

Internet Adoption by Young Generation as an Education Media of Agriculture in Indonesia

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Abstract. The Internet is a product of technology that has been integrated with people's lives. The utilization of the internet has expanded to various areas including the countryside and has been adopted by extensive number of people including the younger generations of agriculture community. The Internet can be used as a media of agricultural socialization and education for the young generations. This study aims to identify the level of internet adoption by the young generation and the perception of young generation on the benefits of the internet. The research was conducted using survey method and the data were analyzed by using scoring technique. The results show that the level of internet adoption by the young generations is at the Interest level. The perception of the young generation on the benefits of the internet is high. Cooperation between local governments, academics and IT practitioners is needed to create effective internet-based forums as agricultural education media for the young generations.

Keywords: Adoption, Internet, Farming Education, Media, Perception

1 Introduction

One of the problems faced by the Indonesian people in the effort to realize food security is the limited human resources in the agricultural sector. This is due to the low interest and motivation of the young generation to work in the agricultural sector. The Central Bureau of Statistics (BPS) data show that the age of farmers over 60 years reaches 3.4 million people or 15% of the 22.3 million farmers in Indonesia.

Sragen regency is a district with the largest number of youth farmers in Central Java [1]. However, Sragen regency also faces the obstacle of the youths' decreasing interest to work in agricultural sector. This constraint must be solved immediately so that it does not jeopardize the sustainability of Sragen regency's role in the agricultural sector. One of the Efforts that can be done is applying the *Taruna Tani* policy by conducting intensive socialization on the potential of the agricultural sector, motivation, technical skills and leadership. Some of the effective and interesting media for socialization and education on the agricultural sector are the internet and social media.

The existence of internet and social media today has almost been evenly distributed in most areas in Indonesia, including in Sragen regency. In fact, internet and social media have spread in rural areas including in farmer families. Many teenagers have been familiar

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with the use of internet and social media to interact with family or friends. This study attempts to explore the extent of internet adoption and the perception of its benefits by the younger generation. This research needs to be conducted to identify the young generation's readiness and response to internet-based media of agricultural education and extension.

2 Materials and methods

The study on the adoption level is focused on the concept of adoption of innovation. Adoption is an individual's decision to become a regular user of a product [2]. Innovations take time to spread through the social system. The consumer-adoption process focuses on the mental process through which an individual passes from the first hearing about an innovation to final adoption. Adopters of new products have been observed to move through five stages [2]:

- Awareness: The consumer is aware of the innovation but lacks information about it.
- Interest: The consumer is stimulated to seek information about the innovation.
- Evaluation: The consumer considers whether to try the innovation.
- Trial: The consumer tries the innovation to improve his or her estimate of its value.
- Adoption: The consumer decides to make full and the regular use of the innovation.

This study is a descriptive study using primary data collected through a survey on 120 young generations of farmers' children in Sambung Macan, Kedawung, and Sidharjo sub districts in Sragen Regency. The applied data analysis technique is scoring technique.

3 Result and discussion

The Internet is expected to be an effective medium for the socialization and education of agriculture for the younger generation. The results on the identification of internet adoption level by the young generation are presented in the following table:

Type of Service	Average	Interpretation
Communication and Interaction (such as Blog, BBM, E-Mail, Facebook, Twitter, WhatsApp and etc.)	3,53	Evaluation
Information & Data Access (news, reference material for school / work assignment, job opportunity, products, price, etc)	3,38	Interest
Transaction (banking, e-commerce)	1,94	Awareness
Application & Decision Making (downloading various needed applications and as source of determining factor in decision making)	2,58	Awareness
Applications and other services (Searching/Browsing)	3,6	Evaluation
Total average score	3,0	Interest

Fig. 1. Internet Adoption Level by Young Generations. (Source: Primary Data Analysis)

Figure 1 show that the overall level of internet adoption by the young generation is at the interest level. This means that young people today are interested to use the internet in their daily lives. The Internet is no longer a foreign product and has spread to the countryside. More specifically, the distributions levels of internet adoption by the younger generation are as follows:

In terms of communication and interaction functions such as Blog, BBM, E-mail, Facebook, Twitter, WhatsApp etc, the adoption level is at the evaluation level with a score of 3.53. This means that the young generations have realized the benefits of the internet, grown an interest in it and evaluated the type of internet products to be used. The young generations are also interested to use the internet as a medium to access information and data with a score of 3.38. The young generation can obtain many kinds of information such

as news, reference material for study / work assignment, job vacancy, product, price, etc. In addition, the young generations have realized and known that the internet can be a medium to conduct transactions with a score of 1.94. The transactions that can be done using the internet among others are mobile banking transactions and e commerce (buying and selling products online). However, on the average, there has not been a strong interest of the young generation to use the online banking or e commerce. Relatively low trust factors and transaction risks make the young generation prefer the manual transactions. As their understanding about the transactional function, the new young generations have also come to the stage of knowing that the internet can also function as a means to support decision making with a score of 2.58. This function includes searching for hotel references, flight service options, and others. Although they are aware of this function, the young generation has not been interested to use it. As for other types of services (searching / browsing), the young generation has become aware of and interested in it, and some of the young generations have even evaluated the use of this application (score 3.6). With this service, the young generation can know more details about information / data that they want to know. The younger generation can search for information about a particular issue through several application options such as Google, Yahoo, YouTube, and etc. [3, 4]

The young generation’s interest to use the internet in their daily life is a potential for the development of agricultural socialization and education. With good approach, it is expected that the young generation can adopt the internet and access information, innovation, and job opportunity related to agriculture through it. Good cooperation between the government (related agriculture agencies), academics, and practitioners is needed to create an internet-based forum as a medium for socialization and agricultural education.

