TECHNOLOGY ACCEPTANCE MODEL APPROACH TO MEASURING USER BEHAVIOR OF ONLINE FOOD DELIVERY APPLICATIONS IN BANYUMAS DISTRICT

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Abstract

Food delivery services are increasingly preferred as the internet develops, but food consumer and entrepreneurs need to be selective in choosing which ones can provide value to them. This study aims to examine the easy to use, usefullness and attitudes of behavioral intention in food delivery applications in Banyumas Regency. The data analysis method used is structural equation modeling-partial least squares (SEM-PLS). The number of respondents was 100. The sampling technique in this study used a purposive sampling method with criteria for a minimum age of 17 years, domiciled in the Banyumas Regency area, and had used shopee food for at least 1 month. Collecting data using a Likert scale questionnaire 1 to 5 by utilizing the google form. The results showed that all TAM variables had an effect on behavioral intention.
INTRODUCTION

With the development of media, technological advancements have changed the way humans consume. This shift has led to an "on-demand" era, an era of economic activities where information and communication technology infrastructure immediately provide customized products and services to meet consumer demands, bringing significant changes in various industries. Moreover, after the spread of COVID-19, individual consumer behaviors have changed during the pandemic situation, with more people preferring contactless services over direct face-to-face interactions (Hwang et al., 2020a, 2020b).

This situation also impacts the food industry, where technological advancements and the pandemic situation have made the sector more innovative and competitive. Food delivery services have expanded since the emergence of various food delivery service providers through the internet and mobile applications. With food delivery services, people can now easily order food from their smartphones, and the food will be promptly delivered to their location. This trend is expected to continue for some time. Nielsen Singapore research shows that approximately 58% of Indonesians purchase food through online applications on their smartphones an average of 2.6 times per week. This transaction has increased by 20% compared to before the COVID-19 pandemic (Jayani, 2021). Supported by research conducted by McKinsey in 2020, as cited in Setyowati (2021), the use of Online Food Delivery (OFD) services increased by 34% during the COVID-19 pandemic in Indonesia.

There are several players in the food delivery market in Indonesia, one of which is Shopee Food. Shopee Food is a feature offered by the renowned online marketplace, Shopee. Shopee launched the Shopee Food ordering feature in April 2020 and experienced a fourfold increase in sales in July 2020. It successfully collaborated with over 500 ready-to-eat food and beverage sellers as of October 2020 (Setyowati, 2021). Shopee Food has gained popularity recently due to its large-scale promotions, such as discount vouchers and free delivery, which compete with its two competitors, GrabFood and GoFood, who have already established themselves in the same business model. However, the coverage of Shopee Food services is not as extensive as other similar services. Banyumas Regency is one of the areas recently entered by Shopee Food. Previously, in the Banyumas region, food delivery services were only provided by
GoFood and GrabFood. Banyumas Regency itself has the potential for the development of food and beverage MSMEs. With the increasing number of food delivery service providers, this will provide both advantages and challenges for MSMEs. The challenge is that MSMEs need to conduct further analysis to determine which service providers offer the most beneficial partnerships from a business perspective. One unique aspect of Shopee Food is that its business model does not originate from a transportation platform. Given the uniqueness and urgency of providing insights regarding this new platform in Banyumas, further analysis of food delivery services and user perceptions of Shopee Food is needed.

The Technology Acceptance Model (TAM) is a method used to investigate the determining factors that drive or hinder users' intentions to use food delivery applications. It is shown that the use of a system is based on perceived ease of use and perceived usefulness. TAM is not a new method and has often been used to analyze new technologies used by humans. A recent study by Jung et al. (2021) on a sharing accommodation service platform (Airbnb) used TAM as its method, showing a positive relationship between usefulness and the intention to repurchase. Another finding is that perceived ease of use predicts perceived usefulness directly and also indirectly affects intention through attitude, as demonstrated by Unal and Uzun (2021). However, TAM is not always considered an appropriate method for testing user behavior in accepting new technology. Kazmi (2015) and Lim et al. (2015) criticized TAM for its weak consideration of user behavior.

Based on the gaps in previous research, the researcher will again utilize TAM as a method to analyze user behavior, specifically regarding the Shopee Food delivery service. Furthermore, no specific study has focused on Shopee Food with a specific approach towards user behavioral interest.

