

Acceptance of E-Commerce in Rural Level: Villagers's Perspective

Hardika Dwi Hermawan

Information and Technology Studies
Faculty of Education
The University of Hong Kong
HKSAR, P.R.China
u3542317@connect.hku.hk

Dwi Pamuji Ismoyo

Social Development and Welfare
Faculty of Social and Political Sciences
Universitas Gadjah Mada
Yogyakarta, Indonesia
Dwipamuji.022@gmail.com

Muhammetmyrat Yarmatov

Faculty of Electrical and Computer
Engineering
Ulsan National Institute of Science
and Technology
Ulsan, South Korea
yarmatov@unist.ac.kr

Abstract— Nowadays, e-commerce is proliferating around the world, and also Indonesia with hundreds of trillions of transactions and will reach hundreds of billions by 2025. E-commerce acceptance on the provincial level is significant because half the Indonesian population lives in rural area. This study aims to determine the level of acceptance of e-commerce at the provincial level in Indonesia, viewed from the perspective of the villagers. Data obtained from the questionnaire and interview, 90 respondents answered the survey. First of all, the paper examines profiles of respondents, mastery of IT, and knowledge of e-commerce and level of acceptance of it. Secondly, focus on the preferences of villagers between the traditional shop and online shop and prediction whether villagers will buy products via an online store in the future. Finally, provide recommendations to e-commerce companies to be more acceptable based on interview results. The conclusion that can be taken is the villagers have mastered the technology well and accepted the existence of e-commerce, the young generation ages 12-25 years is the group that most agree with e-commerce. On the other hand, the villagers still prefer the traditional shop with 92%, but they also revealed that in the next ten years they would shop through the online store with a percentage of 65%, the young generation dominates with a rate of 82%. Based on the interview, there are some steps that e-commerce companies can do to reach rural communities, including advertising, improving product quality and collaboration with rural communities.

Keywords-mobile; e-commerce; rural level; online shopping;

I. INTRODUCTION

The development of information technology in Indonesia brings an excellent influence for the people of Indonesia. Information technology encourages innovation in business and market activities with the advent of various online payment methods, travel booking, online taxi, internet banking and e-commerce (Li, 2001; Zhu & Chen, 2016). E-commerce is a new system or paradigm in the business world, which shifts the paradigm of traditional commerce into electronic commerce that is by utilising ICT technology, or in other words internet technology (MARS Indonesia, 2016; Khalifa, 2004).

The growth of e-commerce in ASEAN countries, especially Indonesia, has multiplied with the value of transactions that have been made by the people of Indonesia reached 130 trillion rupiahs in 2014 (Anggraini, 2016). This figure is obtained not only from sales in major cities of

Indonesia but also from small towns that have followed the development of the e-commerce market. Meanwhile, the 2016 Economic Census Data from the Central Bureau of Statistics (BPS) said, e-commerce industry in Indonesia in the last ten years grew about seventeen percent with the total number of e-Commerce business to reach 26.2 million units (Abdurrahman, 2017). The perpetrators of e-Commerce come from diverse backgrounds both from within and outside the country with funding support that not a few too. Over time, the mushroomed e-commerce began to create a top-tier list of services. Data of the Indonesian E-commerce Association (idEA) notes that in 2013 idEA members only numbered nine e-commerce companies, three years later the members grew to 185 groups (MARS Indonesia, 2016).

CNN Indonesia surveyed the number of visitors and the number of downloads of online shopping applications in Indonesia from November 2016 to January 2017. The survey results for three months put online shopping Lazada as e-commerce most visited by internet users with the number of visitors reached 49 million, followed Tokopedia (39,666,666), Elevania (32,666,666), Blibli.com (27,000,000), Bukalapak (25,666,667) and Matahari Mall (18,666,667) (Prihadi, 2017). Judging from the number of downloaded applications, Lazada, Tokopedia and Bukalapak have reached more than 10 million downloaders, followed by Elevania, Blibli.com and the Matahari Mall of more than 1 million downloaders (Prihadi, 2017).

