The mediation relationship of customer satisfaction between service quality and repurchase intention on e-commerce in Indonesia

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Abstract
This research aims to determine the relationship between service qualities and repurchase intention with customer satisfaction as the mediator variable on e-commerce in Indonesia. Data were obtained from 162 respondents by using close and self-administered types of questions. The respondents independently filled the given questionnaires with the Likert scale and Structural Equation Model (SEM) was used for analysis. The findings show that customer satisfaction variable is a mediation of web service quality and repurchase intention on e-commerce in Indonesia.

Keywords: customer satisfaction; e-commerce; repurchase intention; website service quality.

INTRODUCTION
E-commerce is a product or service transaction conducted through the internet network, therefore, an increase in its number of users tends to impact on the world of marketing in Indonesia positively. Statista (2016), stated that over the past 5 years, there was a significant increase in the development of e-commerce transactions in Indonesia. For instance, in 2018, a total of 144.1 trillion rupiahs were acquired from the total population. The current development of e-commerce is triggered by the variety of products offered as well as innovative, creative, interesting, and easy to use online services.

Due to the yearly continuous increase in online transactions, e-commerce companies need to persuade consumers to visit their websites which are adjusted to suit their needs and improve the quality of their services (Tandon, Kiran, & Sah, 2017).

E-commerce companies are not only obliged to acquire customers’ trust, they also encourage them to make repurchases. Online repurchase intentions described in the technology acceptance model (TAM), consists of the following factors of website service
quality ease of use, security & privacy, usability, and functionality (Chen, Hsu, & Lin, 2010; Zhang et al., 2011). Website quality services successfully support e-commerce with a positive influence on customer satisfaction and the ability to reinforce repurchase intentions (Hsu, Chang, Chu, & Lee, 2014).

Furthermore, the fundamental factors used to determine the success of a website are superior information system and other marketing services designed to obtain customer satisfaction (Ha, Swinder, & Muthaly, 2010). According to Park & Kim (2012), customer satisfaction is the evaluation of each experience related to product purchase. It often leads to beneficial results, with an increase in customer retention, positive feedbacks on various online media platforms, and product recommendation to new users (Kumar et al., 2010).

Customer-perceived service quality is defined as the assessment or attitude related to service excellence in terms of comparative offerings (Parasuraman, Zeithaml, & Berry, 1988). The attributes developed by Parasuraman et al. (1988) are the basis of a global measurement tool for service quality also known as SERVQUAL. These include tangibles, reliability, responsibility, empathy, and assurance, although the inability to adequately provide quality to all industries has been identified as weakness. Zhang et al. (2011) reported on the positive influence of online quality, perceived vendor expertise in fulfilling orders, feedback, and perceived website usability on consumers repurchasing ability, while distrust confers a negative effect.

Parasuraman & Grewal (2012) proposed the need to carry out research for determining the importance of changes in the SERVQUAL dimension, especially when customers interact with technology, as against the service personnel. This consequently led to a number of studies to identify the most suitable attributes for online businesses.

Parasuraman & Grewal (2012) also developed websites aimed at influencing the consumers' perception of a product's quality, and ultimately persuaded the online purchase intentions. Nisar & Prabhakar (2017) reported on the positive relationship between customer satisfaction and spending. However, electronic satisfaction is higher in e-commerce than spending, based on the direct relationship between service quality, satisfaction and loyalty in online shopping. Unfortunately, this system faces a lot more challenges compared to traditional retailers, including the inability for customers to feel and try the products. This study, therefore, tries to close this gap by evaluating the mediation of customer satisfaction between the website quality and repurchase intention on e-commerce in Indonesia.

Ahmad, Rahman, & Khan (2016) stated that website service quality had become an important factor in making e-commerce successful. This is because it is easier, more practical, cost-efficient, and less time consuming compared to the conventional method.