**Technology Acceptance Model**

In the utilization of information systems, users consider the benefits and usefulness of the system they are going to use. The Technology Acceptance Model (TAM) is a theory that shows the acceptance of an information technology system by users. This theory was proposed by Davis et al. (1989).
TAM was adapted from the Theory of Reasoned Action (TRA), which specifically explains the acceptance of technology. It was introduced by Davis in 1986. TAM explains that an individual's intention to use information technology is determined by the perceived usefulness and perceived ease of use of the system, integrated with individual attitudes (Davis, 1989). TAM has been widely applied to understand individual attitudes toward the adoption and use of new technology or to predict the adoption and use of information technology. TAM explains that the acceptance of new technology is influenced by individual beliefs, as depicted by two variables: perceived ease of use and perceived usefulness (Gefen et al., 2003).

Perceived ease of use is an indicator of the cognitive effort to learn and use a technological product. Perceived usefulness is an individual's subjective assessment of the utility provided by a new technological product (Hu et al., 1999). Davis et al. (1989) defined perceived ease of use as the belief that using mobile banking services is easy and does not require significant effort to learn, while perceived usefulness is defined as the belief in the level of usefulness in using mobile banking services.

Attitude is defined as the degree of a user's positive or negative evaluation of using a particular technology system. Nam et al. (2016) stated that the key point of perceived ease of use emphasizes the level of belief that using mobile banking is not difficult but rather easy (Davis, 1989). Furthermore, the use of mobile banking will drive increased usefulness. Previous research by Wixom and Todd (2005) and Shipps & Phillips (2012) mentioned that the ease of use factor influences the usefulness of a technology. Therefore, if a mobile app is easy to use, its usefulness can be perceived. Thus, the first hypothesis is as follows:

\[ H1: \text{Easy to use has a positive effect on usefulness.} \]

The influence of perceived ease of use refers to a user's perception of the ease or difficulty of using a technology. Research by Shih (2003) showed a significant positive relationship between perceived ease of use and attitudes toward internet acceptance. This study tested a technology acceptance model on internet acceptance attitudes among 203 office employees in Taiwan. In Indonesia, Darsono (2005) found a similar relationship between perceived ease of use and attitudes toward usage. The results also showed that the perceived level of ease of use had a positive impact on lecturers' attitudes toward using the internet in teaching. Sadee et al. (2007) found that perceived ease of use had a
significant positive effect on attitudes toward usage in a technology acceptance model in a multimedia learning environment. Mckechnie et al. (2006) applied a technology acceptance model to online retail financial services, and the research showed that perceived ease of use was positively related to attitudes toward usage. Liu et al. (2005) aimed to apply a technology acceptance model to examine the acceptance behavior of online e-learning users, and it found that attitudes toward usage were positively influenced by perceived ease of use. Therefore, the second hypothesis is as follows:

**H2: Easy to use has a positive effect on attitude.**

According to Davis (1989), perceived usefulness is a level of how an individual believes that using a specific system can improve their performance. Based on Davis' research (1989), it was found that perceived usefulness is related to behavioral intention. This relationship was further supported by Pavlou (2003), who found a significant relationship between perceived usefulness and consumer acceptance of e-commerce, where behavioral intention was positively influenced by perceived usefulness. Darsono (2005) conducted research showing a positive impact between perceived usefulness and behavioral intention regarding technology acceptance by professionals. Sadee et al. (2007) also found that perceived usefulness significantly affected behavioral intention to use internet technology among students at Concordia University in Montreal, Canada. Santouridis & Kyritsi (2014) investigated the determining factors of internet banking adoption in Greece, and one of the results indicated that perceived usefulness significantly influenced behavioral intention. Ghozali et al. (2018) conducted research showing, among other things, that perceived usefulness had a positive impact on behavioral intention. Therefore, the third hypothesis is as follows:

**H3: Usefulness has a positive effect on behavioral intention.**

Attitude toward usage refers to a user's attitude toward the use of a technology system, whether it is acceptance or rejection. In general, attitude toward usage occurs when a user shows acceptance or rejection after using a particular technology. A study by Ashraf et al. (2014) showed a positive relationship between attitudes toward usage and behavioral intention. Similar results were found by Amoroso & Hunsinger (2009), indicating a significant positive relationship between attitudes toward usage and behavioral intention. A study by Ndubisi & Chukwunonso (2004) found a significant relationship between attitudes toward usage and behavioral intention in adopting an
online learning system among university students in Malaysia. Leiva et al. (2017) found in their research on measuring the intention to use mobile banking applications that attitudes toward usage positively influenced behavioral intention. Ghozali et al. (2018) found that attitudes toward usage had a positive influence on behavioral intention in examining willingness to adopt electronic payment systems among 261 users of e-payment systems at one university in Indonesia.

