Customer satisfaction from the self – service kiosks’ UI/UX and the customer continuance intention to use

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Abstract. In this era where development of information and communication technology (ICT) has played a vital role in improving service that uses User Experience and User Interface as a base to conduct technology implementation in service of restaurant business with the result of Self-service Kiosk in a fast-food restaurant. This research aims to determine the Satisfaction and the Continuance Intention of the customer usage on the Self-service Kiosk. This study used a quantitative method using Purposive Sampling to collect answers using questionnaire with the tools of Google Form for sample of 172 respondent that visits the fast-food restaurant and using the self-service kiosk in DKI Jakarta and its surrounding area. The data is processed using SmartPLS 4.0 as the statistical tool. There are four variables, with five hypotheses; the study shows that all hypotheses have significant effect. These results prove that User Experience and User Interface of Self-service Kiosk in restaurants can give a positive effect on restaurant business sustainability by continuing to buy the restaurants’ product through Self-service Kiosk.

1. INTRODUCTION

The development of Information and communication technology (ICT) has transformed various aspects of relations between service providers and customers in the food and beverage business, which has significantly improved service standards [1]. One form of technology applied in the food and beverage industry is the self-ordering kiosks which are one example of the self-service technologies (SST) [2]. Self-ordering service and payment options are provided by kiosk services, which offer customers more flexibility [3].

Self-ordering kiosk can give satisfaction because lots of studies have revealed significant association among customer satisfaction on and UI/UX [4][5]. Another study have revealed significant association among customer satisfaction self-ordering kiosk and its ease of use and useful tool’s increases the intention from the customer to continue to use the self-ordering kiosk [6]. Satisfaction is crucial as the major determinant for customers’ continuance intention to use since satisfaction implies the overall quality of a service and also the loyalty of customers to use [7][8].

Based on research that had been done previously indicated that more and more consumers are willing to adopt these new technologies to create their own service [9]. On the contrary, there is negative feedback regarding the process of ordering, menu selection and payment method [10]. For those who support this new technology, this study was conducted to give empirical data about customer satisfaction fast food restaurant when they use user interface and user experience (UI/UX) on self-ordering kiosk to determine the intention of continuance usage and perceived ease of use (PEOU) and perceived usefulness (PU) as the part OF Technology Acceptance Model (TAM).

2. LITERATURE REVIEW

2.1 Technology Acceptance Model (TAM)

TAM is a theoretical framework that explains how a technological innovation is used and adopted in a variety of context [11]. The TAM is based on two fundamental concepts, perceived usefulness (PU) and perceived ease of use (PEOU). A health app’s PEOU and PU boost user satisfaction, which is necessary for continuance intention (CI) to happen [12]. Some research on social networking and mobile banking has shown that satisfaction completely or partly mediates the impact of PU on CI [13][14].

2.2 Perceived Ease of Use (PEOU)

The ease of use that users perceive in a technological gadget is called perceived ease of use [15]. According to the definition of perceived ease of use, it refers to how someone perceives using a specific information technology system to be effortless [16]. From previous study found online travel agency, In online learning, it was also discovered that PEOU greatly influences continuance intention. PEOU is a strong and important antecedent of satisfaction. In this online travel agency research, PEOU is a strong and significant determinant of satisfaction [17]. PEOU significantly influenced continuance intention on online learning [18].
H1: Perceived Ease of Use has a positive impact on Satisfaction.

H4: Perceived Ease of Use has a positive impact on Continuance Intention through Satisfaction as an intermediary variable.

2.3 Perceived Usefulness (PU)

Perceived usefulness (PU) is defined as the degree that a person trusts that using the technology will improve performance and effectiveness [19]. The user's knowledge that the technology is beneficial and their happiness with using it are reflected in the perceived usefulness of the technology [20]. Time and effort savings, ease of use, hassle-free operation, and general usefulness of the technology are the most frequent variables associated with perceived usefulness [21]. Mobile payment PU is found significance towards continuance intention (CI) [22]. There are dimensions of usefulness and ease of use toward satisfaction of the UI/UX design for mobile community-based course [23].

H2: Perceived Usefulness has a positive impact on Satisfaction.

H5: Perceived Usefulness has a positive impact on Continuance Intention through Satisfaction as an intermediary variable.

