Analysis of Digital Wallet for Higher Education Student using Online Transportation Network Services

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***Abstract*— Online transportation networks are currently a popular choice of transportation. The customer is an online transportation network that uses a mobile application and uses a digital wallet of the online transportation network to deposit money into the customer's account as a balance for payment when ordering transportation. The online transportation network is a part of shared economy practice by using mobile applications. This is the quantitative research, and there is a questionnaire to the 336 students, and get the 251 students for valid data. The research question for this article is this: Are students kept safe and comforted by online transportation networks? Will students pay with the digital wallet (to be cashless) for better security and convenience? This research concludes that students can adequately use the sharing economy's technology as well as on an online transportation network equipped with digital wallets, and they get higher value from online transportation network.**

Keywords—online transportation network, digital wallet, sharing economy technology, higher education student, mobile application

I. INTRODUCTION

A recent phenomenon began from 2016 with the occurrence of some customers using digital wallets of the online transportation network in Jakarta, Indonesia, where customers felt unhappy or disappointed when using digital wallets of the online transportation network. At least there were three (3) reports about system failure on the balance account from 2016 until 2017. In July 2016, two (2) customers of the online transportation network said that the balance account of the digital wallet was lost, and the management of the online transportation network company gave a bad response by not being responsive. A similar incident also occurred in February 2017, when the balance in the account was lost from the digital wallet of the online transportation network. There was an issue that some devious people hacked the server of one online transportation network, but the online transportation network denied that occurred. [1,2,3,4].

Nowadays, an online transportation network is one of the alternatives of transportation, especially for people who live in big cities in Indonesia and other urban settings. This is because online transportation networks have become more productive and more efficient than other forms of public transportation [5-6]. Online transportation networks are also currently becoming more reliable and more efficient than existing transportation and will grow even faster [7,8,9].

Every mobile application of the online transportation network in Indonesia has offered payment in cashless form; the customer of the online transportation network can deposit money into a mobile application account as a balance for payment when ordering customer transportation. For example, GO-JEK and GRAB applications have digital wallets called GO-PAY and GRAB-PAY [9,10,12].

In a survey by the Indonesian Consumers Foundation (YLKI), out of 4000 respondents, 3108 (77,7%) who were very welcome with the presence of online transportation network, while 2256 of 3108 respondents (72,6%) chose GO-JEK and followed by Grab. In the same survey, respondents chose an online transportation network because of affordability (84,1%), speed (81,9%), convenience (78,8%) and security(61,4%) [13]. That survey was the same as "Jajak Pendapat (Jakpat.net)", which found that GO-JEK was still the most-used mobile application by Indonesians [14].

A survey conducted by the Communication Studies Center Faculty of Social and Political Sciences of the University of Indonesia displayed survey data of 4048 people who use mobile applications for online transportation were aged between 20 – 30 years old (84%), of whom 54% were in higher education [15].

Results from "Jajak Pendapat (Jakpat.net)" about the use of digital wallets showed that out of 1515 respondents, only 667 respondents have already used a digital wallet [14,15]. With an online transportation network, everyone who owns a private vehicle can accept other peoples' orders to deliver them to their destination. This provides benefits for vehicle owners and customers who enjoy the vehicle to reach the customers' destination [16,17,18,19]. In terms of payments, a customer in an online transportation network can directly pay with real cash or pay with a digital wallet from the mobile application of the online transportation network, which allows customers to safely and comfortably pay their orders without using real money [22].

The purpose of this research is to know and analyze higher education student convenience, feel safe, and frequently use

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the digital wallet as a payment method of online transportation network services. The research questions for this article are: (1) Is a student still kept safe and comfortable with the digital wallet of an online transportation network? (2) Will students always want to pay with the digital wallet (cashless) for better security and convenience?

Data from 251 higher education respondents were collected and processed for descriptive analysis and Pearson correlation method with the help of SPSS tools. The result of this research is that most students are willing to pay for online transportation with a digital wallet. In total, 251 higher education students feel comfortable and safe using a digital wallet for an online transportation network company.

II. Literature Review

A. The Online Transportation Network

The business model of online transportation networks is different from conventional services like a taxi. An online transportation network uses a mobile application to meet a driver with a customer (passenger). There are innovative features and competitive pricing for online transportation networks to build trust and support for customers [7,8].

Customers can enjoy the convenience of this service through a user-friendly mobile application. For example, customers can see the nearest car or motorcycle on the map, which shows an estimation of when the driver will arrive to pick up the customer. Furthermore, the customer can see the cost and the approximate time to reach the destination. When a customer makes a payment, the driver will not get the payment directly from the customer. However, he/she will receive a sharing revenue from that online transportation network that the driver is using. After the customer received service, the customer can leave a review for the driver and give a rating for the vehicle quality and service [6,8,21].