McKinsey said in a report titled 'Unlocking Indonesia's Digital Opportunity' that the switch to the digital realm will boost economic growth to \$ 150 billion by 2025. This figure is expected to continue to grow over the next five years (McKinsey Indonesia Office, 2016). Meanwhile, global research from Bloomberg states, by 2016, 34% of Indonesia's population has access to e-commerce, and by 2020 it is estimated that more than half of Indonesia's population will be involved in e-commerce activities (Bloomberg News, 2016).

The level of regional development strongly influences the development of e-commerce. Especially when compared to Metropolitan cities with Papua Province. Likewise with the different activities and acceptance of e-commerce between urban and rural communities (Widagdo, 2016). Based on 2010 Population Census data, rural population reached 119,321,070 people (50.21%) and urban population reached 118,320,256 people (49.79%) (Central Agency on Statistics of Indonesia, 2010). The study of the use of IT and the level of acceptance of e-commerce in rural communities can help the

development of e-commerce companies in the future and the penetration of it in Indonesia to reach rural communities.

Based on the above problems, we can apply research questions as follows:

1. What was the acceptance of e-commerce in rural level on villager's perspective?
2. What was the preference of villages between e-commerce and traditional shop?
3. What recommendations for an e-commerce company to be accepted for rural communities?

II. LITERATURE REVIEW

A. E-Commerce and related work

E-commerce related to digital transactions used by organizations or individuals can reach consumers and society more broadly to have opportunities to increase market growth (Scheider, 2012). This transaction model allows commercial transactions to cross regional boundaries and is more efficient than traditional transactions. The presence of e-commerce makes various micro, small and medium enterprises data enter the global market quickly and in real time. The e-commerce system has brought some changes, including lowering transaction costs between sellers and buyers, transactions become easier without time and place restrictions, more alternative options and promotions, the opportunity to expand market share without having considerable capital and investment (Bernadi, 2013).

Technological developments between rural and urban areas affect how technology is used (Donnermeyer & Hollifield, 2003). Likewise with the growth of e-commerce market between rural and urban areas also have differences. So far, most studies have only seen the perspective of e-commerce acceptance from the perspective of internet users, consumer, and society in general and students. The survey conducted by Shukala took samples from 100 online shoppers in India to determine the effect of gender on online shopping (Shukla, 2016). Similarly, a study conducted by Rahardjo on 300 internet users in Yogyakarta quiet online shopping and impacts on shopping trips (Rahardho, 2011).

Several studies relevant to this research include research on the level of online shopping acceptance in Bangladesh with sample 106 internet users (Suhan, 2015). The investigation revealed that respondents felt the benefits of online shopping. However, the study still looks from consumers' point of view and internet users. Similarly, research conducted by Al-Hudaif and Alwahtani about the acceptance of online in Saudi Arabia is done to consumers' online shop (Al-Hudhaif & Alqahtani, 2014). Moreover, Sureshku's research identified rural consumer attitude toward e-retailing in India (Sureshku, 2017). The samples and data used are 100 consumers e-retailing in rural areas of India. This study confirms that consumer in the country market still feels difficult to do the transaction through the website.

Based on previous research, it is necessary to study the level of e-commerce acceptance on the rural level is viewed from the perspective of villagers, not only internet users and consumers. This study is beneficial as an e-commerce company to determine the initial strategy for their products

readily accepted in rural level, not just those who already use e-commerce, but also reach people who do not know but in the future will be interested in using e-commerce. As it is known that half population of Indonesia lives in rural areas. This study also reveals that villagers have received technological developments well but have not understood transactions via the online shop.

B. The area in this study

Cipaku village is a village in Mrebet, Purbalingga Regency, Central Java province, Indonesia. It is located about 300 km from the capital city of Indonesia, Jakarta and 124 km from the capital of Central Java province, Semarang. It has five hamlets (called Dusun) with an average population of 600 residents. Dusun 1 for this study had 3 RT (sub-Dusun) with a population of 134 people with age over 12 years and used as sample research. The three sub-villages are called Siwerit, Kidul Desa and Prapatan.

