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Differences of Gender Perception in Adopting Cashless Transaction Using Technology Acceptance Model

Nyoman Sri SUBAWA[1], Ni Komang Arista DEWI[2], Adie Wahyudi Oktavia GAMA[3]

Abstract

The purpose of this study is to develop a Technology Acceptance Model (TAM), to determine differences in gender perceptions in adopting non-cash transactions. In this study, the authors provide a measurement of differences in gender perceptions in adopting cashless, which refers to perceived usefulness, perceived ease-of-use, and perceived security. Respondents in this study were students from the millennial generation who are very familiar with the use of technology, especially non-cash transactions. The data collection technique used in this study was a survey, by distributing questionnaires to 260 respondents. The data were processed statistically through Structural Equation Modeling (SEM). The results of this study indicate that for men, ease-of-use of transactions does not increase the use of non-cash transactions. Meanwhile, for women, perceived ease-of-use has a significant and positive effect on the use of non-cash transactions. Furthermore, perceptions of usability and security have a positive and significant impact on using non-cash transactions. It was also found that female students had a positive, but not significant, effect on the use of non-cash transactions. This means that there has been a difference in the perception of gender, between men and women, in responding to the use of non-cash transactions.

Keywords: Technology Acceptance Model, Cashless Transactions, Gender Perception

JEL Classification Code: D16, D83, D51, M15, M31

1. Introduction

There are various kinds of developments in information technology, one of which is in the field of economics. An example of economic development that has occurred is the development of information technology that facilitates innovation in the payment system, namely, the emergence of non-cash transactions. This type of transaction does not use physical money anymore when trading goods or services (Chaveesuk et al., 2019). This new technology allows mobile users today to use their smartphones to make money transactions or payments using applications installed on the phone (Saraswat & Mehta, 2017). The transformation of electronic payment transactions consists of several models, including electronic payment cards, digital wallets, and using electronic money featured as means of payment through devices either in restaurants, supermarkets, or other payment places (O, 2018). In practice, cashless transactions are faster, relative easier, and safer because there is no need to carry a lot of cash, and this cashless method can be said to be more transparent because transactions that occur while using cashless will be automatically recorded by the system so that they can be easily tracked (Ramya et al., 2017). The successful acceptance of technology by the community in terms of the use of non-cash transactions can be measured by the development of Technology Acceptance Model (TAM) that is an information system theory that contains the decision-making process whether a technology can be accepted or not accepted by users, and also as a consideration for applying new technology (Folkinshteyn & Lennon, 2016).

This study is different from previous research. Planned behavior theory has been used to measure gender differences

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[1]First Author and Corresponding Author. Lecturer, Faculty of Economic and Business, Universitas Pendidikan Nasional, Indonesia [Postal Address: Jl. Bedugul No. 39 Sidakarya, Denpasar, 80225, Indonesia] Email: shribawa@undiknas.ac.id
[2]Lecturer, Faculty of Economic and Business, Universitas Pendidikan Nasional, Indonesia. Email: aristadewi0902@gmail.com
[3]Lecturer, Faculty of Engineering and Information, Universitas Pendidikan Nasional, Indonesia. Email: adiewahyudi@undiknas.ac.id

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in payment transactions using electronic money (Farida et al., 2016). There is research that measures how acceptance of a technology without differentiating from a gender perspective (Subawa & Mimaki, 2019; Farida et al., 2016; Maqbool Ahmad, 2018; Wulandari & Sumadi, 2020). In this research, the author intends to combine the two research topics by using TAM in measuring differences in gender perceptions in adopting cashless by looking at perceived usefulness, perceived ease-of-use, as well as perceived security to measure the acceptance of technology in undergraduate students using cashless transactions. The purpose of this research is to develop a Technology Acceptance Model to find out the differences of gender perception in adopting cashless transactions.