Payment can be quickly made between customers and the driver. Payment can be with cash or with a digital wallet from the mobile application of an online transportation network company for the convenience of customers. After the customer uses that transportation network, the customer will get the receipt of the trip in an email [5,8,18].

B. The Digital Wallet

The digital wallet is used in most mobile applications of online transportation networks, for safety and convenience for the customer. The customer does not need to pay with real cash, but only needs to top-up for a balanced account of the online transportation network mobile application, and it will be charged from the customer's account after they use the service of the online transportation network [5,20,22].

The customer can get benefits from this digital wallet. The customer can make payments anywhere and anytime, which is ubiquitous and immediate. The customer can get an instant connection through wireless routers. Also, the customer can secure the network from its security platform [9][25][26].

With the digital wallet, the customer will have the stage for new intermediaries between technology and traditional producers of goods and services providers. The digital wallet can provide and facilitate interaction between buyer and seller quite closely at the same focus point [27][12].

C. The Sharing Economy

The sharing economy has the characteristic of collaboration between people by using online technology, which includes online collaboration, social commerce, sharing online and ideology of consumers depending on information technology that increases the amount of user-generated content and about how information was created and consumed with online technology. For example, peer-to-peer is characteristic in file sharing, and this is also the phenomenon of activities to collaborate between online users, such as exchange of the customer to other customers [16,25]. According to Rodrigues and Druschel (2010), users can be online and share their knowledge on Wikipedia. This means that every user can work together to produce content by sharing knowledge [29].

According to Breidbach and Brodie (2017), the "Sharing Economy has been defined by four keys. i) access rather than ownership, ii) the use of ICT-enabled engagement platform, iii) monetary rewards for the sharing of resources, and iv) multiple interdependent economic actors who engage in sociotechnical exchange processes within service ecosystems" [30].

III. Research Methodology

A. Research Instrument

This is a quantitative research that uses a questionnaire of closed format questions. There are nineteen (19) questions with a multiple-choice and Likert scale from 1 – 6, where the value of 1 represented "strongly disagree" or "never" and the value of 6 represented "strongly agree" or "always". This research focused on higher education students; aged 15-26 years old.

B. Data Collection Procedure

This research collected data from higher education student respondents for one month with a snowball method to spread the questionnaire. These students had already used a mobile application of an online transportation network. After collecting the data, research continued with data analysis. Questionnaire form to higher education with two media: (1) a paper-based questionnaire in the researcher's campus and (2) an online-based questionnaire through Google forms for the outside of the researcher campus to reach higher education students.

C. Data Analysis

This research used descriptive analysis and the Pearson Correlative method, with the help of SPSS tools, to collect data, and to present it with descriptive analysis and correlation as well to explain the data. The validity of using Pearson R-Table with the level of significance is 5% and N=251 data [28]. The validity is shown in Table I:

TABLE I. THE VALIDITY OF THE QUESTION

Question	Corrected Item – Total Correlation	R-Table (0.05) with N=251	Result
Comfortable	**.685**	.138	Valid
Safety	**.616**	.138	Valid
Save Time	**.588**	.138	Valid
Save Money	**.453**	.138	Valid
Promotion	**.322**	.138	Valid
Agree with Price	**.378**	.138	Valid
Loyalty	**.653**	.138	Valid
05:00 – 08:00	**.474**	.138	Valid
08:00 – 12:00	**.538**	.138	Valid
12:00 – 16:00	**.435**	.138	Valid
16:00 – 20:00	**.587**	.138	Valid
20:00 – 24:00	**.470**	.138	Valid

The reliability of this questionnaire used Cronbach's alpha with a resulting score of 0.845 [31].

D. Data Characteristic

Concerning the data results, this research has 336 respondents, but nine respondents did not use an online transportation network, and from 327 respondents who used an online transportation network, 76 respondents did not use a digital wallet of the online transportation network. This research took 251 respondents between the ages of 15 and 26 years old who used the online transportation network and used digital wallet of the online transportation network. Characteristics of these research respondents are shown in Table II:

TABLE II. CHARACTERISTICS OF RESPONDENTS

Description	Total Answer	Percentage
N Total	336	100%
Gender		
Male	182	54.2%
Female	154	45.8%
Ages		
15-17 years old	10	3%
18-20 years old	190	56.5%
21-23 years old	119	35.4%
24-26 years old	17	5.1%
Use Online Transportation Network		
Never Use	**9**	**2.7%**
Male	6	67%
Female	3	33%
Already use	**327**	**97.3%**
Male	176	54%
Female	151	46%
Use the Digital Wallet (data from 327 respondents)		
Never	**76**	**23%**
Male	36	47%
Female	40	53%
Already used	**251**	**77%**
Gender		
Male	140	56%
Female	111	44%
Ages		
15-17 years old	9	3.6%
18-20 years old	132	52.6%
21-23 years old	94	37.4%
24-26 years old	16	6.4%