**H4: Attitude has a positive effect on behavioral intention**

**Picture 1. Research Framework**

![Research Framework Diagram]

**METHOD**

The method used in this study is quantitative descriptive research with a quantitative approach. The population of this study is customers who use Shopee Food. The sampling technique used in this study is purposive sampling, where there are specific criteria that need to be met to become a sample in this study (Sugiyono, 2017). Some criteria to be eligible as a sample in this study include being at least 17 years old, residing in the Banyumas Regency area, and having used Shopee Food for at least 1 month. The determination of the sample size in this study is based on Hair et al. (2010), which suggests using a sample size of 100-200 respondents. Therefore, the minimum sample size set for this study is 100 respondents. Data collection will be done using a questionnaire with closed-ended Likert scale questions ranging from 1 to 5, as well as open-ended questions related to the reasons for using Shopee Food and choosing food delivery services. The distribution of the questionnaire will be conducted using Google Forms. The data analysis technique used in this study is structural equation modeling-partial least squares (SEM-PLS) analysis using SmartPLS software.
RESULT

Based on the results of distributing the questionnaires, the age-based characteristics were obtained where customers aged 17 to 25 years (adolescents) dominated by 68%. Characteristics based on work are dominated by students and students by 71%.

Table 1. Respondent Profile

<table>
<thead>
<tr>
<th>RESPONDENT PROFILE</th>
<th>TOTAL</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-25 years old</td>
<td>68</td>
<td>68%</td>
</tr>
<tr>
<td>26-35 years old</td>
<td>21</td>
<td>21%</td>
</tr>
<tr>
<td>36-45 years old</td>
<td>11</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100%</td>
</tr>
<tr>
<td><strong>JOB</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Student</td>
<td>71</td>
<td>71%</td>
</tr>
<tr>
<td>Lecturer</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>BUMN employee</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Private employees</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Processed Data (2022)

Description of the responses from 100 Shopee Food users regarding the statement items of easy to use (3 items), usefulness (4 items), attitude (4 items), and behavioral intention (2 items). Based on the questionnaire distribution, respondents' responses were obtained regarding the easy to use variable, where the most dominant item was "the Shopee Food application is easy to use". This indicates that the Shopee Food feature is considered user-friendly by its users. Meanwhile, respondents' responses to the usefulness variable indicated that the most dominant item was "Shopee Food provides easy cashless transactions," indicating that the various payment options provided by Shopee Food assist customers in the transaction process, including cashless transactions. For respondents' responses regarding the attitude variable, the most dominant item was "I would recommend others to use Shopee Food," indicating that users have a positive attitude perception towards the Shopee Food application. Furthermore, for respondents' responses regarding the behavioral intention variable, the most dominant item was "I intend to use the Shopee Food application in the future," indicating that users are ready to place food orders through the Shopee Food application.
Based on the first test of the outer model, which is convergent validity, the loading factor value for indicator BI1 did not exceed 0.7. Therefore, the BI1 indicator was removed, and the second test of the outer model was conducted. In Figure 1, the results of the second test of the outer model are shown, where the convergent validity values for all indicators were above 0.7, indicating that they meet the validity criteria based on the loading values. Next, the test of discriminant validity was conducted.

**Table 2. Discriminant Validity**

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Easy to Use</th>
<th>Attitude</th>
<th>Usefulness</th>
<th>Behavioral Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETU1</td>
<td>0.714</td>
<td>0.620</td>
<td>0.714</td>
<td>0.468</td>
</tr>
<tr>
<td>ETU2</td>
<td>0.539</td>
<td>0.604</td>
<td>0.579</td>
<td>0.497</td>
</tr>
<tr>
<td>ETU3</td>
<td>0.731</td>
<td>0.661</td>
<td>0.731</td>
<td>0.561</td>
</tr>
</tbody>
</table>

*Source: Processed Data (2022)*
Based on the table above, after going through the discriminant validity test, all indicators are declared valid because they correlate with other latent variables. Next, composite reliability testing will be carried out.