2.4 UI/UX

User Interface is an interface that can be programmed on an operating system and can be understood by the target user [24]. UI enables system to interact directly with the user, and therefore is very important to ensure that the designed application has a good UI design that will have an impact on customer user experience (UX) [25]. User experience is the experience individuals have when using or interacting with a product and the perception of how satisfying, gratifying, and easy to use [26].

2.5 Satisfaction

Customer satisfaction is defined as a customer's expectation of service and demand for confirmation, as well as the overall joy and pleasure felt while the service is being provided [27]. Perceived ease of use has a significant impact on customer satisfaction, so information technology that is simple to use will be more well-accepted by the user and result in satisfaction [28]. Satisfaction for e-wallet is positively impacted by perceived usefulness [29]. The previous study found out that satisfactory in using the self-service technology directly influence the continuance intention [30].

H3: Satisfaction has a positive impact on Continuance Intention

2.6 Continuance Intention to Use (CI)

Customers' service-usage continuation intentions are correlated with a service provider's capacity to acquire and retain customer loyalty by assuring customer satisfaction [31]. Prior studies have also shown that the perceived ease-of-use can have an indirect influence on the intention to continue using a product or service via perceived usefulness [32]. On Massive Open Online Course (MOOC) study, continuance intention to use is effected by the perceived usefulness [33]. Satisfaction is a key determinant continuance intention to use self-service technologies [34].

![Research Model](image)

Fig. 1. Research model

3. Research Method

The method of research used is a quantitative approach. Quantitative research is a systematic, planned, and structured type of research [35]. Using SmartPLS 4.0 application on computers as a tool to test the validity, reliability of the indicator of the variable and to calculate the T statistic and P-values of each hypothesis.

3.1 Population

The population is the study’s target population that intends to study or treat [36]. In this research, the population consisted of customers fast-food restaurant chains in DKI Jakarta and its surrounding area.

3.2 Sample

Because the population for this research is undetermined, we use a minimum number of respondents as a sample. Sample is a portion or representative of the population under study [37]. To determine the sample in the study, the researcher uses a purposive sampling technique, which is a non-probability sampling method in which the researcher ensures the citation of illustrations through the method of determining special identities that match the research objectives so that they are expected to be able to respond to research cases. The minimum determinant of sample for SEM (Structural Equation Model) that this research used is based on theory by Hair et al.: (Number of Indicators + Number of Latent Variables) x 5 [38]. Based on the theory the minimum sample for this research is:

Minimum sample = (20+4) x 5 = 120 respondents
Table 1. Operational Variable X1 (Perceived Ease of use)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Ease of Use</td>
<td>Using fast food restaurant Self - Service Kiosk does not require much effort. (PEOU1)</td>
<td>Likert Scale (1 – 5)</td>
</tr>
<tr>
<td></td>
<td>It doesn't take much time to learn to use fast food restaurant Self - Service Kiosk. (PEOU2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The UI/UX Self - Service Kiosk fast food restaurant is clear and easy to understand. (PEOU3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It's very easy for me to get better service and product through UI/UX Self - Service Kiosk fast food restaurant. (PEOU4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall, the UI/UX Self - Service Kiosk fast food restaurant is easy and convenient. (PEOU5)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Operational Variable X2 (Perceived usefulness)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>UI/UX Self - Service Kiosk fast food restaurant can save time to complete transactions quickly. (PU1)</td>
<td>Likert Scale (1 – 5)</td>
</tr>
<tr>
<td></td>
<td>UI/UX Self - Service Kiosk fast food restaurant can improve service efficiency. (PU2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UI/UX Self - Service Kiosk fast food restaurant will make service easier. (PU3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The UI/UX Self - Service Kiosk fast food restaurant will give me greater control over completing transactions. (PU4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall, using fast food restaurant Self-Service Kiosk is worthwhile. (PU5)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Operational Variable y1 (Satisfaction)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>I feel happy while using Self - Service Kiosk fast food restaurant (SAT1)</td>
<td>Likert Scale (1 – 5)</td>
</tr>
<tr>
<td></td>
<td>I found the experience of using Self - Service Kiosk fast food restaurant pleasant (SAT2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall, I am satisfied with the UI/UX Self - Service Kiosk fast food restaurant (SAT3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The UI/UX Self-Service fast food restaurant Kiosk exceeded my expectations. (SAT4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Kiosk offered by fast food restaurant is close to the Self - Service Technology that I expected. (SAT5)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Operational Variable y2 (continuance intention to use)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuance Intention</td>
<td>I will use fast food restaurant Self-Service Kiosk again in the future. (CI1)</td>
<td>Likert Scale (1 – 5)</td>
</tr>
</tbody>
</table>