Type of Benefits	Average	Interpretation
Facilitate easier communication with family, friends, and relatives.	4,28	Very High
Internet and social media reduce telecommunication cost	3,89	High
Facilitate information and experience sharing with online community	3,88	High
Facilitate e commerce when needed	3,48	High
Facilitate search of reference material for school/work assignments	4,13	High
Facilitate e banking service (Balance check, transfer, debitand etc)	3,29	Average
Facilitate access of various needed applications	3,93	High
Facilitate browsing of news and data when needed	4,2	High
Total Average Score	3,9	High

Fig. 2. Young Generations’ Perception on the Benefits of Internet. (Source: Primary Data Analysis)

Figure 2 shows that in overall, the young generations have high perception on the benefits of the internet. They have a **very high** perception on the benefits of the internet to facilitate communication with family, friends, and relatives, and to find news and any needed data.

The young generations have a **high** perception on the benefits of the internet to reduce telecommunication expenses. The number of providers that compete to provide the best service and pricing allows the young generations to choose products at affordable prices. The young generations’ perception on the benefits of the internet as a medium for sharing information and experiences through online communities is also high. Various social media (BBM, Whatsapp, Instagram etc.) allow the young generation to create online communities that facilitate communication without boundaries (of space and time). These communities can be the media for sharing information, innovation and experience with each other. The perception of the younger generation on the benefits of the internet for e commerce is also high. Along with the development of information technology, public’s demand for a more practical and efficient method in consuming / buying products has encouraged the emergence of the growing number of online stores in which most of the users are generally the young generations. The young generation also has a high perception on the benefits of

the internet as a means to seek references related to school or college assignments and work-related materials. The internet facilitates the access to the various required applications. The Internet today can be said to be an online library. The young generations can access references of school or college assignments or references related to the field of work online in forms of research articles, reviews, latest news and various available applications including online bookstores, websites of various institution / agencies such as Central Bureau of Statistics and others [5, 6].

The young generations have a **fairly high** perception on the benefits of the internet in accessing banking services (checking balances, transfers, debits and others). Although the young generations on average have a fairly high perception on the internet, but in case of banking services, there are still concerns about the security in the transactions so that this feature is still rarely used. Even when buying products online, young generations still tend to use ATMs or go to banks to make payments [7, 8].

The young generations have a high perception on the use of the internet. This is a potential that can be used to encourage the use of the internet as a medium for agricultural socialization and education to the younger generation. With the high perception, it is expected that motivating the young generations to join and participate in the internet based agricultural socialization and education activities to be easier and more effective.

4 Conclusion

Young generations have the interest to use internet in their daily lives. The young generations have high perception on the use of the Internet, among others, to access information, communicate, share information in the online community, search for reference material for school assignments, conduct e commerce, and access any needed applications. The high interest and perception on the utilization of the internet is expected to encourage the efficiency and effectiveness of internet based agricultural socialization and education activities

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References

1. Indonesian Ministry of Agriculture, *Statistics of Agricultural Human Resources and Farmer Institution* (Information System and Data Center of General Secretary of Agriculture of the Ministry of Agriculture, Jakarta, 2013)
2. P. Kotler, *Manajemen Pemasaran, Edisi Milenium Jilid 1* (Prebalindo, Jakarta, 2002)
3. G. Chaboud, B. Daviron, Food Losses and Waste: Navigation the Inconsistencies. *Global Food Security* **12**, 1-7 (2017)
4. M. Chitiga-mabugu, C. Nhemachena, S. Karuaihe, S. Motala, N. Tsoanamatsie, L. Mashile, *Civil Society Organizations' Participation in Food Security Activities in South Africa*, (Research Report) NDA Research and Policy Unit in Collaboration with the Human Sciences Research Council Economic Performance and Development (Pretoria, South Africa, 2013)

5. R. de Koning (2009), *Climate Change, Land and Security*, Stockholm International Peace Research Institute. <https://www.sipri.org/commentary/essay/thu-06-25-2009-14-00/climate-change-land-and-security> (accessed August 17, 2017)
6. G. Elwert, L. Séhouéto, A. Hoegner, *Local Knowledge and the Improvement of Food Production – A Case Study in Benin*, In: U. Krach, M. Schulz, *Food Security and Nutrition: The Global Challenge*, 237-252 (St. Martin Press, New York, 1999)
7. M.G.B. Lima, *Sustainable Food Security for Local Communities in the Globalized Era: a Comparative Examination of Brazilian and Canadian Case Studies*, (master thesis) (University of Waterloo, Canada, 2008)
8. B. McDonald, *Food Security* (Polity Press, Cambridge, 2010)