According to Liang, Ho, Li, & Turban (2011) and Michaelidou, Siamagka, & Christodoulides (2011), the features, functions, and capabilities of website design tend to improve customer relationships, and support product as well as brand development. The content quality also influences consumer attitudes and interactions on websites (Hasan & Abuelrub, 2011). Meanwhile, design usefulness is one of the most important features of an e-commerce website (Li & Li, 2011). Singh, Malik, & Sarkar (2017) examined the satisfaction, use, attractiveness, simplicity and speed of using e-commerce websites to fulfil its usage and achieve product knowledge.
Hasan & Abuelrub (2011) acknowledged web service as a multi-dimensional construct consisting of information, system, and service quality. Tandon et al. (2017) emphasized on the role of enjoyment and usability, while Zehir, Sehitoglu, Baykal, & Zehir (2014) reported on the strong relationship between the quality and Loyalty Intentions towards the Values provided by retail companies using the internet as an e-commerce platform. Web service is because the website attributes influence consumers' perceptions of product quality, especially when the individual has higher information asymmetries (Wells, Valacich, & Hess, 2011).

Service quality also has an indirect positive effect on post-purchase intentions. Shin, Chung, Oh, & Lee (2013) explained web service quality as a combination of six dimensions, comprising of shopping convenience, site design, information usability, transaction security, payment systems, and customer communication. Tandon et al. (2017) reported the following as essential factors: ease of usage, security and privacy, navigation, website design, understanding, consistency, and information usefulness. Generally, the helpfulness of information provided is one of the reasons many consumers benefit from online shopping, while the website design and navigation stimulates the physical environment, with intent to trigger purchases. During the transaction, security and privacy are required to protect the customers' personal information, with effortless ordering procedures, especially in developing countries. Therefore, web service quality is conceptualized as a combination of nine dimensions, including the ease of usage, security and privacy, effortless ordering, navigation, website design, straight forwardness in understanding, adjustment, consistency, and usefulness of the information provided.

Customer satisfaction is defined as the ability to fulfill emotion-based evaluation and response (Shin et al., 2013). It describes customer confidence in the possibility of service that leads to positive results.

Repurchase Intention is the intensity of consumers to make repeated purchases of a product or service twice or more times (Shin et al., 2013). Ha et al. (2010) defined it as a person's planned decision to repurchase of a particular product or service while considering decisions such as situation and level of attractiveness. Zhang et al. (2011) stated that positive customer experience is directly related to repurchase intentions.

Hsu, Chang, & Chen (2012) reported on the significant effect of website quality on customer perceptions and satisfaction on repurchase intentions. This insight was congruent with the study outcome of Shin et al. (2013), while Chen et al. (2010) stipulated the direct influence of repurchase intentions on a company revenue and profitability. This study, therefore, focuses on repurchase intentions as the final dependent variable of the proposed model.

The research on consumer decision-making processes in India by Jain (2014), highlighted the feeling of safety in a majority during online shopping, with cash-on-delivery as the preferred payment mode. Tandon et al. (2017) studied the extent of customer satisfaction, and emphasized on the positive influence of COD, hence the persuasion to make repurchases. Tandon et al. (2017) stated that the safety factor significantly influenced the intention to carry out the COD payment mode, which needs to be developed in e-commerce.

Hsu et al. (2014) concentrated on the role of website quality and reported on the ability for positive emotions to promote beneficial behavior. Gounaris, Dimitriadis, &
Stathakopoulos (2010) explained the mediating characteristics of electronic satisfaction between the effect of electronic service quality and customer behavioral intentions, in terms of website revisits, communication, and repeat purchases.

Therefore, Abdul-Muhmin (2011) reported on the positive or negative effect of satisfaction and attitude on online repurchase intentions. Meanwhile, Shin et al. (2013) attributed the outcome to the website quality, possibly achieved by increasing customer satisfaction during transactions. According to Tandon et al. (2017), these activities are accomplished by increasing mediators, including customer satisfaction. In addition, this study aims to examine the direct and indirect effects of web service quality on repurchase intentions.