2. Literature Review and Hypothesis Development

2.1. Technology Acceptance Model (TAM)

In this study, a technology acceptance model (TAM) is used, which states that users tend to use a system when the system is easy to use and useful for them (He et al., 2018). TAM is the result of the development of the Theory of Reasoning Action (TRA), which functions to evaluate the acceptance of user technology, measured based on intention and its effect on attitudes, perceived usefulness, perceived ease-of-use on intention to use (Ofori & Appiah-Nimo, 2019). TAM explains that information systems can improve organizational performance, and makes it easier for users to complete one's work (Tarhini et al., 2017). Many companies are adopting and using information technology, so that researchers can examine any topic that can predicts the perception of information technology. TAM is one model that can be used to investigate this area. TAM focuses on the characteristics of the use of information technology by users as seen from the level of convenience and benefits of technology (Maqbool Ahmad, 2018). Furthermore, one of the studies on the use of the Technology Acceptance Model (TAM) is applied to batik and textile craftsmen via smartphone devices (Wismantoro et al., 2020). The application of the technology acceptance model is also carried out on students as a framework for actual prediction, which shows positive results on perceptions and is useful for policymakers (Aljaaidi et al., 2020). The same research was conducted by Martono et al. (2020), with a technology acceptance model framework that shows the results of a positive influence on respondents' perceptions. Likewise, the technology acceptance model conceptual framework integrates market perceptions, technology procurement and economies of scale in business development efforts. This affects the

manager's intention to use core banking further (Wibowo et al., 2020).

2.2. Perceived ease-of-use (PEOU) and cashless transactions

PEOU is a way to know the extent to which someone believes that using a technology will be very easy and not feel overwhelmed. Ease-of-use perception is part of the TAM factor, which is an unobserved variable that requires a manifest variable in its measurement. Research shows that there is no significant effect of perceived ease-of-use on the use of e-money (Filona & Misdiyono, 2019). Other research indicates that there is a positive and significant effect of perceived ease-of-use on the intention to use a mobile wallet (Jin et al., 2020) Based on differences in previous research results, the following hypothesis is proposed:

H1: Perceived ease-of-use will increase the use of cashless transactions.

2.3. Perceived usefulness (PU) and cashless transactions

PU is defined as a subjective probability that technology can entice consumers to achieve their goals. Liébana-Cabanillas et al. (2017) shows that perceived usefulness can increase consumer use of the non-cash payment system. The benefits that are felt when using a payment system can increase one's intention to use a system. Filona and Misdiyono (2019) indicate that there is no significant effect of perceived usefulness on intention to use e-money. Jin et al. (2020) show that there is a positive and significant influence in accepting a mobile wallet. Based on these, this research presents the hypothesis as follows:

H2: Perceived usefulness will increase the use of cashless transactions.

2.4. Perceived security and cashless transactions

In information technology, perceived security is often used by researchers to measure the adoption of a technology. According to Zhang and Luximon (2020), perceived security was defined as a measure of a person's sense of security in accessing or providing sensitive information on a web. Over the years, businesses always collected customer information as data for the company, so a business is familiar with the data privacy of their customers. Even though technological sophistication has increased, there are

still privacy issues (Damghanian et al., 2016). In this study, the model developed is the technology acceptance model (TAM) and adds the perceived security that has also been raised by Liébana-Cabanillas et al. (2017). The results in this study are that perceived security affects the intention to use mobile payments, so the higher the level of security provided for the use of mobile payments, the higher one's intention to use this type of payment. Thus, this research purposes the following hypothesis:

H3: Perceived security will increase the use of cashless transactions.

2.5. Cashless Transaction

Payment systems play an important role in a country's economy. If the payment system does not run properly and is problematic, it will damage the stability of a country's economy (Filona & Misdiyono, 2019). The instrument of the payment system itself is a means of payment that can be divided into cash and cashless. Before the presence of Internet technology people initially used cash payment tools that used physical money in the form of banknotes and coins (Jun et al., 2018). Then, when there is a rapid technological development, people start using payment tools on a non-cash way by not using money physically, just by carrying a card or mobile phone. Technological developments also stimulate the transformation of money to create efficient transactions.

