



Technology Acceptance Model (TAM) as Factors of Online Vegetable Purchasing Decision

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Abstract

The growth of e-commerce and vegetable consumption become a good opportunities for vegetable sellers to expand their business online. Understanding how consumers perceive the two elements of TAM is important as it will help vegetable sellers formulate a strategy that applies specifically to their online store. In this study, Structural Equation Modeling - Partial Least Squares (SEM-PLS) is used to analyze the data. The independent variables in this study were perceived usefulness (PU) and perceived ease of use (PEOU), meanwhile the dependent variable was purchase decision (KP). This study have met the criteria of validity and reliability. The result of this research is two component of TAM significantly affecting vegetable purchasing decision in online stores. Using significance level at 0.05, t-statistic for PEOU is 3,627 which is greater than 1.960, meanwhile t-statistic for PU is 5,394 which is greater than 1.960. The owner business of vegetable in online store should develop their platform to help consumer feel more convenient and efficient while purchasing the product online.

Keywords: Technology acceptance model, Online purchasing decision, Business online

A. Introduction

Online shopping provides convenience life and less obstacle for consumer (Ahmadi, Sunyoto, Ardiansari, 2018). The advantages they derive from this new method of shopping is one of reason the rapid growth for e-commerce. Research conducted by merchantmachine.co.uk (2019) stated that Indonesia is the country with the fastest e-commerce growth of 78%. There are various types of business we can find in e-commerce, including fresh product business such as vegetables. Indonesia's vegetables consumption has increased from 29.68 kcal/capita/day in 2015 to 37.95 kcal/capita/day in 2018 based on 2018 National Socio-Economic Survey (SUSENAS) (in Sumantri, 2019). The growth of e-commerce and vegetable consumption is a good opportunity for vegetable seller to expand their business online.

Preference list for online shopping which was surveyed by PwC Indonesia, 2017 (in Databoks, 2017) stated that groceries are in tenth number. Consumers tend to buy groceries in offline stores than online shop. The research conducted by PwC Indonesia, 2017 (in Databoks, 2017) showed

only 27% consumers who are willing to buy groceries online. It is understandable considering there are some disadvantage of groceries online shopping, even more to buy vegetables. High cost for packaging is one of the reason why consumer prefer to buy vegetables in offline shop (Semuels, 2019). Understanding the factors which influence vegetable online purchasing decision are needed to formulate the strategies.

The model which is oftenly used to do research about individual decision using information technology is Technology Acceptance Model (TAM) (Legris, 2003 in Driediger and Bhatiasavi; 2019). Therefore, TAM has been widely used to analyze purchasing decisions online. TAM has two component, they are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU is used as research variable to understand how people view the technology can improve their life quality (Keni, 2020). They tend to use the technology if it helps their daily activities become more efficient. PEOU is used as research variable to see whether people will experience some difficulties using the technology (Keni, 2020). The harder it is to use, the more they don't want to utilize it. Therefore, it is important doing the research to understand how consumers perceived those two components of TAM as it will help the vegetable seller to formulate a strategy specifically applied to their online store.

B. Methodology

1. Research Design

This research was conducted in Yogyakarta, Indonesia from September to November in 2020. Sampling data was collected online, therefore the researchers can obtain the samples from various cities in Indonesia. This study use quantitative and qualitative data type.

2. Participants/Respondents/Population and Sample

The criteria for the respondents in this study is consumer who purchased vegetable online. Questionnaire was distributed online using google form.

3. Technique of Data Collection

Primary and secondary data was used in this study. Primary data was obtained from respondents. This study use accidental sampling to collect sample. All indicators multiplied by 5 to 10 to determine sample number (Soemarno, 2011). Secondary data was obtained from related references and theories.

4. Instruments

This research use questionnaire as instrument. Questionnaire consist of statements which refer to indicators for each variable. Each statement has optional answer with scale from 1 to 3 (Likert Scale).

5. Technique of Data Analysis

This study use Structural Equation Modeling - Partial Least Square (SEM-PLS) for data analysis. SmartPLS 4.0 was used as analysis tools. There are two measurements for SEM-PLS, they are inner model evaluation and outer model evaluation. Convergent validity and composite reliability was used to assess validity and reliability of the research. R-square score showed the influence of independent variables to dependent variable.

There are 2 independent variables, 1 dependent variable. Independent variables in this study are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), meanwhile dependent variable is Purchasing Decision (KP). The significance between variables and indicators were evaluated for parameter estimation with criteria of 5%. Indicator which has t-statistic more than t-value (1.960) is significant (Ghozali and Latan, 2012). The following figure is path diagram drawn by SmartPLS 4.0.