**Table 3. Composite Reliability**

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>COMPOSITE RELIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to use</td>
<td>0.924</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.929</td>
</tr>
<tr>
<td>Usefulness</td>
<td>0.895</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>0.811</td>
</tr>
</tbody>
</table>

The table above shows the results indicating that the composite reliability values for all constructs are satisfactory, with each value exceeding 0.70. Based on these values, it can be concluded that the instrument used is highly consistent and stable, indicating that the instrument's reliability has been met.

**Inner Model**

The Inner Model or structural model is a hypothesis test that depicts the relationships and influences between latent variables based on substantive theory. The significance of the estimated parameters provides valuable information regarding the relationships among the research variables. Below are the results of the hypothesis testing using SmartPLS.
Table 4. Coefficient Test Results

<table>
<thead>
<tr>
<th>RELATION</th>
<th>Original Sample</th>
<th>T statistics</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to use &gt; Usefulness</td>
<td>0.758</td>
<td>12,263</td>
<td>0.000</td>
</tr>
<tr>
<td>Easy to use &gt; Attitude</td>
<td>0.702</td>
<td>11,160</td>
<td>0.000</td>
</tr>
<tr>
<td>Usefulness &gt; Behavioral Intention</td>
<td>0.201</td>
<td>2,156</td>
<td>0.032</td>
</tr>
<tr>
<td>Attitude &gt; Behavioral Intention</td>
<td>0.661</td>
<td>7,760</td>
<td>0.000</td>
</tr>
<tr>
<td>Easy to use &gt; Attitude &gt; Behavioral Intention</td>
<td>0.464</td>
<td>6,252</td>
<td>0.000</td>
</tr>
<tr>
<td>Easy to use &gt; Usefulness &gt; Behavioral Intention</td>
<td>0.153</td>
<td>2,134</td>
<td>0.033</td>
</tr>
</tbody>
</table>

Source: Processed Data (2022)

The table above can be explained as follows the first hypothesis testing shows that the relationship between the variable easy to use (X1) and usefulness (Y1) has a coefficient value (original sample) of 0.758 and a P-value < 0.05, specifically 0.000. This indicates that the variable easy to use significantly influences the variable usefulness (Y1). Therefore, hypothesis 1 is accepted.

The results of the second hypothesis testing indicate that the relationship between the variable easy to use (X1) and attitude (Y2) has a coefficient value (original sample) of 0.702 and a P-value < 0.05, specifically 0.000. This shows that the variable easy to use significantly influences the variable attitude (Y2). Thus, hypothesis 2 is accepted.

The third hypothesis testing results reveal that the relationship between the variable usefulness (Y1) and behavioral intention (Y3) has a coefficient value (original sample) of 0.201 and a P-value < 0.05, specifically 0.032. This indicates that the variable usefulness significantly influences the variable behavioral intention (Y3). Therefore, hypothesis 3 is accepted.

The fourth hypothesis testing shows that the relationship between the variable attitude (Y2) and behavioral intention (Y3) has a coefficient value (original sample) of 0.661 and a P-value < 0.05, specifically 0.000. This demonstrates that the variable attitude significantly influences the variable behavioral intention (Y3). Hence, hypothesis 4 is accepted.

The results of the mediation analysis indicate that the indirect relationship between easy to use and behavioral intention has a P-value < 0.05, specifically 0.000 and 0.033. The stronger influence is shown by the relationship mediated by attitude.
Table 5. R Square

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>0.493</td>
</tr>
<tr>
<td>Usefulness</td>
<td>0.574</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>0.672</td>
</tr>
</tbody>
</table>

Source: Processed Data (2022)

The data from the table above shows the R-Square values, which indicate the proportion of variance explained by the respective variables. The variable attitude is influenced by easy to use with an R-Square value of 0.493 or 49.3%. The variable usefulness is influenced by easy to use with an R-Square value of 0.574 or 57.4%. Lastly, the variable behavioral intention is influenced by easy to use, attitude, and usefulness with an R-Square value of 0.672 or 67.2%.