IV. RESULT AND DISCUSSION

A. Respondents Used Digital Wallet

Of the 327 respondents that used an online transportation network, the respondents who used the digital wallet of the online transportation network were 251 respondents. This means that the digital wallet is useful when the customer needs to pay. The customers do not need to pay with real cash, and they also do not need to wait for any change when using cash. Furthermore, in Indonesia, the digital wallet of the online transportation network can save some money, too. Since GO-JEK launched GO-PAY as a digital wallet, every time a GO-JEK customer reserved a vehicle, the customer gets a 20% discount for every transaction done using GO-PAY.

B. The Student Spent Money for Every Top-Up of Digital Wallet (Based on Gender)

How about the student's spending for topping-up their account? From data shown, male and female students are similar; most of them spent Rp. 50.000 – Rp. 100.000 every top-up. The second-rank category is those who pay less than Rp. 50.000 every top-up. This means there are no differences between male and female about the spending on every top-up. Data are shown in Figure 1.

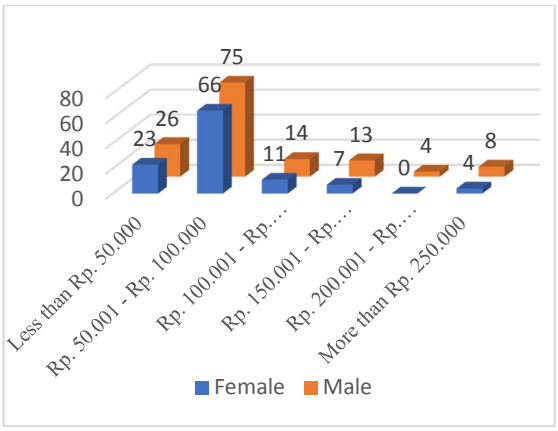

Fig. 1. Spend the money for every top-up based on gender

C. The Student Spent Money for Every Top-Up of Digital Wallet (Based on Ages)

Similar to gender (i.e., how the students spent money on every top-up), the data in Figure 2 shows how the ages of students spent money on every top-up.

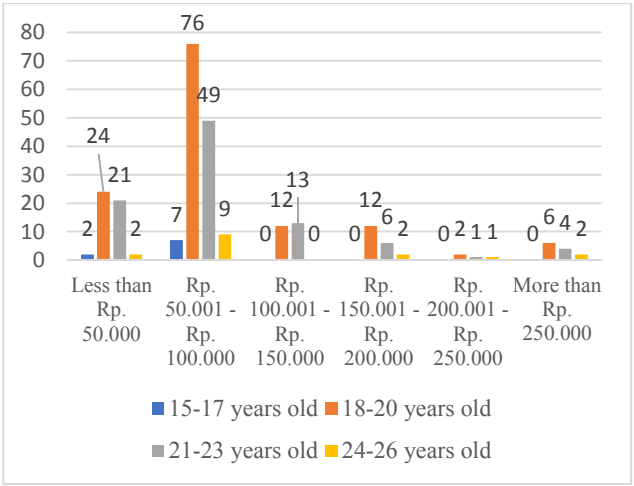

Fig. 2. Spend the money for every top-up based on age

Data from Figure 2 show the results from the student of various ages, who mostly spent Rp. 50.000 – Rp. 100.000 for a top-up. The second-rank category is less than Rp. 50.000 because these students tend to save. This result means that almost all students aged 18-23 years old save money for a deposit or top-up for his/her account on the digital wallet of the online transportation network. They just add a maximum of Rp. 100.000 for a top-up.

D. Comfortable, Safety, Save Time, Save Money, Promotion, and Agree with Price used Digital Wallet of Online Transportation Network

According to Rathore (2016), there are at least six (6) factors that convince customers to use the digital wallet as payment. Those factors are (1) comfort, (2) safety in the context of security of person and device, (3) time-efficient, (4) cost-efficient, (5) promotions or offers for using a digital wallet, and (6) agreeing to the price from the services fee [25]. Shown in Table III are the results with the Likert Scale (value 1 for strongly disagree until value 6 for strongly agree) of a student who used a digital wallet with these six factors:

TABLE III. SIX FACTORS AFFECTING CUSTOMER USAGE OF DIGITAL WALLET

Factor	1	2	3	4	5	6
A	0	1	22	42	90	**96**
B	0	1	17	49	87	**97**
C	0	2	19	41	71	**118**
D	2	7	22	41	75	**104**
E	2	8	21	40	60	**120**
F	1	5	23	67	**93**	62