The number of villagers involved in the survey was 90 people, divided by 37% (33) came from Siwerit, 34% (31) came from Prapatan and 29% (26) from Kidul Desa. Survey data can be seen in Table 1. The responses of villagers are very willing to take part in this research. Respondents in this study were villagers of varying ages between 12 and 65 years. The division of ages range follows the Indonesian Ministry of Health, which is 12-25 years old for adolescents, 26-45 years old for adults and 45-65 years old for the elderly category.



Figure 1. Cipaku Village

III. METHODOLOGY

This study uses primary data obtained from Sub village Siwerit and Kidul Desa. Questionnaire and interview were used in this research. A total of 90 respondents to fill the survey. Based on the result of questioner obtained, the data is then analyzed. The classification of the result can be seen in table 1.

TABLE 1. CLASSIFICATION

Average Answer	Percent	Category
> 4,2 – 5,0	81-100 %	Strongly Agree
> 3,6 – 4,2	61-80%	Agree
> 2,6 – 3,6	41-60%	Agree or Disagree
> 1,8 – 2,6	21-40%	Disagree
1,0 – 1,8	0-20%	Strongly Disagree

IV. DATA FINDINGS AND ANALYSIS

A. Respondents Profile

From 90 respondents who have filled in the questionnaire, the following profiles were obtained:

TABLE 2. SAMPLE OF THE RESEARCH

	Sub Village 1			Total
	Siwerit	Prapatan	Kidul Desa	
Frequency	33	31	26	90
Percent	37	34	29	100%

TABLE 3. GENDER

	Gender		Total
	Male	Female	
Frequency	42	48	90
Percent	47	53	100%

TABLE 4. AGES

	Ages			Total
	12-25	25-45	46-65	
Frequency	27	39	24	90
Percent	30	43	27	100%

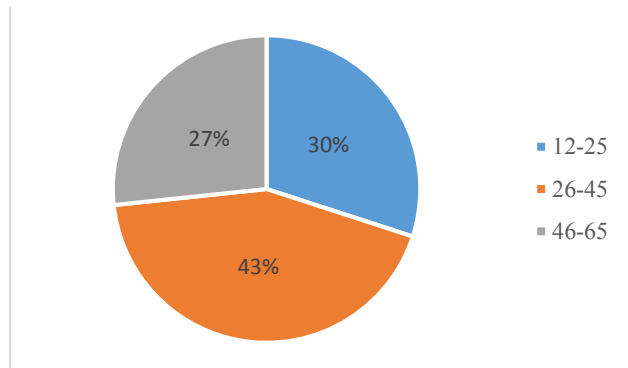


Figure 2. Ages Distribution

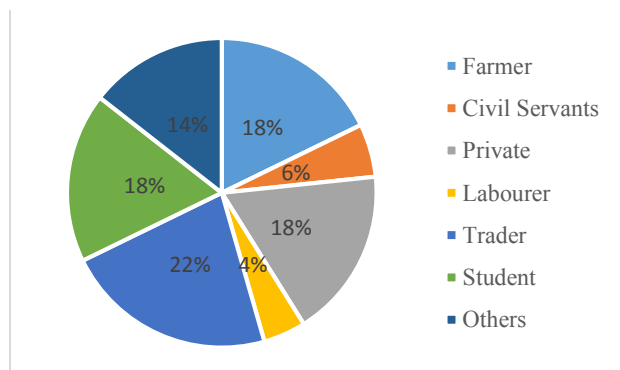


Figure 3. Occupation Distribution

From the 90 respondents, 53% were female, and 47% were male. Based on table 3, we also know that the range of ages 26-45 years dominates the survey, which is 39 (43%),

then the ages 12-25 years is 27 (30%), and 24 (27%) for ages 46-65 years. Regarding occupation, the majority of the population in the study area works as a trader, which is 27% followed by private 21%, students and farmers at 17%, other sectors 17%, civil servants 7% and only 5% working as a labourer.