DISCUSSION

The results of the first hypothesis testing indicate that the relationship between the easy to use variable (X1) and usefulness (Y1) shows a coefficient value (original sample) of 0.758 and a P-value <0.05, which is 0.000. This indicates that the easy to use variable has a significant effect on the usefulness variable (Y1), thus the hypothesis 1 is accepted. This finding is consistent with previous studies conducted by Nam et al. (2016), Wixom and Todd (2005), and Shipps & Phillips (2012), which stated that easy to use influences usefulness. An easy-to-use ordering application tends to be perceived as beneficial by users, as they do not need to spend a long time understanding the content within the application.

The results of the second hypothesis testing show that the relationship between the easy to use variable (X1) and attitude (Y2) indicates a coefficient value (original sample) of 0.702 and a P-value <0.05, which is 0.000. This indicates that the easy to use variable significantly influences the attitude variable (Y2). Thus, hypothesis 2 is accepted. This finding is consistent with previous studies conducted by Liu et al. (2005), Mckechnie et al. (2006), and Sadee et al. (2007), which stated that easy to use influences attitude. The ease of using a food ordering application becomes an important factor in determining users' perception of the application.
The results of the third hypothesis testing show that the relationship between the usefulness variable (Y1) and behavioral intention (Y3) indicates a coefficient value (original sample) of 0.201 and a P-value <0.05, which is 0.032. This indicates that the usefulness variable (Y1) has a significant effect on the behavioral intention variable (Y3). Thus, hypothesis 3 is accepted. This finding is aligned with previous studies conducted by Ashraf et al. (2014), Amoroso & Hunsinger (2009), Ndubisi & Chukwunonso (2004), Leiva et al. (2017), and Ghozali et al. (2018), which stated that usefulness influences behavioral intention. Food delivery applications are generally perceived as useful by users because they save time in searching for food, offer convenient payment options, and provide numerous promotional rewards, which encourage users to continue using the application.

The results of the fourth hypothesis testing show that the relationship between the attitude variable (Y2) and behavioral intention (Y3) indicates a coefficient value (original sample) of 0.661 and a P-value <0.05, which is 0.000. This indicates that the attitude variable (Y2) significantly influences the behavioral intention variable (Y3). Thus, hypothesis 4 is accepted. This finding is aligned with previous studies conducted by Darsono (2005), Sadee et al. (2007), Santouridis & Kyritsi (2014), and Ghozali et al. (2018), which stated that attitude influences behavioral intention. Users' positive attitudes, including enjoyment in using the application, wise choices, the need to use it, and considering it as a good idea, drive their desire to use Shopee Food.

CONCLUSIONS AND SUGGESTIONS

The research findings indicate that all hypotheses are accepted. The relationships between the easy to use variable and usefulness and attitude variables have been proven to have a significant influence. The relationship between usefulness and behavioral intention has been proven to have a significant effect. The relationship between attitude and behavioral intention has been proven to have a significant influence. The TAM method has demonstrated that all variable relationships are correlated and have a significant impact on the behavioral intention of users of food delivery applications in Kabupaten Banyumas.

There are several limitations in this study: 1) The measurement of the effectiveness of the new application from the user's (consumer) perspective does not involve drivers and Shopee Food partners; 2) The respondents' demographics are general and not specific
to certain age groups or professions, and there is no categorization based on gender; 3)
The research was only conducted in the Kabupaten Banyumas region.

Based on the open-ended questions, some suggestions for food delivery application providers are as follows: 1) Improve the application interface, such as organizing the menu to make it more user-friendly, simplify the order cancellation process, provide user feedback features, and retain conversation features with drivers before orders are accepted; 2) Increase promotional offers; 3) Optimize the system, especially for devices with low specifications; 4) Provide more diverse payment options; 5) Increase the number of food and beverage partners to offer a wider variety of choices.

Suggestions for further research include: 1) Conduct measurements involving the perspectives of drivers and Shopee Food partners; 2) Further investigate the relationship between demographics, such as age, profession, gender, etc., to obtain specific research results that can be used for future Shopee Food marketing strategies; 3) Conduct similar research in other areas.

REFERENCES