METHODS

Data were obtained from a minimum of 155 consumers that purchased products online at e-commerce websites in Indonesia using the non-probability sampling method. The SEM was used to determine the minimum sample size of five times the number of questions (Hair, Black, Babin, & Anderson, 2014). Therefore, the total numbers of questionnaires in this study are 5 x 31 statements. Furthermore, the purposive sampling technique with the following criteria was used: First, having online shopping experience more than three times a year on e-commerce websites in Indonesia. Second, in possession of a computer or laptop with an internet network used to access the website, and a bank account to make payments.

The research questionnaire was designed using the close-ended, and scaled response formats, with each variable, examined using five measurement scales (Likert). Google Form was used to distribute questionnaires by using online links to explain the research to be conducted to the target respondents through social media such as Whatsapp, Line, Instagram direct messages and other social media. Therefore, it helps to accelerate and facilitate respondents in filling out the questionnaire with the results stored digitally.

The items in this study are closely related to the research as shown in appendix 1 (Loiacono et al., 2007; Tandon et al., 2017; Shin et al., 2013; Bansal, McDougall, Dikolli, & Sedatole, 2004; Zhou, Lu, & Wang, 2009; Wolfinbarger & Gilly, 2003; Chen et al., 2010). Several items were selected, adapted, and measured using a 5-point Likert scale, from 1 for "strongly disagree" to 5 for "strongly agree".

All developed models have a corresponding value, used to explain empirical information according to the data collected. Also, the Goodness-of-fit tests for all SEM models are shown in Table 1. According to the table, 8 out of 12 estimates show good results, while the remaining 4 are less good.

| GOF Size | Target-Level of Goodness-of-fit | Estimated Results | Level of Goodness-of-fit |
|----------|---------------------------------|-------------------|--------------------------|
| Chi-Square | Small values p>0.05 | 101.290(P=.000) | Poor fit |
| NCP Interval | Small values and narrow interval | 39.510; 99.500 | Poor fit |
| RMSEA p | RMSEA ≤ 0.08 | .110 | Marginal fit |
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| GOF Size    | Target-Level of Goodness-of-fit                      | Estimated Results | Level of Goodness-of-fit |
|-------------|------------------------------------------------------|-------------------|--------------------------|
| (close fit) | p<0.05                                               | .000              |                          |
| NFI         | NFI ≥0.90 Good Fit                                   |                   |                          |
|             | 0.80 ≤ NFI ≤ 0.90 marginal fit                       | .890              | Marginal fit             |
|             | NFI ≥ 0.90 good fit                                  |                   |                          |
| NNFI        | NNFI ≥ 0.90 good fit                                 |                   |                          |
|             | 0.80 ≤ NNFI ≤ 0.90 marginal fit                      | .900              | Good fit                 |
| CFI         | CFI>0.90 good fit                                    |                   |                          |
|             | 0.80< CFI<0.90 marginal fit                          | .920              | Good fit                 |
| IFI         | IFI>0.90 good fit                                    |                   |                          |
|             | 0.80< IFI<0.90 marginal fit                          | .930              | Good fit                 |
| RFI         | RFI>0.90 good fit                                    |                   |                          |
|             | 0.80< RFI<0.90 marginal fit                          | .860              | Marginal fit             |
| CN          | CN>200                                               | 90.910            | Poor fit                 |
| RMR         | Standardized RMR< 0.05                               | .078              | Poor fit                 |
| GFI         | GFI>0.90 good fit                                    |                   |                          |
|             | 0.80< GFI<0.90 marginal fit                          | .890              | Marginal fit             |
| AGFI        | AGFI>0.90 good fit                                   |                   |                          |
|             | 0.80< AGFI<0.90 marginal fit                         | .820              | Marginal fit             |

Source: data processed

This study uses significant and confident levels of .05 and 95%, therefore, the t-value of the structural equation coefficient needs to be greater than 1.97. A t-value above 1.97 the validity of each indicator or latent change is obtained as shown in appendix 2.