Figure 1 shows the effect of the four variables, namely, perceived ease-of-use (X^1), perceived usefulness (X^2), and perceived security (X^3) as independent variables, and cashless transaction as the dependent variable (Y), which are then incorporated into three hypotheses, namely, the perceived ease-of-use positively affects the use of cashless transactions, the second is perceived usefulness positively affects the use of cashless transactions, and the third is perceived security positively affects the use of cashless transactions.
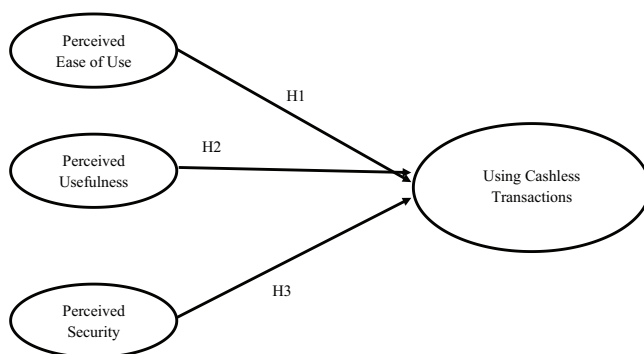
Figure 1: Conceptual Framework

3. Research Methodology

3.1. Sample and Population

The population in this study is students in Denpasar, a place chose because Denpasar is the capital of Bali where many traders provide cashless transactions compared to other cities. The size of populations in this study is unknown so that stratified random sampling is considered suitable for use as a sampling techniques. Stratified random sampling is used when the population is divided into levels, for example, the characteristics of educational levels for male and female students (Aydin, 2016). Stratified sampling uses certain criteria to achieve the purpose of research. Sample criteria required are students are undergraduates in Denpasar, aged 18 to 25, and regularly use cashless transactions. The sample used in this study amounted to 260 students, 130 male and 130 female.

3.2. Data Collection Method and Technique Analysis

This study will be conducted in the university located in Denpasar City. Research data is obtained through surveys. The survey was conducted by distributing questionnaires to respondents. And the type of data used is primary data. Primary data is defined as data obtained directly from the first source on a research object. A questionnaire was distributed to the 260 students in Denpasar that use cashless transactions. The process of distributing questionnaires was carried out online using Google Docs application, which then links to the questionnaire distributed via social media accounts to respondents according to the sample criteria that have been determined. The questionnaire distributed to respondents used a 10-point Likert scale as data measurement method. Reliability and validity tests were used to verify the suitability of the measurement scale, namely, the confirmatory factor analysis method. Confirmatory factor analysis is a statistical method used to describe the variability between variables, which can potentially be grouped into factors. The data analysis technique used is SEM (Structural Equation Modeling); one of the suitable software for SEM analysis is the Amos software.

4. Result and Discussion

4.1. Reliability and Validity

The validity test in this study used the loading factor and average variance (AVE). It can be said that it is valid if the loading factor and AVE are not < 0.5. Then, we test the reliability using composite reliability (CR), and for the requirements the value must be > 0.6. Table 1 presents the results of the loading factor, AVE, and CR of the two sample groups that have met the criteria for both male and female samples. So, the measuring instrument in this study is said to be valid and reliable.

