Repurchase intention in e-commerce merchants: Practical evidence from college students

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ABSTRACT

The aim of this research is to investigate the repurchase intention of online customers at e-commerce merchants. The study investigates three factors; perceived risk, perceived usefulness, and online trust through collecting samples from 128 college students in the Online Learning program in Jakarta. The analysis technique used is SEM-PLS, with the guidance of the SmartPLS 3.0 program. The results of the study confirm that perceived risk had a negative effect on online trust and repurchase intention. Perceived usefulness has a positive impact on online trust and repurchase intention. Lastly, online trust influences repurchase intention in e-commerce merchants.

1. Introduction

Intention to repurchase by the online customers concerns academics and practitioners since it is considered as a critical success factor in online retailing and affects the cost savings and profits for online merchants. Most studies have shown that customers must buy four times in online stores to enjoy these practices (Chiu, Chang, Cheng, & Fang, 2009). Therefore, studying the intentions of consumer behavior in transacting on the internet is a useful field of research in electronic marketing. Today, websites and mobile commerce are not only the prime tools to support business transactions, but also they have become a channel for businesses to interact and communicate with their consumers (Al-Natour, Benbasat, & Cenfetelli, 2011). Besides the transaction process being faster, e-commerce can cut operational costs since it does not require sellers to have a physical store. In recent years, consumer expectations in online transactions have continued to increase. To keep loyal customers, online businesses need to redefine strategies to meet customers’ expectations and get customers’ trust (Gartner, 2015). Previous investigation has shown that garnering loyal customers in the electronic market is a challenge and is considered more significant than the offline market (Harris & Goode, 2004). Building online consumers’ loyalty depends on how consumers acquire trust in online businesses (Harris & Goode, 2004).

As in traditional markets, building customers’ trust in online markets has been essential since it deals with transaction uncertainty conditions (Fang et al., 2014; Harrison, Larry, & Norman, 1998). The lack of buyer confidence prevents them from buying online and causes consumers to delete shopping carts (Awad & Ragowsky, 2008). Trust in e-commerce activities is very consequential since consumers are more vulnerable to transaction risks when there is a sense of uncertainty about the quality of products or services offered by online merchants (Ba & Paul, 2002). One way to reduce the risk of uncertainty is to create a value to increase trust between online merchants and buyers (Zeithaml, 1988). Thus, trust can be a tool for creating income and long-term growth.

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Until now, exploration of online trust has always been accompanied by parts of technology adoption, such as perceived usefulness, perceived ease of use, and willingness to make transactions with online companies. We have given this attention on identifying relationships between different factors (Al-Natour et al., 2011; Awad & Ragowsky, 2008; Benlian, Titah, & Hess, 2012; David, Elena, & Detmar, 2003). A large number of studies have been performed to understand what makes online consumers to have repurchase intention from the same online seller (Dan, Donald, & Raghav, 2009; Fang et al., 2014; Gefen, 2002; Srinivasan, Anderson, & Ponnovolli, 2002) and this analysis has shown that buying experience with sellers in repurchase situations is important and can serve as a dominant element for evaluating trust (Dan et al., 2009; Fang et al., 2014). Online merchants can reduce the uncertainty and risk associated with online transactions through increased customer familiarity and knowledge about transactions with online merchants (Kim & Gupta, 2009). Consumers who repeatedly make purchases have a better understanding of the attributes of online shopping. We assume that consumers rely more on perceived value to build trust in online merchants and make purchasing decisions (Sullivan & Kim, 2018). However, exploration of consumer trust and repurchase intentions in conducting activities in e-commerce has not sufficiently identified how to value consumers’ feel after initial purchase experience and how this can shape perceptions of trust and repurchase intentions (Sullivan & Kim, 2018).

2. Literature Review

2.1. Perceived Risk toward Online Trust

Risk perception is ordinarily associated with uncertainty caused by the probability of opportunistic behavior from merchants that can rise in losses for consumers (Tamara & Paul, 2006). In e-commerce reference, the perceived risk can explain to what extent for consumers to believe that using a website can get negative results or unsatisfactory results (Glover & Benbasat, 2010). When connected in the online transaction process, consumers are usually conscious of the risks they face (Pavlou, 2003). Consumers worry that the products or services they purchase on the internet may not provide the expected benefits or they are afraid that they will face unexpected dangers when they make online transactions (Glover & Benbasat, 2010). Because getting new customers is decisively more expensive than retaining loyal customers, reducing consumers' risk perceptions is very relevant to make sure they will come back on online stores (David et al., 2003). Repeat costumers usually feel a lower level of confidence in transactions with websites compared to potential customers, because of personal experience with the site (Kim, Xu, & Gupta, 2012). However, the perceived risk decreases the possibility of a trusting relationship between repeat consumers and online buyers. One of the way to retain the consumers is to keep their trust in online stores (David et al., 2003; Jarvenpaa, Tractinsky, & Saarinen, 1999; Pavlou, 2003). Trust plays an essential role in helping consumers to resolve risk perceptions and uncertainty in the online environment (Lai & Tong, 2013). If consumers feel that online merchants will breach formal and informal obligations (e.g., not sending the right product at the right time as promised), they will select not to trust the website (Dan et al., 2009). Consistently with prior literature, we hypothesize that