RESULTS AND DISCUSSION

Result

Based on the results of the questionnaire distribution conducted on a non-probability basis through Google documents, 162 questionnaires were obtained, which were processed into research data. The profile of respondents that filled out the questionnaire is as follows:

| Statement     | Description       | Number | Percentage |
|---------------|-------------------|--------|------------|
| Gender        | Male              | 78     | 48.140     |
|               | Female            | 84     | 51.850     |
| Age           | 19-23             | 87     | 53.700     |
|               | 24-28             | 49     | 30.240     |
|               | 29-34             | 19     | 11.720     |
|               | 25 and more       | 7      | 4.320      |
| Profession    | Student           | 88     | 54.320     |
|               | Private employees | 45     | 27.770     |
|               | Government employees | 13   | 8.020      |
|               | State-owned enterprises employees | 3 | 1.820 |
|               | Others            | 15     | 9.250      |

Table 2

Characteristics of Respondents
The results of this questionnaire distribution showed that customers between the age of 19-23 years made more use of e-commerce shopping websites, while students are the most active group in using the internet. Furthermore, Shopee is the most visited website with approximately 23.37 percent, due to the ability of the respondent to compare product features from visiting the site (Ahmad et al., 2016).

Structural model analysis shows the significant effect from the t-value, assessed to be above 1.97. In addition, the web service quality construct confers a positive and significant effect on customer satisfaction at t-value of 7.07, and an estimated value of .63, and no significant effect was recognized on repurchase intention. This was because the t-value was 1.19, which is below the 1.97 benchmark. Furthermore, customer satisfaction on repurchase intention has a positive and significant influence at t-value of 4.61 and an estimated value of .36, while the indirect effect of web service quality on repurchase intention mediated by customer satisfaction leads to positive and significant consequences, with a t-value of \([7.07 \times 4.61] + 1.19\) = 33.78 and an estimated value of \([.63 \times 0.36] + .11\) = .34.

Table 3
Hypothesis Test Results

| Hypothesis | Pathway                                                                 | t-value | estimation | Conclusion                      |
|------------|------------------------------------------------------------------------|---------|------------|---------------------------------|
| 1          | Web service quality is a multi-dimensional construction that is easy to understand, use, order, provide information, security and privacy, website design, navigation, and customization. | Minimum Loading Value is .70 | The structural model assessment is used for the suitability of latent variables |
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| Hypothesis | Pathway | t-value | estimation | Conclusion |
|------------|---------|---------|------------|------------|
| 2          | Website service quality to customer satisfaction | 7.07    | .63        | The results are supported |
| 3          | Website service quality to repurchase intention | 1.19    | 6.19       | The results are not supported |
| 4          | Customer satisfaction to repurchase intention | 4.61    | .36        | The results are supported |
| 5          | Customer satisfaction mediates the relationship between website service quality and repurchase intention | 33.78   | .34        | The results are supported |

Source: data processed

The results demonstrated the significant positive effect of website service quality on customer satisfaction. This is proven from the clients' opinion in relation with the online shopping experience. Ahmad et al. (2016) reported on the important role of website service quality in attaining e-commerce success. This is due to the ease, practicality, zero cost, and timeliness of comparing product features online, in comparison with conventional markets.

Web service quality has no significant effect on repurchase intention, due to the poor satisfaction of consumers with shopping experience with the ease of understanding, usage, ordering, information usefulness, security and privacy, website design, navigation, and customization. Therefore, it is important for companies to maintain and improve the dimensions of electronic services, particularly with online shopping, due to the pleasant experience made available to consumers. Shin et al. (2013) reported website quality as an important factor for increasing repurchases intentions in a customer's perspective.

SEM results show the inability for website service quality to effect on repurchase intention. Zhang et al. (2011) reported on the direct relationship between positive customer experiences and repurchase intentions, hence the need to have sound knowledge of the product or service.

Furthermore, SEM results show the significant positive effect of Website service quality on customer satisfaction, which consequently affects repurchase intention, thus serving as a mediator. The findings are consistent with study of Gounaris et al. (2010), where a significant association was established between website quality and user satisfaction, subsequently influencing the use of online services. Gounaris et al. (2010) reported on the mediating characteristics of electronic satisfaction between the influence of service quality and customer behavioral intentions. These include site revisits, word of mouth communication, and repeat purchases.