B. Level of Acceptance of e-Commerce

Mastery of Information Technology

IT was mastering factors and ownership of gadgets such as computers and smartphones are an essential device to know the IT skills of the village community. Property and skills in operating computers and smartphones can be proof that villagers have accepted technological developments. From the survey results, almost all the population has a smartphone that is equal to 85 respondents, while only 15 people who have a computer.

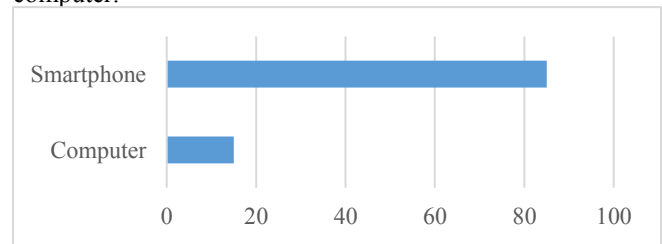


Figure 4. Number of having computer and smartphone

Based on the skill level of operating the device, it can be seen that young age has skills in using technology is very high compared to old age. Based on table 5, young people aged 12-25 are categorised as highly technological experts with mean 4.59, followed by age group 26-45 of 3.44 who skilled classified. The age of 46-65 years is included in the category unskilled with a mean of 2.0. Overall, the average mastery of the smartphone is 3.34, or in other words, 67% of the villagers can operate the smartphone well. Figure 4 shows the comparison of smartphone mastery level by age group.

TABLE 5. SKILL LEVEL OF SMARTPHONE USER

Ages	Mean	Percent	Skill Level
12-25	4.59	91%	Strongly Skilled
26-45	3.44	69%	Skilled
46-65	2.00	23%	Unskilled
Average	3.34	67%	Skilled

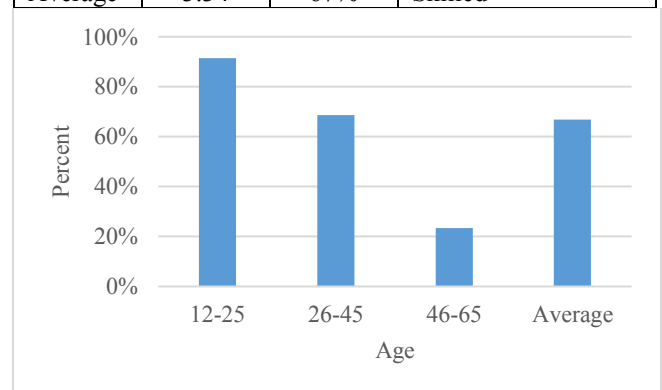


Figure 5. The Percentage of Skill Level

Knowing e-commerce

The first thing to understand the acceptance of e-commerce is to ask rural communities about the existence of e-commerce. From the survey, 60% of the population know e-commerce. Knowing e-commerce is dominated by age groups 12-25 and ages 26-45 with a percentage of 78% and 66% and in the knowing category. While the old age in the class who did not know the existence of e-commerce with mean 1.87 or only 38% who identify e-commerce. Table 6 describes the level of understanding e-commerce, and figure 5 shows the comparison of it by age.