\[ H_1: \text{Perceived risk has a negative effect on online trust.} \]

2.2. Perceived Usefulness toward Online Trust

Online trust has been felt like a significant element of perceived benefits, especially in an online setting (David et al., 2003; Pavlou, 2003). Consumers feel the benefits of using a website based on their interactions with the website, example, if they get good items, whether they can find information online of the product, or if the site can improve their purchasing experience (Zhang et al., 2011). David et al. (2003) state that trust must increase the perceived benefits of interaction through a website by increasing the primary profits. Here, purchasing products or services from honest and attentive merchants can lead to a top level of trust by transferring satisfaction from past transactions and increasing buyer expectations for current interactions (Sun, 2010). When a website was seen as trustworthy in the past, consumers will pay a premium price (David et al., 2003). In online shopping reference, feelings of mutual trust can develop between online merchants and consumers, it will enable consumers to understand thoroughly the information described and have more enjoyable experiences using the website (Al-Natour et al., 2011). Consumers can fully complete their transactions on the website (shopping) if they can trust the merchants ((David et al., 2003). Consistently with the literature, we hypothesize that

\[ H_2: \text{Perceived usefulness has a positive effect on online trust.} \]

2.3. Perceived Risk toward Repurchase Intention

Past research has shown that perceived risk is a crucial factor determining online consumer purchases and repurchases (Peng, Wang, & Cai, 2008). Although the perceived risk is known as a determining factor that affects purchase intentions in the pre-purchase stage, perceived risk also plays an essential role in the post-purchase stage (Chang & Wildt, 1994). If an online merchant succeeds on selling the product as promised, the risk of confusion can be minimized, and consumers will possibly return and make repeat purchases from the same site (Pavlou, Liang, & Xue, 2007). On the other hand, if anxious buyers are worried about online transactions that will be carried out, they will possibly avoid future repurchases with the same merchant (C.-M. Chiu, Hsu, Lai, & Chang, 2012). Consistently with the literature, we hypothesize that

\[ H_3: \text{Perceived risk has a negative effect on repurchase intention.} \]
2.4. Perceived Usefulness award Repurchase Intention

An online site with a high level of usability can support and help the consumer shopping experience and build positive attention to the online website (Zhang et al., 2011). Based on the adoption of technology by users, perceived usefulness becomes a strong influence on the formation of use intentions (Fred, Richard, & Paul, 1989). Of course, all internet shoppers need to get more richness and enjoy the pays of the existing marketplace, so perceived usefulness is the most important factor that can interest returned use (Al-Maghrabi, Dennis, & Vaux Halliday, 2011). Besides, buyers will only use online sites to shop if they believe that using these online sites can help performance or benefit their users (Fred et al., 1989).

Users are trusted to repurchase if they felt the profits of the goods and services they receive. It was also supported by Aren, Güzel, Kabadayı, and Alpkan (2013) from a study of 300 students who had made online purchases. The study explained that the perception of repurchase has a positive effect on repurchase intention. Internet shoppers, of course, wish to get more productivity by moving from an online site to another online site, so perceived usefulness is considered the most leading factor of TAM that can involve the intention of continuing the use of buyers Al-Maghrabi et al. (2011). So, it can be concluded that perceived usefulness involves a significant effect on repurchase intention. Consistently with the literature, we hypothesize that

H₄: Perceived usefulness has a positive effect on repurchase intention.

2.5. Online Trust toward Repurchase Intention

In the online setting, trust is a belief that can positively affect one's desires in managing online activities. It builds trust based on the stages of interaction that arise between buyers and merchants (Chen & Rau, 2014). Trust results from past e-retail use experience because it can help buyers to predict different undesirable events but may arise when making activities online. A quality relationship between buyer and seller can only arise if previous interactions are favorable so that there can be a possibility of future repurchases (Zhang et al., 2011). Therefore building trust with buyers is significant for the success of e-retail store in the form of business-to-consumer (Murphy & Tocher, 2011). Thus, it can be concluded that trust in an online site has a direct impact on the wish to make repeat purchases from the same online website. Consistently with the literature, we hypothesize that

H₅: Online trust has a positive effect on repurchase intention.