Table 1: Result of Reliability and Validity test

	Male			Female		
	Factor loading	**Composite reliability**	**Average variance**	**Factor loading**	**Composite reliability**	**Average variance**
PEOU (Perceived Ease of Use)		**0.829**	**0.619**		**0.822**	**0.61**
PEOU4 I use cashless payments on the basis of my own personal desire	0.804			0.783		
PEOU3 Overall, cashless payments are easy to use	0.832			0.771		
PEOU2 In my opinion, the use of cashless transactions can be used anytime and anywhere (flexible)	0.72			0.783		
PU (Perceived usefulness)		**0.775**	**0.534**		**0.830**	**0.62**
PU5 I use cashless transactions because of the cashback and discounts offered	0.725			0.777		
PU3 Using cashless payment instruments, increases the effectiveness of the payment process	0.728			0.802		
PU2 By using cashless payment instruments, I feel that the transaction process is faster	0.739			0.783		
PS (Perceived Security)		**0.817**	**0.691**		**0.753**	**0.604**
PS2 I entrust cashless payment instruments in my transactions	0.857			0.735		
PS1 I feel safe using cashless transactions as a means of payment	0.805			0.818		
UCT (Using Cashless Transactions)		**0.776**	**0.634**		**0.703**	**0.543**
UTC1 I prefer to use cashless than cash because I don't have to carry cash anymore	0.755			0.769		
UTC2 I only use cashless when I don't have cash	0.836			0.703		

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This study also calculates the fit model, which is the suitability of the research data and the resulting model. Table 2 shows the fit model for both male and female respondents. For male respondents the results of the fit model obtained are in accordance with the specified value, which is above 0.90, whereas for female respondents, the results obtained are average, but still acceptable.

4.2. Hypothesis Tests

Hypothesis test is divided into the first stage testing using a sample of male respondents, and the second stage using a sample of female respondents. Table 3 showed the result of hypothesis testing, which then will be interpreted in the discussion section.

Figure 2 shows the results of the analysis using SEM for male samples. Hypothesis 1 states that the perceived ease-of-use affects the increasing use of cashless transaction by students; after calculating the data collected, the perceived ease-of-use did not effect the increasing use of cashless transactions ($\beta = -0.08$; $P = 0.642$). So, hypothesis 1 is rejected. Then, hypothesis 2 states that perceived usefulness can increase the use of cashless transactions among students; the results of data processing show that perceived usefulness can indeed increase the use of cashless transactions among students ($\beta = 0.47$; $P < 0.05$), hence, hypothesis 2 is accepted. Lastly, hypothesis 3 states that perceived security can increase the use of cashless transactions among students; according to the data obtained, the result show that indeed perceived security can increase the use of cashless transactions ($\beta = 0.64$; $P < 0.05$), so, hypothesis 3 is accepted.

Figure 3 shows the results of the analysis using SEM for female samples. Hypothesis 1 states that perceived ease-of-use affects the increasing use of cashless transaction by students, after calculating the data collected, the perceived ease-of-use does affect the increasing use of cashless transactions ($\beta = 0.35$; $P < 0.05$), thus, hypothesis 1 is accepted. Then, hypothesis 2 states that perceived usefulness can increase the use of cashless transactions among students; the results of data processing show that perceived usefulness does not increase the use of cashless transactions among student ($\beta = 0.09$; $P = 0.801$), so, hypothesis 2 is rejected. Lastly, hypothesis 3 states that perceived security can increase the use of cashless transactions among students; according to the data obtained, the result show that perceived security does not increase the use of cashless transactions ($\beta = 0.60$ $P = 0.130$), so, hypothesis 3 is rejected.