4. RESULTS AND DISCUSSION

The outcome from respondents who fulfill the requirements demonstrates that they used self-ordering kiosk in a fast food restaurant at least once, most of the respondents is a college graduate for last education mostly belong to the age group of 20-29 years old with an occupation split evenly between a college student, employee, and a business owner. The majority respondents are male with 53.5% and the last education level is mostly undergraduate degree. Based on the frequent visit to the fast food restaurant, 16 respondents visit the restaurant once a week, 82 respondent visit the restaurant once a month, and 74 respondents once every few months. Table 1 shows the respondent profile in this research.

All variables have an AVE (Average Variance Extracted) number above 0.500, which is the measure used to assess the convergent validity, meaning the convergent validity can be accepted. The outer-loading factor is used to evaluate the diagnostic validity. Each variable has higher outer-loading values on its construct than on other constructs. As a result, the discriminant validity test is passed for all factors. Cronbach's Alpha numbers for each variable are greater than 0.700, indicating that the reliability can be accepted. This reliability is tested using Cronbach's Alpha value. The reliability can be accepted because all factors have composite reliability values above 0.700. Internal consistency reliability is tested using the composite reliability value. All measured products have loading factors that are higher than 0.500. According to the findings, all research variables are valid, and the research instruments are reliable.

Table 5. Convergent Validity and Reliability

<table>
<thead>
<tr>
<th>Variable</th>
<th>AVE</th>
<th>Cronbach's Alpha</th>
<th>Composite Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Ease of Use</td>
<td>0.684</td>
<td>0.884</td>
<td>0.915</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>0.780</td>
<td>0.929</td>
<td>0.947</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.840</td>
<td>0.952</td>
<td>0.963</td>
</tr>
<tr>
<td>Continuance Intention</td>
<td>0.681</td>
<td>0.883</td>
<td>0.914</td>
</tr>
</tbody>
</table>

Source: Primary Data

According to the R-square for customer satisfaction, Customer satisfaction is explained by
76.8% of the variance by perceived usefulness and ease of use, and the remaining 23.2% by factors that are not accounted for in the model. According to the continuance intention R-squared, customer satisfaction, perceived usefulness, and perceived ease of use account for 75% of the variance in continuance intention, while the remaining 25% is explained by variables not included in the model.

Table 6 shows that The first hypothesis is accepted because the p-value is less than 0.050, which is 0.000, and the impact is positive. Therefore, A customer's satisfaction is positively impacted by apparent ease of use.

### Table 6. R-square

<table>
<thead>
<tr>
<th>Variable</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>0.768</td>
</tr>
<tr>
<td>Continuance Intention to Use</td>
<td>0.750</td>
</tr>
</tbody>
</table>

Source: Primary Data

The second hypothesis is accepted because the t-statistics is 8.282, which shows that the impact is positive because the value is higher than 1.960, and the p-value is 0.000, which is less than 0.050. Therefore, apparent usefulness has a favorable effect on a customer's satisfaction. The third hypothesis is approved because the p-value is 0.000, which is less than the threshold of 0.050. The t statistic is 5.248, which is higher than 1.960 and suggests a positive effect. Thus, satisfaction positively affects the desire to continue using a product.

The p-value for the indirect relationship between perceived ease of use and continuance intention via customer satisfaction is 0.000, which is lower than 0.050 and indicates that H4 is true. Because the value of t-statistic is greater than 1.960, which is 4.471, the indirect impact is positive in direction. Since the p-value of the indirect relationship between perceived utility and continuance intention through customer satisfaction is 0.000, less than 0.050, H5 is true. The t-statistic is 4.104, which indicates that since the value is greater than 1.960, there is a positive indirect impact of perceived ease of use on continuance intention through customer satisfaction as an intervening variable.