CONCLUSION

In conclusion, web service quality is a multi-dimensional construction consisting of ease of understanding, usage, ordering, information usefulness, security and privacy,
website design, navigation, and customization. This result is shown from the t-value, which shows that the loading to the corresponding latent variable, at least .70.

This research proves that customer satisfaction is able to mediate the effect of website service quality on repurchase intention. It also shows that the indirect effect of website service quality on repurchase intention is greater when mediated by customer satisfaction.

Therefore, e-commerce marketplace service providers in Indonesia need to focus on factors capable of creating long-term customer satisfaction and mutually benefit marketplace service providers and consumers. It also has the ability to increase positive word of mouth recommendation on the services offered by the marketplace in Indonesia.

Also, when creating strategies to retain online customers, it is necessary to develop quality products, reliable deliveries, and increase the payment system conducted.

This research is limited to the inability to take samples from e-commerce websites frequently visited by respondents, therefore, further research is needed.

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Appendix 1 Variable Operations

| Construct                  | Sources                                                                 |
|----------------------------|-------------------------------------------------------------------------|
| **Ease of Understanding:** |                                                                         |
| EASEUND1                   | The language used by e-commerce websites is easy to understand          |
| EASEUND2                   | The display page leads to more understandable information                |
| EASEUND3                   | The transaction process of an e-commerce website is understandable      |
| EASEUND4                   | Easy to order online                                                    |
| Adapted from Loiacono et al., (2007); Tandon et al., (2017) |                                                                         |
| **Ease of Use:**           |                                                                         |
| EASEUSE1                   | Easy to shop via the internet                                           |
| EASEUSE2                   | This e-commerce website is easy to use                                  |
| EASEUSE3                   | It is easy to navigate Navigation through an e-commerce website         |
| Adapted from Loiacono et al., (2007) |                                                                         |
| **Ease of Ordering:**      |                                                                         |
| EASEORED1                  | This e-commerce website makes it easy for customers to track orders online. |
| EASEORED2                  | This e-commerce website has detailed instructions for modifying orders online. |
| EASEORED3                  | This e-commerce website has detailed instructions for canceling orders online. |
| Adapted from Tandon et al., (2017) |                                                                         |
| **Information Usefulness:**|                                                                         |
| INFOUSE1                   | This e-commerce website provides lots of information on product features and quality. |
| INFOUSE2                   | The information provided by this e-commerce website helps customers in purchasing products. |
| INFOUSE3                   | This e-commerce website provides useful information on the product.     |
| Adapted from Shin, et al. (2013); Bansal et al., (2004) |                                                                         |
| **Website Design:**        |                                                                         |
| WEBD1                      | The attractive color scheme of this e-commerce website facilitates customersto shop. |
| WEBD2                      | The graphics displayed on this e-commerce website facilitate custoemrs to order products. |
| WEBD3                      | Shopping online is a pleasant experience.                               |
| Adapted from Wolfinbarger & Gilly, (2003); Zhou et al., (2009) |                                                                         |
| **Navigation:**            |                                                                         |
| NAV1                       | Product images are quickly downloaded                                   |
| NAV2                       | The search function on this e-commerce website is very helpful          |
| NAV3                       | This e-commerce website facilitates users to return to the previous page display |
| NAV4                       | This e-commerce website is easy to obtain main information              |
| Adapted from Bansal et al., (2004); Wolfinbarger & Gilly, (2003) |                                                                         |
| **Security and Privacy:**  |                                                                         |
| SANDP1                     | This e-commerce website has adequate security measures.                 |
Customers feel safe when using their credit/debit card on this e-commerce website.

This e-commerce website does provide customers personal information to other websites without their permission.

Adapted from Chen et al., (2010); Shin et al., (2013)

**Customization:**

CUSTOM1 This e-commerce website allows customers to customize their product before ordering.

CUSTOM2 This e-commerce website responds to customer needs.