4.3. Discussion

Cashless transactions are the result of developing information technology. One of the reasons for the development of this technology is, according to Farida et al. (2016), that people prefer a system that is more practical to achieve their goals; for example, when making transactions people do not need to carry a lot of cash, they only need to bring a smartphone or card. In this study, there were differences in results between male and female students. The first thing is perceived ease-of-use. For male students, the perceived ease-of-use did not affect the increasing use of cashless transactions in student. For female students, the perceived ease-of-use affects the increasing use of cashless transactions positively and significant. Based on the results, it can be said that female students really feel the convenience when making cashless transactions; the easier the cashless transaction process is, the higher the use by female students. Male students do not seem concerned with the perceived convenience or this could be because male students use cashless less often, so they do not delve into the features that exist in cashless transactions.
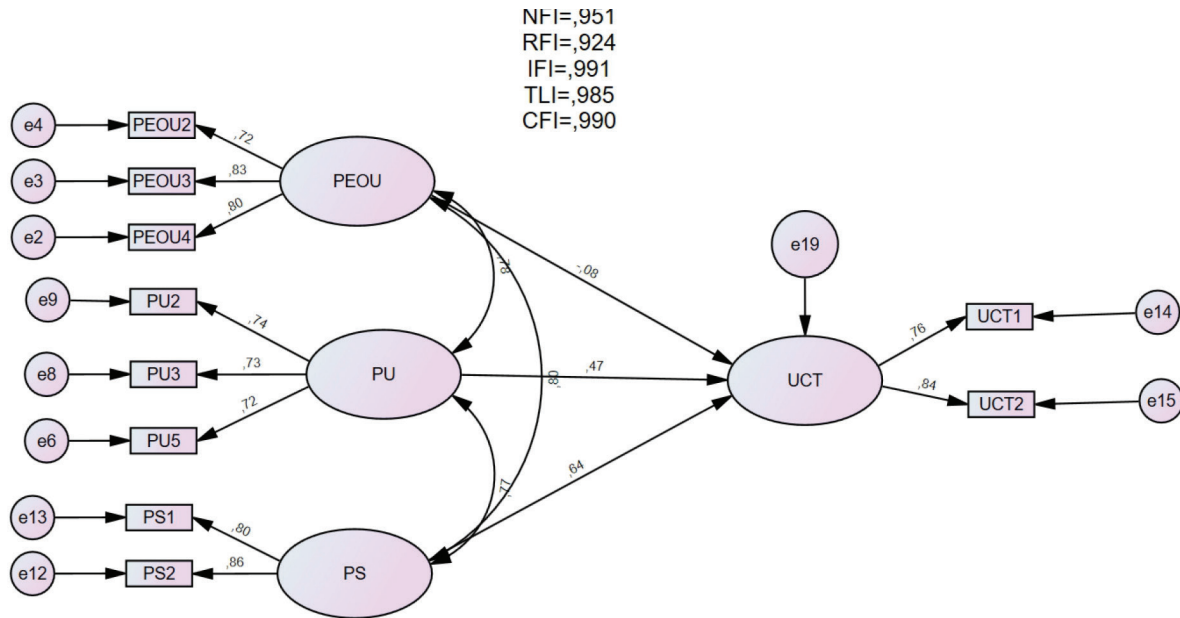
Table 2: Fit Model

Fit Model	Male	Female
NFI	0.951	0.919
RFI	0.924	0.874
IFI	0.991	0.955
TLI	0.985	0.929
CFI	0.990	0.954

Table 3: The hypothesis testing result

Hypotheses	Male Samples			Female Samples		
	β	P	Decision	β	P	Decision
H₁ Perceived Ease of Use → Using Cashless Transaction	-0.08	0.642	Rejected	0.35	0.040	Accepted
H₂ Perceived Useful → Using Cashless Transaction	0.47	0.006	Accepted	0.09	0.801	Rejected
H₃ Perceived security → Using Cashless Transaction	0.64	***	Accepted	0.60	0.130	Rejected

