Internet for shopping is potential fraud.
	PR2	Using Internet for shopping is financial risk.
	PR3	I think using Internet for shopping puts my privacy at risk.
Performance Risk	PFMR1	There would be possibility of system errors when shopping online
	PFMR2	The security system of shopping websites still has weaknesses
	PFMR3	Instability of internet performance could damage my online shopping experience

Appendix 1b. Questionnaire Items

Variable	Code	Item
Financial Risk	FR1	Using the internet to online shopping, is potentially fraudulent
	FR2	Using the internet to online shopping, results in financial losses
Privacy Risk	PVR1	It would be risky to give personal information to shopping website
	PVR2	Personal identity could be inappropriately used by shopping website
	PVR3	There would be high potential for privacy loss when shopping online
Behavioural Intention	BI1	I intended to use the internet for shopping in the near future
	BI2	I want to use the internet in shopping activities regularly
	BI3	I wish to online shopping in my daily life
	BI4	I plan to continue to use the internet to shop continuously
Use Behaviour	UB1	I often use the internet to online shopping
	UB2	Whenever I want to shop, I used the internet to online shopping
	UB3	I always use the internet to online shopping anywhere