TABEL 6. KNOWING E-COMMERCE BASED ON AGES

Ages	Mean	Percent	Classification
12-25	3.89	78%	Knowing
26-45	3.31	66%	Knowing
46-65	1.88	38%	Not knowing
Average	3.02	60%	Knowing or Not Knowing

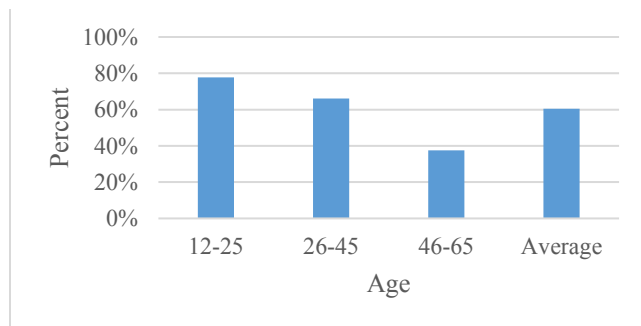


Figure 6. The Percentage of Knowing e-Commerce

Based on occupations type, it can be seen in number 7 that civil servants, student and private sector are a group of people who more understand e-commerce compared to other kinds of work, with the percentage of 84%, 81% and 75%. The farmer and labourer are the lowest presentations which are 26% and 40%.

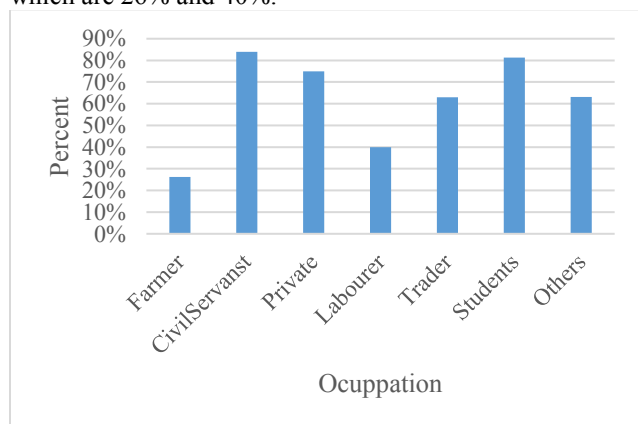


Figure 7. Knowing E-commerce Based on Occupation

Visiting e-commerce

Based on respondents who know e-commerce, Lazarda, Bukalapak and Tokopedia are the most popular e-commerce

among rural communities. However, it is still scarce for people interested in trying e-commerce. Figure 8 shows the ratio of the number of respondents who have accessed e-commerce. From the graph, only 22.2% of respondents have ever obtained e-commerce, and 88.9% of respondents said they never locate it. The results of interviews conducted, the public said that still do not understand the way of work online shopping.

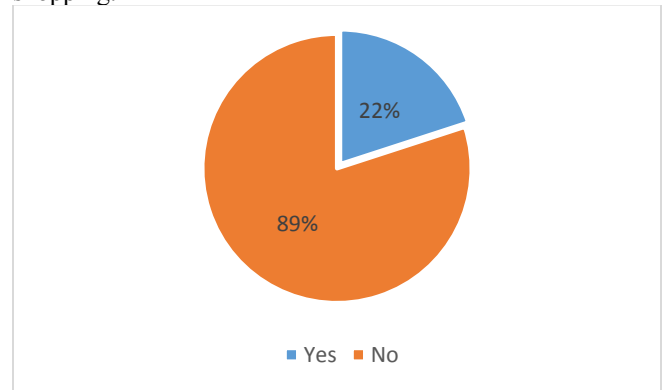


Figure 8. Number of visiting e-commerce

Buying product via online shopping

The buying rate through online shopping is still meagre. Only 13% of respondents ever purchased products through online shopping; the remaining 87% never bought products online. In general, people say they are still afraid to do online shopping, in addition to feeling uncomfortable, they also assume that the items sold do not match their expectations. Figure 9 illustrates the presentation of people who have purchased products through online shopping.