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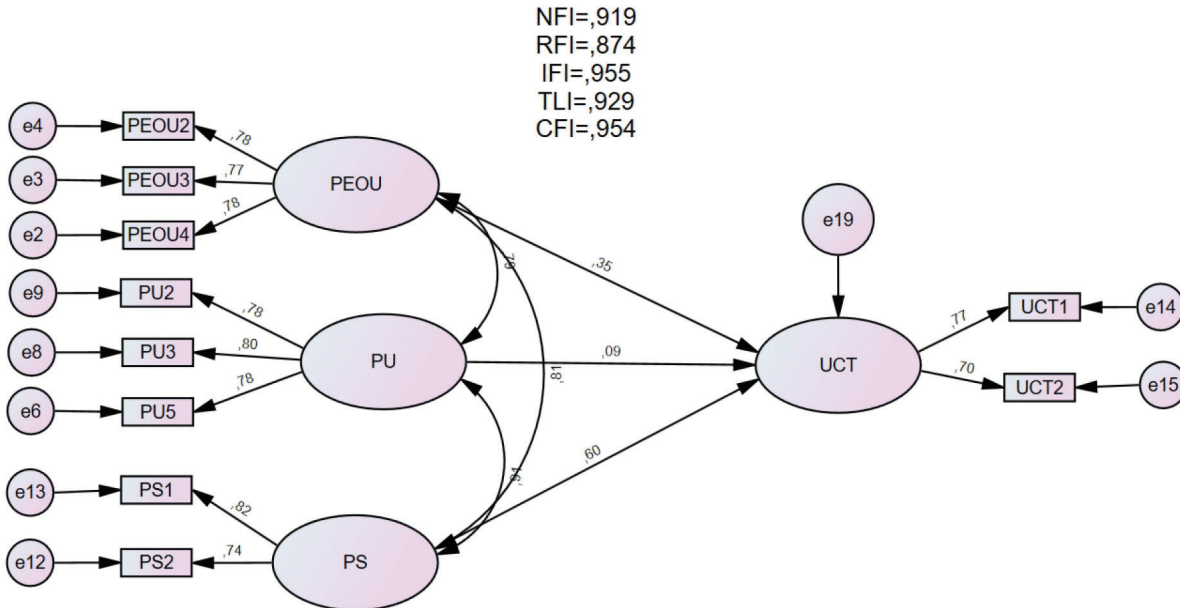
Figure 2: Model of male sample

Figure 3: Model of female sample

Perceived usefulness represents acceptance of technology in terms of the benefits it provides. The results of this study show differences between male and female students. For male students, perceived usefulness significantly affected the use of cashless transaction in a positive way. For female students, perceived usefulness affects the use of cashless transaction positively, but not significant. This is happening because when using cashless transactions, both male and female students really feel the benefits provided by using cashless; the higher the benefits obtained, the higher the use of these cashless transactions (Subawa et al., 2020).

Perceived security represents acceptance of technology in terms of the level of security obtained when using cashless transactions. The study shows differences between male and female students. For male students, perceived security positively affects the use of cashless transaction and the effect is significant. For female students, perceived security positively affects the use of cashless transaction, but the effect is not significant. This is happening because when using cashless transactions, both male and female students think about security of cashless use; the higher the security level of cashless transactions, the higher the increasing level of cashless users.

5. Conclusion

Cashless transactions can provide various benefits in everyday life, which are very efficient and effective in use. There have been many people who have felt the convenience, benefits, and security of this cashless, but everyone is different in interpreting things. One of the theories that can be used is technology acceptance model (TAM), which is the information technology model by developing the ease-of-use and the usefulness of technology. The difference presented in this study is the difference in gender between undergraduate students. There are differences in the three hypotheses: (1) for male students, perceived ease-of-use does not increase the use of cashless transaction; for female students, perceived ease-of-use significantly affects the use of cashless transaction positively; (2) for male students, perceived usefulness significantly affected the use of cashless transaction in a positive way; for female students, perceived usefulness positively affects the using of cashless transaction, but not significantly; (3) for male students, perceived security positively affects the use of cashless transaction and the effect is significant; for female students, perceived security positively affects the use of cashless transaction, but the effect not significant. This difference proves that a person's attitude in accepting or rejecting a technology is not the same and depends on that person's needs.

6. Limitation and Future Research

This study has limitations that open up opportunities for further investigation. This research is a development of the TAM model, which can affect the level of interest in using a new system. However, in this study, the theory and conditions in the field are not yet fully compatible. But research on the development of the payment system is interesting to discuss, and there will be many developments in the coming years. For future research on this topic should ensure that the respondent really fits the predetermined criteria, namely, they use cashless as often as possible, and it is better to use the interview method first.

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