Adapted from Wolfinbarger & Gilly, (2003)

**Customer Satisfaction:**

CUSAT1 Customers are satisfied with the quality of the products offered online

CUSAT2 Online shopping is a satisfying experience because it offers products that are adjusted to customers’ convenience.

CUSAT3 Customers are satisfied with the cash-on-deliver payment mode.

Adapted from Wolfinbarger & Gilly, (2003)

**Repurchase Intention:**

RI1 Customers want to repurchase products from this e-commerce continuously

RI2 Customers wish to pay via cash-on-delivery continuously

RI3 At other times, they like to repurchase products online by paying through cash-on-delivery.

Adapted from (Shin et al., (2013)
Appendix 2: Validity and Reliability Test Results

| Variable                | *SLF ≥ .50 | Error | *CR ≥ .70 | *VE ≥ .50 | Conclusion          |
|-------------------------|------------|-------|-----------|-----------|---------------------|
| **Ease of Understanding** |            |       |           |           | Good reliability    |
| UASEUND1                | .520       | .730  |           |           | Good validity       |
| UASEUND2                | .670       | .550  |           |           | Good validity       |
| UASEUND3                | .810       | .350  |           |           | Good validity       |
| UASEUND4                | .780       | .390  |           |           | Good validity       |
| **Ease of Use**         |            |       |           |           | Good reliability    |
| EASEUSE1                | .540       | .710  |           |           | Good validity       |
| EASEUSE2                | .920       | .160  |           |           | Good validity       |
| EASEUSE3                | .590       | .650  |           |           | Good validity       |
| **Ease of Ordering**    |            |       |           |           | Good reliability    |
| EASEORD1                | .560       | .690  |           |           | Good validity       |
| EASEORD2                | .650       | .580  |           |           | Good validity       |
| EASEORD3                | .780       | .390  |           |           | Good validity       |
| **Information Usefulness** |        |       |           |           | Good reliability    |
| INFORUSE1               | .600       | .640  |           |           | Good validity       |
| INFORUSE2               | .810       | .340  |           |           | Good validity       |
| INFORUSE3               | .650       | .580  |           |           | Good validity       |
| **Web Design**          |            |       |           |           | Good reliability    |
| WEBD1                   | .720       | .470  |           |           | Good validity       |
| WEBD2                   | .720       | .480  |           |           | Good validity       |
| WEBD3                   | .520       | .820  |           |           | Good validity       |
| **Navigation**          |            |       |           |           | Good reliability    |
| NAV1                    | .530       | .710  |           |           | Good validity       |
| NAV2                    | .620       | .620  |           |           | Good validity       |
| NAV3                    | .840       | .300  |           |           | Good validity       |
| NAV4                    | .590       | .650  |           |           | Good validity       |
| **Security and Privacy** |            |       |           |           | Good reliability    |
| SANDP1                  | .530       | .720  |           |           | Good validity       |
| SANDP2                  | .980       | .030  |           |           | Good validity       |
| SANDP3                  | .980       | .040  |           |           | Good validity       |
| **Customization**       |            |       |           |           | Good reliability    |
| CUSTOM1                 | .990       | .030  |           |           | Good validity       |
| CUSTOM2                 | .970       | .060  |           |           | Good validity       |
| **Customer Satisfaction** |          |       |           |           | Good reliability    |
| CUSAT1                  | .980       | .040  |           |           | Good validity       |
| Variable                  | *SLF ≥ .50 | Error | *CR ≥ .70 | *VE ≥ .50 | Conclusion       |
|--------------------------|------------|-------|-----------|-----------|------------------|
| CUSAT2                   | .550       | .700  |           |           | Good validity    |
| CUSAT3                   | .980       | .030  |           |           | Good validity    |
| **Repurchase Intention** |            |       | .760      | .520      | Good reliability |
| RI1                      | .680       | .850  |           |           | Good validity    |
| RI2                      | .920       | .150  |           |           | Good validity    |
| RI3                      | .650       | .580  |           |           | Good validity    |

Source: data processed