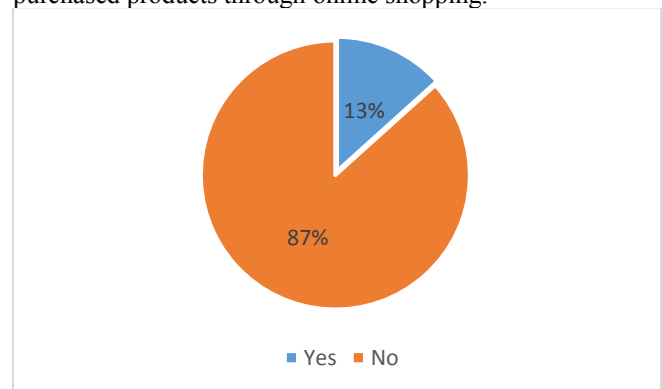


Figure 9. Percentage of buying product via online shopping

On the other hand, respondents also revealed that they would buy a product via online shop within the next 1-10 years. As many as 82% of people aged 12-25 years said they would purchase goods through the online store in the future. A large number of young people are very optimistic will be online shopping is an opportunity for e-commerce companies to win the market. Furthermore, 62% of the 26-45 year age group also said they would buy products via the online shop and the older ages with percentage 50% would buy a product via the online store. The average villager will purchase

products via an online shop in the next ten years is 65% and included in the high category.

TABLE 7. WILL BUY PRODUCT VIA E-COMMERCE

Ages	Mean	Percent	Classification
12-25	4.11	82%	Strongly Agree
26-45	3.10	62%	Agree
46-65	2.50	50%	Agree or Disagree
Average	3.24	65%	Agree

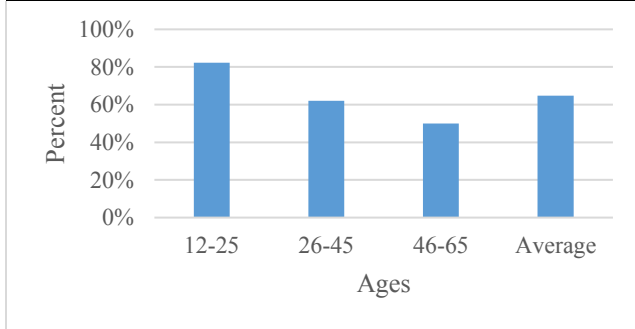


Figure 10. Will Buy Product via E-commerce in the Future

Acceptance level of e-commerce

After knowing the skill level of technology in the village, knowledge of e-commerce to the public purchasing level of online products. The last thing to remember is the level of acceptance of e-commerce in the community. The survey revealed that although the level of online product purchase and online shopping access is still shallow, villagers agree with e-commerce. If seen from the age group, ages 12-25 said strongly concur with the e-commerce with the percentage of 84%, age of 26-45 with 74% in agree category, while ages 46-65 only 50% agree with e-commerce. Overall, the level of e-commerce acceptance in the community is 69% and included in the agree category with e-commerce. Based on this, it can be concluded that rural society accepts e-commerce. The reason they take e-commerce is varied, but generally because they have to keep up with the times and technological development. Table 7 shows data about acceptance level of e-commerce at rural level.

TABLE 8. ACCEPTANCE LEVEL OF E-COMMERCE

Age	Mean	Percent	Classification
12-25	4.22	84%	Strongly Agree
26-45	3.69	74%	Agree
46-65	2.50	50%	Agree or Disagree
Average	3.47	69%	Agree

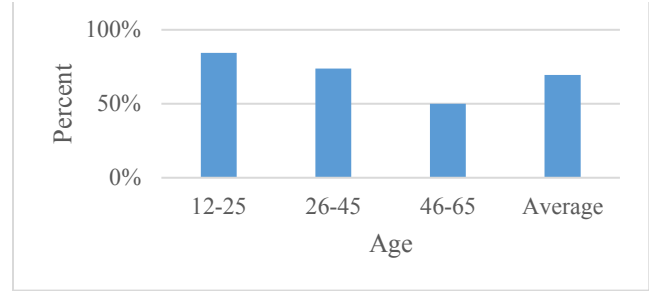


Figure 11. Percentage of accepting e-commerce

C. E-Commerce and Traditional Shop's Preference

A total of 90 respondents revealed that they preferred traditional shopping rather than online. The rates are very high and even in every age group. The age group of 46-65 years has the highest percentage of 96%, followed by age group 26-45 years 91% and young age 12-25 years by 87%. Overall the presentation of rural community choosing traditional shop rather than online is 91% and categorized very high. Table 8 shows the comparison of preferences of conventional store and e-commerce.