The first hypothesis is accepted. With a coefficient of 0.448, perceived ease of use has an impact on customer satisfaction. As a result, if perceived ease of use is improved, customers will be more satisfied. If restaurant customer believe the self-service kiosk is simple to operate, easy to learn, and simple to use to meet their needs, they will be more likely to use it again. This result supports the studies of the effect of improving perceived usability will increase user satisfaction. As a result, if restaurant customer are pleased with the self-ordering kiosk's efficiency and have a positive overall experience, they will be more likely to use it frequently. This finding confirms that student satisfaction with the K-MOOC course greatly influenced their intention to use it in the future.

The fourth hypothesis is accepted because perceived ease of use has an indirect impact on the desire to continue using it through customer satisfaction, which serves as an intermediary variable. Since the correlation between perceived ease of use and customer satisfaction as well as between customer satisfaction and continuance intention is positive, the indirect influence's path coefficient is 0.269. It implies that greater observed usability of the machine will increase customer satisfaction, which will increase continuance intention going forward.

### Table 7. Hypothesis Testing result

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Original</th>
<th>T-statistic</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEOU --&gt; SAT</td>
<td>0.448</td>
<td>6.903</td>
<td>0.000</td>
</tr>
<tr>
<td>PU --&gt; SAT</td>
<td>0.497</td>
<td>8.282</td>
<td>0.000</td>
</tr>
<tr>
<td>SAT --&gt; CI</td>
<td>0.541</td>
<td>5.248</td>
<td>0.000</td>
</tr>
<tr>
<td>PEOU --&gt; SAT --&gt; CI</td>
<td>0.269</td>
<td>4.471</td>
<td>0.000</td>
</tr>
<tr>
<td>PU --&gt; SAT --&gt; CI</td>
<td>0.242</td>
<td>4.104</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Primary Data

Customers at restaurants tend to be more satisfied and more likely to use the self-service machine again if they think it is simple to operate. This result supports the studies of perceived ease of use on continuance intention on Klikindomaret service users in Malang City.

The fifth hypothesis is accepted because this indicates that perceived usefulness has an indirect impact on customer satisfaction, which acts as an
intermediary variable, to determine continuance intention to use. Because there is a favorable correlation between perceived usefulness and customer satisfaction, as well as between customer satisfaction and intention to use continually., the indirect influence's path coefficient is 0.242. It implies that greater perceived usefulness will increase customer satisfaction, which will increase continuance intention. Customers at restaurants are more likely to be satisfied and plan to use the self-service kiosk again if they believe it performs well and boosts output. This result supports the studies of the perceived usefulness influence continuance intention on mobile branded app [47].

5. Conclusion

Customer satisfaction is directly influenced favourably by perceived usefulness and ease of use. When compared to customers who placed their orders at the cashier, restaurant customer who think the self-ordering kiosk system is simple to use typically feel more satisfied. Customers are more likely to be satisfied with the machine when they use it and gain advantages like convenience and performance enhancement. A greater level of customer satisfaction with using the self-service kiosk will translate into a higher level of customer continuance intention to use the machine again. This is because Customer continuance usage intention is favourably impacted by customer satisfaction.

The satisfaction of a customer acts as an intermediary variable that indirectly influences perceived ease of use in a favourable way on continuation intention. It implies that customers will be more satisfied with the service the simpler they find it to use the self-service kiosk device. They will therefore be more likely to want to keep using the equipment as a result.

Perceived usefulness indirectly and favourably affects continuation intention, with customer satisfaction act as a intermediary variable. It implies perceived usefulness must fulfil a customer's needs before it can result in continued usage intention. The more productive a customer is while using the machine, the more satisfied they are, and the more likely they are to continue using the machine when they visit a fast food restaurant.

To improve perceived ease of use, restaurant need to put a guidance or a staff to help explaining how to use the self-ordering kiosk. Additionally, for the restaurant to increase perceived usefulness, the kiosk's performance must be improved.

Finally, to improve the satisfaction of a restaurant customer the restaurant needs to make the self-ordering kiosk more easy to use and less time consuming. The research has some restrictions. An analysis of the results shows that there are unobserved variables that could account for customer satisfaction and continuance use intention. Future studies should take into account additional factors that could affect customer satisfaction and usage purpose.

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