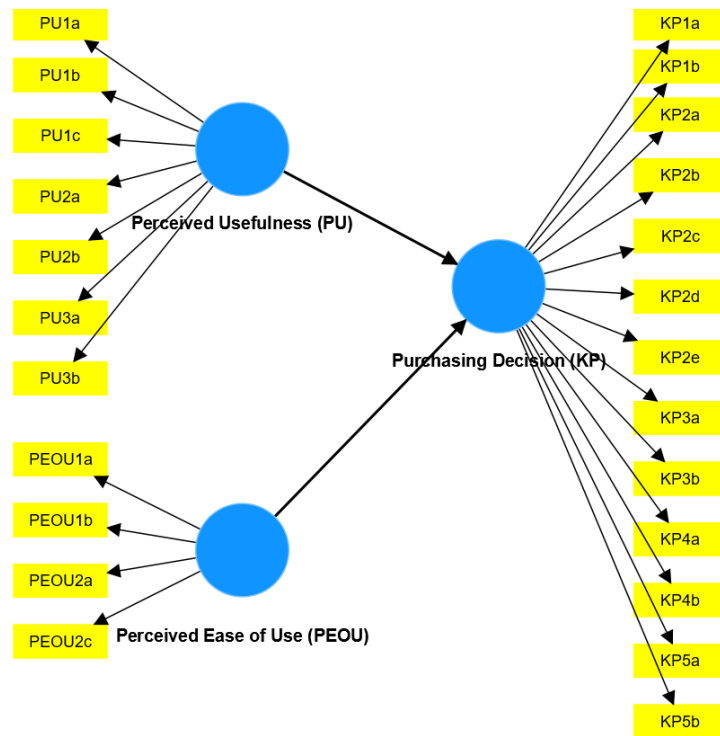


Figure 1. Path Diagram of Research

Information:

- KP1a: Necessity to purchase
- KP1b: Productivity
- KP2a: Consumer’s review
- KP2b: Information from family
- KP2c: Information from friends
- KP2d: Information from mass media
- KP2e: Direct information from store
- KP3a: Comparative
- KP3b: Information accuracy
- KP4a: Time efficiency
- KP4b: Purchasing confidence
- KP5a: Recommend to other
- KP5b: Purchasing satisfaction
- PU1a: Product search quickness
- PU1b: Transaction quickness
- PU1c: Delivery quickness
- PU2a: Full information of product
- PU2b: Obtain information efficiently
- PU3a: Price comparison
- PU3b: Characteristic comparison
- PEOU1a: Information understanding
- PEOU1b: Transaction understanding
- PEOU2a: Find product independently
- PEOU2b: Pay product independently

C. Findings and Discussion

1. Characteristic of Respondents

a) Age of Respondents

Most respondents in this research are them between 20-29 years old with 63.4%. These respondents can be grouped as adolescent to adult. The second largest number are respondents from 30 – 39 years old.

Table 1. Age of Respondents

Age	Total (person)	Percentage (%)
<20	9	5.6
20 - 29	102	63.4
30 - 39	26	16.1
40 - 49	13	8.1
50 - 59	9	5.6
60 - 64	2	1.2
Total	161	100.0

b) Gender of Respondents

The largest percentage for gender criteria is woman with 65.8%. It is related to the way woman like the process of shopping. The men in this research has shown a tendency to shop for vegetables online even if the number is not as many as woman.

Table 2. Gender of Respondents

Gender	Total (person)	Percentage(%)
Men	55	34.2
Women	106	65.8
Total	161	100.0

c) Online Store Preference

The result show that most respondents in this study use WhatsApp to purchase vegetable online. Indonesia people use WhatsApp as a daily communication media. Therefore, many people here are familiar with its technology. The online seller of vegetable should consider using WhatsApp as one of their selling platform.

Table 3. Online Store Preference

Media Type	Total (Person)
TaniHub	23
SayurBox	31
HappyFresh	25
CariSayur	9
Kecipir	5
Shopee	42
WhatsApp	103
Other	7

2. Data Analysis Results

a) Path Diagram Estimation

Loading factor for each indicators was evaluated before analyzing outer and inner model. Indicator which score less than 0.7 was eliminated. There are nine indicators in this research which had to be eliminated. They are PU1b, PU1c, KP1a, KP2a, KP2b, KP2c, KP2d, KP2e, & KP4a. The following figures show the change in the path diagram (Figure 2 & Figure 3).

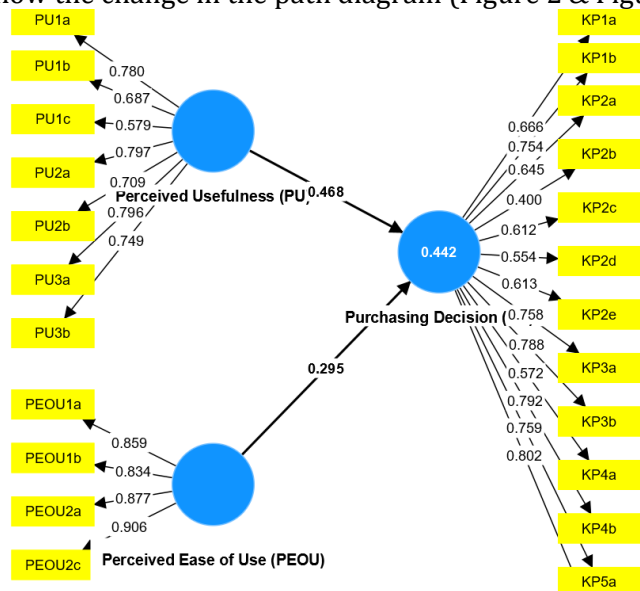


Figure 2. First Evaluation of Path Diagram (Before Elimination)