TABLE 9. PREFERENCE WITH TRADITIONAL SHOP

Ages	Mean	Percent	Classification
12-25	4.37	87%	Strongly Agree
26-45	4.54	91%	Strongly Agree
46-65	4.79	96%	Strongly Agree
Average	4.57	91%	Strongly Agree

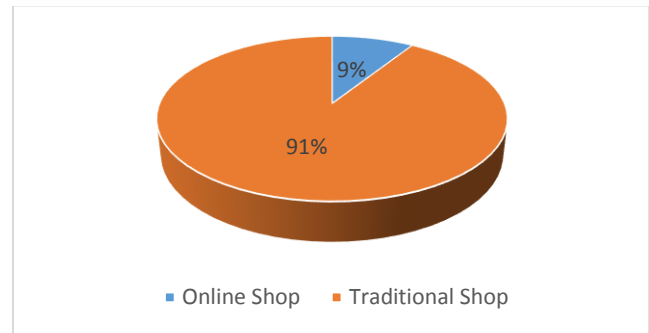


Figure 12. The preferences of respondent

Respondents reveal the reason they chose the traditional shop rather than the online store because the goods will be purchased directly and can be checked the quality. They still feel worried because many products sold in online shopping that have low quality. However, some people who opt for online shopping also reveal that they choose online shopping because it is more efficient and has many discounts or promos, so the price is lower than buying directly.

D. Recommendations for e-Commerce Company

Based on surveys and interviews, there are several steps that e-commerce companies can take to reach rural communities. The most important thing is to introduce e-commerce, because the presentation of country society that knows e-commerce is still low, that is only 60% and just 22%

who access e-commerce. Some steps that can be a strategy are advertising, improving product quality and collaboration with rural communities based on an interview with the respondents.

Advertising

Advertising is the most important thing to introduce e-commerce to the village community. It is evident from 53 respondents who say that they know of an online shop of advertising on television and 23 respondents said knowing from the internet. TV and the internet became the most effective medium for disseminating e-commerce to rural communities. However, they revealed that these only help them get to know it, but do not know how to buy through the app.

Improving product quality

Lots of people who have not dared to use the online shop due to the number of products that do not fit with the image and have a low quality. 5 out of 10 people who have purchased a product through e-commerce reveal that the goods they buy do not match. Building trust becomes very important. What can be done is to be more selective about the quality of the product and by asking the buyer to provide a review of the product he has purchased. Some people reveal that they read reviews and ratings before deciding to buy.

Collaboration with rural community

Advertising through Television and the Internet is a way to introduce e-commerce to the public. However, rural communities need more information on how to get e-commerce applications and start shopping through it. The existence of collaboration between e-commerce companies with rural communities can be the right step to socialize the way of online shopping. Groups can be a sponsor of community activities and open individual booths for people who want to try online shopping.

V. CONCLUSION AND FUTURE WORKS

Based on the studies that have been conducted, there are some conclusions: first of all is the rural communities accept e-commerce as a form of technological developments which they must follow. The presentation of revenue by 69% and included in the category high. However, their level of knowledge on e-commerce is still shallow, i.e. 60% and only 22% have ever accessed an online shop.

Secondly, villagers still prefer traditional shop rather than online. As many as 91% of people even choose usual shop expenditure because they can directly select and see the quality of goods. However, within the next 1-10 years, as many as 65% of people said they would shop online, ages 12-25 dominates with a percentage of 82% would buy products via the online shop within time.

Third, there are some steps for e-commerce Company can take e-commerce to be more acceptable to rural communities, through advertising, improving product quality and collaboration with them by sponsoring activities in the villages. Yet, there still need another study in different rural communities of Indonesia and the recommendation still need further study to test its effectiveness.