Based on a literature review, the conceptual framework that we built is as follows

![Fig. 1. The Conceptual Framework](image)

3. Methodology

It took all measurement items from past studies. We adapted the questions of perceived risk and repurchase intention from Rezaei and Amin (2013). We changed details for perceived usefulness and online trust from Sullivan and Kim (2018). It measures all constructs using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). The questionnaire was designed from past research and we distributed to students of the Online Learning Program in DKI Jakarta, Indonesia. The reason was because they were usually interacting with the internet. The student population is infinity, so we use the Lemeshow method to take sample size. Count results with a margin of error of 7 percent of 196 people. From the consequences of the questionnaire distribution, we only collected 128 data, so the success rate in data collection was 65 percent.

By viewing at the theoretical framework, this investigation was for testing the theory so that the data test procedure applied in this analysis was quantitative study with SEM based on component or variance approach, which is well known as Partial Least Square (PLS). PLS is applied to explain the presence or absence of relationships between latent variables (prediction).
PLS can also confirm theories (Chin & Newsted, 1999). PLS analysis comprises two models, i.e., the measurement model (measurement model), or we called the outer model and the structural model, or we called the inner model.

Evaluation the results of the measurement model using the Confirmatory Factor Analysis (CFA) is accomplished by testing the validity and reliability of latent constructs. Measurement of the model by confirmatory factor analysis uses the MTMM (Multi-Portrait-Multi-Method) method by checking the convergent and discriminate validity (Campbell & Fiske, 1959). Evaluation of the Structural Model (Inner model) looks at the R-square value. Furthermore, the significance test by bootstrapping, cross-validated redundancy ($Q^2$), path coefficients, and the effect size ($f^2$) (Hair, Sarstedt, Hopkins, & Volker, 2014).

### Table 1  
**Measurement Items**

| Construct       | Item                                                                 |
|-----------------|----------------------------------------------------------------------|
| **Perceived Risk** |                                                                    |
| PR1             | If I want to purchase products online, I fear that the purchase is overpriced |
| PR2             | I fear wasting time when shopping online                            |
| PR3             | I fear not getting the desired results when I want to purchase products or services online |
| PR4             | I am fearful that the products bought online will not be what I want |
| **Perceived Usefulness** |                                                              |
| PU1             | Using this e-commerce site can increase my shopping performance     |
| PU2             | Using this e-commerce site can increase my shopping productivity    |
| PU3             | Using e-commerce sites is useful                                    |
| **Online Trust** |                                                                  |
| OT1             | Based on my knowledge with online merchants in the past, I know that site is fair. |
| OT2             | Based on knowledge, I want to continue to accept online merchants to buy products because they care about customers. |
| OT3             | Based on my knowledge with online merchants in the past, I know they will fulfill their promises to customers. |
| OT4             | According to my knowledge with online merchants in the past, I know this store can be trusted. |
| **Repurchase Intention** |                                                           |
| R1              | If pleasant, I want to continue with e-commerce merchants to buy products |
| R2              | I will likely continue to buy products from e-commerce merchants in the future. |
| R3              | I think to continue to buy products from e-commerce merchants in the future. |

### 4. Result

#### 4.1. Characteristics of Students

All students we surveyed made purchases online for both the website and mobile application. The frequency they make purchases online from 1 to 4 times per one month was 35 percent and the remaining 65 percent purchased over five times. While online transactions, 25 percent have been fooled, and 75 percent always succeed in online sales. Before making an online purchase, 40 percent still read past buyer reviews, and 60 percent trusted the seller's credibility listed on the website.

#### 4.2. Evaluation of Measurement Models (Outer Model)

Evaluation of the measurement model comprises three steps, i.e., the convergent validity test, discriminant validity test, and composite reliability test.