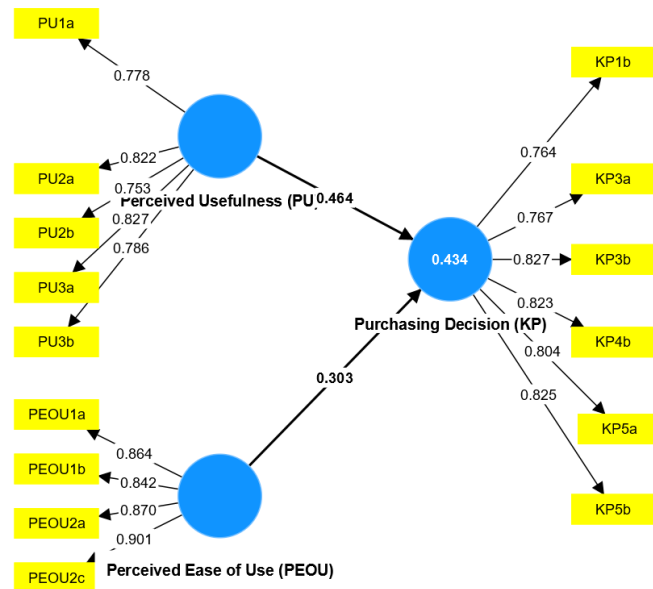


Figure 3. Second Evaluation of Path Diagram (After Elimination)

c) Outer Model Evaluation

Outer model was evaluated to assess validity and reliability. All variables show AVE score more than 0.5, therefore this research is valid. This research is reliable as the score for composite reliability are above 0.7 for all variables.

Table 4. Research Validity Results

Variable	Average variance extracted (AVE)
Perceived Ease of Use (PEOU)	0.756
Perceived Usefulness (PU)	0.630
Purchasing Decision (KP)	0.643

Table 5. Research Reliability Results

Variable	Composite Reliability
Perceived Ease of Use (PEOU)	0.905
Perceived Usefulness (PU)	0.854
Purchasing Decision (KP)	0.892

d) Inner Model Evaluation

R-square test and bootstrapping test were used to evaluate inner model. R-square test analyzing the influence of PU and PEOU to Online Purchasing Decision. R-square score from this research is 0.434. It means the online purchasing decision can be explained by perceived usefulness (PU) and perceived ease of use (PEOU) by 43.4%, while the remaining 56.6% is explained by other variables outside the model research. The R-square score from this research shows that the model is low.

Table 6. R-square Score

Variable	R-square
Perceived Ease of Use (PEOU)	0.434
Perceived Usefulness (PU)	
Purchasing Decision (KP)	

Nowadays, there are many factors which affecting consumer to purchase vegetable in online store. Therefore, further research is needed to analyze various factors other than TAM, especially for consumer in Indonesia. Several research about online groceries purchasing online was conducted using Theory of Planned Behavior (TPB). This theory can be considered for further research by combining with TAM. Benedict et al, 2001 (in Shanthi and Kannaiah, 2015) stated that other than PU and PEOU, factors such as consumer personality, specific condition, and trust are affecting individual to purchase online.

Bootstrapping analyze the significance of the research. The model is significant if t-statistic > 1.960 at a significance level of 0.05 (Ghozali and Latan, 2012). All variables in this research have met the criteria, therefore, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) have significant effect on Purchasing Decision.

Table 7. T-statistic

Variable	T-statistic
Perceived Ease of Use (PEOU)	3,627
Perceived Usefulness (PU)	5,394

People who have ability to operate technology will most likely do online shopping. Adams, Nelson, and Todd, 1992 (in Ashraf, Thongpapanl, and Auh, 2014) stated an individual's level of experience in using technology take a part to their online shopping activity. Based on the research result, Perceived Ease of Use (PEOU) is significantly affecting consumer's purchase decision to buy vegetable in online store. It means the respondents in this study are familiar to buy vegetable in online store. The reason is because they already familiar to buy non-vegetable product online, therefore, there is a good chance for vegetable business owner to expand their business by developing their online store. Perceived Usefulness (PU) also significantly affecting online purchasing decision based on the research result. One of reason people do online shopping is because of the speed without requiring them to move (Bradford, 2018). Online shopping will help individual to do other task while waiting for their product to be delivered. As vegetable is one of food ingredient, online purchasing is convenient to do.

D. Conclusion

Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) have t-statistic greater than 1.960. Therefore, all independent variables in this research are significantly affecting vegetable online purchasing decision. These results indicate that respondents from this study are more likely to buy vegetables online if they have ability to purchase online. Respondents also tend to buy vegetable in online store because it helps them to do other daily task while they can wait for the store deliver the product to their home directly. Based on the results, the vegetable business owner can formulate strategy to manage their online platform better, which means, how their platform can easily be accessed by consumer and help them work efficiently.

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