A: Comfortable of using Digital Wallet
B: Safety of using Digital Wallet
C: Save Time using Digital Wallet
D: Save Money using Digital Wallet
E: Using Digital Wallet because of Promotion
F: Agree with the price from services fee

The results of students using a digital wallet are that most of them strongly agree with factors A through E. For factor F, most students agree with the price from the service fee. This result means that students are very convinced to use the digital wallet of the online transportation network. Students already feel comfortable and safe to use a digital wallet. A student can save time and save money by using a digital wallet. Students use a digital wallet because of promotions such as discounts or offers from online transportation network. Moreover, students agree with the rate of the service fee. This result is in line with recent research from Rathore (2016) that the customer (in this case, a student) almost strongly agree with all factor that affects customer using a digital wallet.

E. Pearson Correlation between Factor of Loyalty with Six Factors of Affect Customer using a Digital Wallet

Always using a digital wallet is one of the loyalty factors used digital wallet. In this case, the student is already affected using the digital wallet. Will the student always use a digital wallet?

TABLE IV. PEARSON CORRELATION INDICATOR OF LOYALTY

Factor	A	B	C	D	E	F
Loyalty	.608**	.523**	.505**	.440**	.270**	.270**

** Correlation is significant at the 0.01 level (2-tailed)
Note: A-F is same factor as Table III

Table IV, the result from the Pearson Correlation, shows that all 6 (six) factors are strongly significant; students always use digital wallets with an online transportation network. This result is in line with research from Rathore [25].

F. Pearson Correlation between Time of Using Digital Wallet with Six Factors that Affect Customer Use of a Digital Wallet

TABLE V. PEARSON CORRELATION INDICATOR OF TIME OF USING DIGITAL WALLET

Time	A	B	C	D	E	F
05:00 – 08:00	.292**	.249**	.175**	.241**	.167**	.116
08:00 – 12:00	.274**	.292**	.263**	.186**	.163**	.153*
12:00 – 16:00	.334**	.291**	.223**	.121	.081	.139*
16:00 – 20:00	.368**	.348**	.299**	.298**	.234**	.299**
20:00 – 24:00	.236**	.214**	.231**	.097	.213**	.245**

**. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
Note: A-F is the same factor as Table III

Table V shows the result of Pearson Correlation between the time of the day and the six factors that convince higher education students to use a digital wallet. The results show that comfort, safety, and time-efficiency of using digital wallets are significant from 5 AM to 12 PM noon. Meanwhile, the cost-efficiency of using a digital wallet is significant at almost all times, except at 12 PM – 4 PM and 8 PM – midnight. This is because those hours are not rush hours, so at those times, the usage is low. However, the usage of digital wallets due to promotion is high at all times from 5 PM to midnight. It is significant for students because, at those hours, the use of the promotion might be beneficial for the student. Moreover, about agreeing with the price from services fee, it is significant at all times except 5 AM–8 AM. At this moment, students might be going to campus with his / her parents, or maybe students do not use the online transportation network yet at that moment.

G. Results of Research Questions

The results are twofold. (1) Is a student kept safe and comfortable with the digital wallet of the online transportation network? The result of this research is that students feel safe and comfortable with the digital wallet. Also, students save time and save money when using the digital wallet for payment transactions at online transportation network services. Higher education students using digital wallets because of promotion from the online transportation network company and also agree with the price from services fee from the online transportation network. (2) Will students always want to pay with the digital wallet (cashless) for better security and convenience? The result of this research is that higher education students can use the digital wallet as a tool for payment for the online transportation network. They feel comfortable with digital payment. Higher education students may have a risk and accept the danger in engaging with the online transportation network; however, what they get from this online

transportation network offers higher values for these higher education students.

V. Conclusions

This research concludes that students can use the technology of sharing economy as well as online transportation network equipped with a digital wallet. With the readiness of current students in using online transportation networks, it is not an issue nor a danger to use this sharing economy's technology. This is evidence from the result of this study— proving that students are very comfortable and safe using this technology and can use digital wallets comfortably when paying online transportation networks. However, the phenomenon that occurs in Chapter 1 (regarding the phenomenon in which the balance account of the digital wallet was lost) does not have an impact on students.

The implication of this research is to remain aware and ready for further research on the risks of a student using the digital wallet on his / her smartphones. That is possible that the physical security of the students is guaranteed, but the security of the internet, such as hackers targeting on the smartphone needs research for the future. Besides, it can be considered that there might be problems in the system in the digital wallet as well as in testing the cybersecurity of online networks.

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