### Table 2  
**Convergent Validity and Average Variance Extracted (AVE)**

| Construct     | Item | Sample Mean (M) | Loading Factor | T-Statistics | AVE   | Result |
|---------------|------|-----------------|----------------|--------------|-------|--------|
| **Perceived Risk** |      |                 |                |              |       |        |
| PR1           | 0.838| 0.835           | 14.946         | 0.627        | Valid |
| PR2           | 0.855| 0.861           | 21.311         |             | Valid |
| PR3           | 0.694| 0.729           | 5.365          |             | Valid |
| PR4           | 0.698| 0.733           | 5.548          |             | Valid |
| **Perceived Usefulness** |     |                 |                |              |       |        |
| PU1           | 0.906| 0.906           | 47.925         | 0.784        | Valid |
| PU2           | 0.907| 0.908           | 37.892         |             | Valid |
| PU3           | 0.834| 0.840           | 18.999         |             | Valid |
| **Online Trust** |       |                 |                |              |       |        |
| OT1           | 0.828| 0.829           | 21.405         | 0.794        | Valid |
| OT2           | 0.909| 0.909           | 55.394         |             | Valid |
| OT3           | 0.908| 0.906           | 52.614         |             | Valid |
| OT4           | 0.919| 0.918           | 57.586         |             | Valid |
| **Repurchase Intention** |     |                 |                |              |       |        |
| R1            | 0.936| 0.936           | 68.388         | 0.895        | Valid |
| R2            | 0.968| 0.968           | 121.860        |             | Valid |
| R3            | 0.932| 0.934           | 39.233         |             | Valid |

Source: Own Calculation. 2020

According to Chin and Newsted (1999), a correlation can meet the convergent validity if it has a loading value greater than 0.5. The output of Table 2 shows that the loading factor gives a value above the recommended value 0.5 so that the indicators used in this study have achieved convergent validity. Based on Table 2, all variables have AVE values greater than 0.5, so convergent validity is good. AVE value for perceived risk is 0.672, which shows that 67.2% of the information in the four
indicators can reflect by the perceived risk. AVE value for perceived usefulness is 0.784, which shows that 78.4% of the information in the three indicators can reflect by the perceived usefulness. AVE value for online trust is 0.794, which shows that 79.4% of the information in the four indicators can reflect by online trust. Finally, AVE value for repurchase intention is 0.895, which shows that 89.5% of the information in the three indicators can reflect by repurchase intention. It shows that on average their respective variables can represent more than 50 percent of the information contained in the indicator.

Table 3

| Discriminant Validity |
|-----------------------|
| Perceived Risk | Perceived Usefulness | Online Trust | Repurchase Intention |
| PR1 0.835 | -0.154 | -0.247 | -0.263 |
| PR2 0.861 | -0.117 | -0.237 | -0.310 |
| PR3 0.729 | -0.021 | -0.113 | -0.180 |
| PR4 0.733 | -0.045 | -0.163 | -0.126 |
| PU1 -0.090 | 0.906 | 0.463 | 0.535 |
| PU2 -0.110 | 0.908 | 0.385 | 0.528 |
| PU3 -0.127 | 0.840 | 0.428 | 0.467 |
| OT1 -0.102 | 0.364 | 0.829 | 0.381 |
| OT2 -0.221 | 0.430 | 0.909 | 0.439 |
| OT3 -0.288 | 0.451 | 0.906 | 0.508 |
| OT4 -0.263 | 0.461 | 0.918 | 0.471 |
| RI1 -0.349 | 0.528 | 0.504 | 0.936 |
| RI2 -0.277 | 0.535 | 0.477 | 0.968 |
| RI3 -0.215 | 0.575 | 0.462 | 0.934 |

Source: Own Calculation. 2020

Based on Table 3, all indicators in each construct have the highest relationship compared to the value of loading other constructs, so we can conclude it that discriminant validity is good. The reliability testing method uses Composite reliability (CR) and the Alpha-Cronbach method. Questionnaire is reliable if CR value greater than 0.7 and Alpha-Cronbach above 0.6. The following result from reliability testing.

Table 4

| Reliability Test |
|------------------|
| Construct     | Composite Reliability | Cronbach's Alpha | Decision |
|----------------|------------------------|------------------|----------|
| Perceived Risk | 0.870                  | 0.814            | Good     |
| Perceived Usefulness | 0.916                | 0.861            | Good     |
| Online Trust  | 0.939                  | 0.914            | Good     |
| Repurchase Intention | 0.962             | 0.914            | Good     |

Source: Own Calculation. 2020

Table 4 shows that all latent variables measured in this study have Cronbach's Alpha and Composite Reliability values greater than 0.7 so we can conclude it that all latent variables are reliable, or all indicators have consistency in measuring their latent variables.