ACKNOWLEDGMENT

Thanks to LPDP (Indonesia Endowment Fund for Education) and Ministry of Finance of the Republic of Indonesia for financial support.

REFERENCES

- Abdurrahman, M. S. (2017, Mei 20). *Pertumbuhan e-commerce Indonesia tertinggi di dunia*. (Liputan 6) Retrieved December 24, 2017, from <http://tekno.liputan6.com/read/2957050/pertumbuhan-e-commerce-indonesia-tertinggi-di-dunia>
- Al-Hudhaif, S., & Alqahtani, S. (2014). Customers' Acceptance of Online Shopping In Saudi Arabia. *Academic and Business Research Institute Journal*, 1-15.
- Angraini, A. (2016, August 26). *E-commerce di Indonesia dan Perkembangannya*. (Binus University) Retrieved December 24, 2017, from <https://sis.binus.ac.id/2016/10/24/e-commerce-di-indonesia-dan-perkembangannya/>
- Bernadi, J. (2013). Aplikasi Sistem Informasi Penjualan Berbasis Web pada Toko Velg YQ. *ComTech*, 4(2), 731-71.
- Bloomberg News. (2016). Jack Ma in Indonesia Shows 'Explosive' Online Sales Growth. Bloomberg Technology.
- Central Agency on Statistics of Indonesia. (2010). *Jumlah dan Distribusi Penduduk*. Jakarta: Statistic Indonesia.
- Donnermeyer, J., & Hollifield, C. (2003). Digital divide evidence in four rural towns. *IT and Society*, 1(4), 107-117.
- Khalifa, A. (2004). Customer valuae: a review of recent literature and an integrative configuration. *Management Decision*, 42(5), 645-666.
- Li, J. (2001). *Framework of Individual Consumer's Acceptance of Online Shopping*. Canada: ProQuest Information and Learning.
- MARS Indonesia. (2016). *Studi E-Commerce Indonesia 2016*. Jakarta: MARS Indonesia.
- McKinsey Indonesia Office. (2016). *Unlocking Indonesia's digital opportunity*. Jakarta: McKinsey & Company.
- Prihadi, S. D. (2017, March 15). *Peta Persaingan Situs e-Commerce di Indonesia*. (CNN Indonesia) Retrieved December 20, 2017, from <https://www.cnnindonesia.com/teknologi/20170315104148-185-200219/peta-persaingan-situs-e-commerce-di-indonesia>
- Rahardho, S. (2011). Analisis Pengaruh Creative Promotion. *Journal Undip*.
- Scheider, G. (2012). *Electronic Commerce*. Tenth Edition: Cengage Learning.

- Shukla, R. (2016). Gender Effect on Customers' perception towards online shopping. *BVIMSR's Journal of Management Research*, 8(1), 25-30.
- Suhan, J. (2015). Acceptance of Online Shopping in Bangladesh: Consumer's Perspective. *IOST Journal of Business and Management*, 17(1), 14-24.
- Sureshkumar, R. (2017). Rural Consumer attitude towards online shopping: an empirical study. *International Journal of Innovative research in Management Studies*, 1(12), 1-7.
- Widagdo, P. B. (2016). Perkembangan Electronic Commerce (E-Commerce) di Indonesia.
- Zhu, S., & Chen, J. (2016). E-commerce use in urbanising China: the role of normative social influence. *Behavior and Information Technology*, 35(5), 357-367.

AUTHORS' BACKGROUND

Your Name	Title*	Research Field	
Hardika Dwi Hermawan	Master Student	Augmented Reality, Learning Media, Software engineering, Information Technology, IT in Education, Educational Technology, E-Commerce	
Dwi Pamuji Ismoyo	Undergraduate Student	Social Development, Community Empowerment, Social Policy, Corporate Social Responsibility	
Muhammetmyrat Yarmatov	Undergraduate Student	Electrical engineering, Software Engineering	