4.3. Evaluation of Structural Models (Inner Model)

Testing the inner model is the development of concept-based models and theories to analyze the relationship between exogenous and endogenous variables that have been described in the conceptual framework. It shows the results of the bootstrapping estimates for each variable in the structural model in the following Fig. 3.
Fig. 3. Structural Model Full Bootstrapping

It carries evaluation of structural models in SEM with PLS out by conducting R-squared tests and significance tests through path coefficient estimates.

| Table 5 |
| R-Square and Hypothesis Testing |

| Model | Path | Path coefficient (Standardized) | T-statistics | P Values | Decision | R-Square |
|---|---|---|---|---|---|---|
| First | PR → OT | -0.198 | 2.51 | 0.006 | H1: Support (-) | 0.271 |
| | PU → OT | 0.458 | 6.51 | 0.000 | H2: Support (+) |
| Second | PR → RI | -0.180 | 2.38 | 0.011 | H3: Support (-) |
| | PU → RI | 0.432 | 4.65 | 0.000 | H4: Support (+) |
| | OT → RI | 0.255 | 2.84 | 0.003 | H5: Support (+) |

Source: Own Calculation. 2020

Based on Table 5, the first model has an R-Square value of 0.271. We can interpret it that the construct variability of perceived risk and perceived usefulness by 27.1 percent can explain the variability of online trust constructs. Whereas in the second model, the R-Square value is 0.433. We can interpret it that the construct variability of the perceived risk, perceived usefulness, and online trust can explain the variability of the repurchase intention construct by 43.3 percent.

The first hypothesis is accepted that is perceived risk has a negative and significant influence on the online trust of 0.198 with a significant value of 0.006. The smaller the perceived risk perceived, the higher the consumer's trust when shopping online. Second hypothesis is accepted, i.e., perceived usefulness has a positive and significant effect on online trust of 0.458 with a significant value of 0.000. The higher the perceived usefulness perceived by consumers, the greater the consumer's confidence in conducting transactions at e-commerce merchants. Third hypothesis is accepted, i.e., perceived risk has a negative and significant effect on repurchase intention of 0.180 with a significant value of 0.011. The more consumers have a small risk perception, the more consumers will make repeat purchases at e-commerce merchants. Fourth hypothesis is accepted, i.e., perceived usefulness has a positive and significant effect on repurchase intention of 0.432 with a significant value of 0.000. The more consumers have well-perceived convenience, the more likely consumers are to make repeat purchases at e-commerce merchants. Finally, fifth hypothesis is accepted that online trust has a positive and significant effect on repurchase intention of 0.255 with a significant value of 0.003. The more consumers feel confident to make transactions, the more likely consumers are to make repeat purchases at e-commerce merchants.

| Table 6 |
| Effect Size (f²) |

| Model | Path | R-Square Exclude | f-Square (f²) | Cut-off | Result |
|---|---|---|---|---|---|
| First | PR → OT | 0.23 | 0.056 | 0.02 | Small |
| | PU → OT | 0.07 | 0.275 | 0.15 | Medium |
| Second | PR → RI | 0.40 | 0.058 | 0.02 | Small |
| | PU → RI | 0.29 | 0.252 | 0.15 | Medium |
| | OT → RI | 0.39 | 0.07 | 0.02 | Small |

Source: Own Calculation. 2020
Based on Table 6, we can conclude: first, perceived risk has a minor effect on online trust. Second, perceived usefulness has a medium influence on online trust. Third, perceived risk has minor effect on repurchase intention. Fourth, perceived usefulness gives a medium effect on repurchase intention. Fifth, online trusts have minor effect on repurchase intention. Based on the results of the Q-square ($Q^2$) calculation, the value of 0.586 is greater than 0 so we can conclude it that the structural model got has a prediction of relevance.

5. Practical Discussion and conclusion

For e-retail merchants, the outcomes confirm that there is a significant correlation between perceived usefulness and repurchase intentions. Most consumers depend on the perceived usefulness because they recognize the quality of the products or service to build trust in e-retail merchants. Online retailers who suggest the research will accept that the component of acceptance of an e-commerce website is related to repurchase intentions. Based on the study, e-retail merchants must concentrate on optimizing their quality by website layout. Our study adds to the current research by recommending that online trade tries to increase consumer value must link to product and website elements.

Based on the hypothesis, trust is the primary determinant of what buyers expect in business transactions. Trustworthiness and security in meeting formal and informal responsibilities is the key to increasing consumer retention. The findings disclose that perceived usefulness can guarantee trust in shopping online. In the singular, we help online merchants to maximize the achievement of buyer confidence by establishing friendly relationships with buyers. The results also present several important implications for designing business-to-customer e-commerce sites. Although past studies have suggested that perceived usefulness is an essential element of technology acceptance, a sustainable relationship between buyers and sellers online is not achievable without trust.

Finally, to keep buyers, online businesses need to sustain high-quality products by a reputable website. The seller can promote their website by highlighting the products and services offered on their website. In the long period, buyers might remember purchases and use experiences more than the facts or information presented on the site. Overall, a trusted site, conducted by a perception of a low standard of risk, will cause a successful online firm.

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