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Farmers' Perception of Among Tani Application

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Abstract

Keywords:

Application;
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The idea of smart city is an innovative well-developed city that uses information and communication technology to help people manage resources and provide information. Within this concept, Batu City Government provides Among Tani application facility for farmers. The application has been running for 3 years and is expected to help and increase farmers' incomes. The purpose of this study was to analyze education, interests, and farming experience with farmers' perceptions in increasing product sales using Among Tani applications and analyze the relationship between farmers' perceptions with the use of Among Tani applications in increasing sales of agricultural products. The time and location of the study were in December 2019 in the Junrejo Village of Batu City. Census sampling technique was used with the number of members of the Bagus farmer group as many as 60 people. The data analysis tool used was Spearman rank analysis and chi-square analysis. The variables used are education (X1), interests (X2), farming experience (X3), farmer perception (Y1) and Usage (Y2). The results of this study are 1) analysis using the Spearman rank shows that there is a relationship between interests and perceptions while there is no relationship between education with farming experience and 2) analysis using chi square shows there is a significant relationship between farmers' perceptions with the use of Among Tani applications in increasing agriculture product sales.

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INTRODUCTION

The current industrial revolution has entered the industrial revolution 4.0 marked by interdependent cross-disciplines (Tjandrawinata et al, 2016). The industrial concept 4.0 was put forward by Klaus Schwab, President of the World Economic Forum at Davos in 2011, that there is a link between the internet and the production process. This allows small scale production to equalize large scale production in the marketing process (Feshina et al, 2019). The emergence of the industry 4.0 concept in marketing agriculture has encouraged agricultural businesses to adapt to the internet. The internet is used by agricultural businesses for the development and marketing of agricultural products. The emergence of the internet facilitates marketing media so that there is the term e-commerce, which is the process of selling and buying by utilizing the internet (Arifianto, 2018). The innovation of agricultural applications is able to develop the agricultural sector, where the principle is that consumers and farmers depend on each other so that they can directly negotiate and coordinate through agricultural application facilities (Schut, 2017). The existence of innovative agricultural applications resulting in emerges of farmers' perceptions of agricultural applications. Perception is the process of finding information through the senses and selecting, organizing, and interpreting the information received to be a meaningful picture.

Batu City is one of the cities that has implemented agricultural applications to facilitate farmers in facing the industrial revolution 4.0. An application developed by the Batu city government is Among Tani application that has been running for 3 years. However, lack of understanding of technology by farmers who do not have android devices to access the internet becomes the problem. Batu City had a number of workers in the field of agriculture as much as 27,179 people (Central Bureau of Statistics Batu City, 2018), while farmers who use Among Tani application were as much as 15,937 people (Agriculture Department Batu City, 2019). From these data, it can be seen that farmers may optimize the facilities of the Batu City Government, the Among Tani application. The optimization of the application can help them in cutting farmers' long marketing chains and farmers can consult with farm experts about the obstacles in farming business. Among Tani application has provided services or facilities in facilitating farmers in selling agricultural products and consultation with farmer experts through the application, so that farmers' perceptions emerged, such as arguments and knowledge about Among Tani application.

Previous research that discussed farmers' perceptions on the adoption of new technologies, for example, Research On Farmers' Perceptions Of Technological Innovations In Tobacco Waste Vegetable Pesticides (Aditiawati, 2014); Influence of Social Media Network Marketing (Rudyanto, 2018); Farmers' Perception of the SL-IPM Program (Robiyan, 2014); and Utilization of Information Technology to Improve Marketing of Agricultural Products (Chess, 2015) .

Previous research that discussed Among Tani applications was from Wideasari, 2019 with the results that the application has a relative advantage in terms of delivering information more easily and as an online marketing medium for agricultural products. The results of research conducted by Setiawan, 2012 namely the relative superiority of application has the aim to provide public services, especially to farmers. The application is capable of directly linking between the

farmer and the city government. Previous studies have not yet discussed the applications facilitated by the city to see the farmers' perceptions.

Based on the description, the research on the Analysis of Perception of the Bagus Desa Junrejo Group in Junrejo Village, Batu City on Among Tani Application is important to be carried out. The objectives of this study include 1) Analyzing education, interest, farming experience with farmers 'perceptions in increasing product sales using Among Tani applications and 2) analyzing the relationship of farmers' perceptions with the use of Among Tani applications in increasing sales of agricultural products.

RESEARCH METHODS

Based on the research background described above, the thinking framework that was designed is as follows:

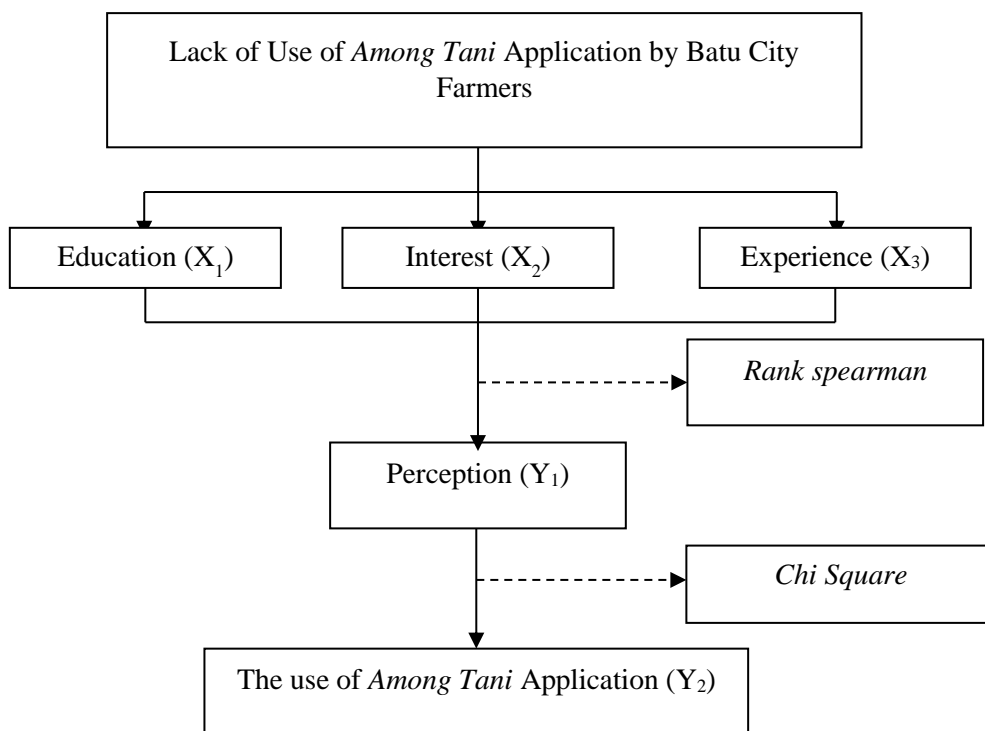


Figure 1. Flow of Thinking Framework

Description:

- > : Analysis tool
- > : Flow

The scope of discussion in this study were: 1) *Among Tani* Application is a program from the Batu City Government for farmers that aims to facilitate agricultural applications; 2) Extension of *Among Tani* application, namely the involvement of individuals or groups to communicate in receiving information on new technology; 3) Farmers' perception of *Among Tani* application that have been given counseling by the City Government of Batu; 4) The *Tani Bagus* Group Members that had participated in counseling about *Among Tani* application.

The research location was in the Village of Junrejo, Batu City. Determination of the location of research conducted purposively. The sample in this study was a member of Tani Bagus group in Junrejo Village which had 60 members and most were horticultural farmers and some farmers who grew organic vegetables and livestock. Data retrieval time started in December 2019.

The type of data used was primary data, the data that comes from the first source (farmers). Primary data obtained through questionnaires or interviews and direct observation. The data needed was in the form of farmers' perceptions of the use of the *Among Tani* application. Sampling in this study used the census method. The census method with population sampling technique is the whole of all individuals who are the object of research (Rusmawanti, 2015). The population in this study was a combination of Tani Bagus groups who have received information on *Among Tani* application from the Batu City government. Total population of 60 people and all of them were research respondents. This type of research used in this study was a survey. Survey research is a measurement process that will involve respondents by asking a number of questions (Yuliansyah, 2016).

The variables used in this study were Education (X_1), Interests (X_2), Farming Experience (X_3), Perception (Y_1) and Usage (Y_2). The questionnaire used was following the *Likert* scale to test the feasibility of the instrument using the validity test and reliability test. The first objective used data analysis namely *Spearman rank* analysis and the second objective used data analysis namely *chi-square* analysis. *Spearman rank* analysis is data that works with ordinal or tiered data or ranking and free distribution (Sugiyono, 2009). *Chi-Square* data analysis used to test the independency of two variables where each variable has categories. Both variables can be stated in a table (in rows and columns).

RESULT AND DISCUSSION

Characteristics of Respondents

Respondent characteristics are based on gender, age, family dependents, and income. The characteristics of these farmers are explained as follows:

Table 1. Characteristics of Respondents

No	Respondents	Frequency (Person)	Percentage (%)
Age (years)			
1	31-40	9	15
2	41-50	19	31
3	51-60	22	37
4	61-70	7	12
5	71-80	3	5
Total		60	100
Gender			
8	Male	39	65
9	Girl	21	35
Total		60	100
Number of family dependents			
10	0-3	11	18
11	4-7	49	82
12	0-3	11	18
Total		60	100
Revenue (IDR)			
13	1,000,000-2,000,000	39	65

14	2,000,000-3,000,000	18	30
15	> 3,000,000	3	5
Total		60	100

Source: Processed primary data (2019)

Based on Table 1, the Characteristics of the Respondents from the Tani Bagus Group in Junrejo Village, Batu City, it can be seen that the age of the farmers are dominated in the age category of 51-60 years or 37%. The results of this study indicate that the older the farmers are, the more mature their work ability and enthusiasm will be. Rome, (2012) said that between 15-55 years of age, young farmers are easier to adopt new technology when compared to older farmers.

Most respondents were male. It can be seen from the table that as many as 21 farmers or 35% were female and 39 or 65% were male. There were more male farmers than the female ones because men are the heads of households and women rarely do physical work (Antara, 2009).

Characteristics of respondents based on family dependents of Tani Bagus group Junrejo Village Batu City can be seen in the table above. The number of dependents dominates in the 4-7 category with 49 people or 82%. The more dependents of the family, it most likely belongs to the group of underprivileged families where the yield or family income is lower than the necessities of life in the family (Roma Y, 2012).

Respondent characteristics based on income can be seen in the predominant category of 1,000.0000-2,000,000 with 39 people or 65%. The more family members, the opportunity to find income that contributes to family income is also greater. The contribution of household income depends on the productivity of the production factors of the carried out activities (Handayani, 2012).

Analysis of Education, Interests, and Farmers 'Business Experiences with Farmers' Perception in Increasing Product Sales using Among Tani Application

Before testing data using the Spearman rank, it needed to be tested for validity and reliability to test the instrument data. Following are the results of the test instrument data using the validity and reliability test:

Based on the results of the analysis of the question instrument, according to (Suhar, 2014) that is a significant level of 5% or 0.05, $r_{count} = \text{Corrected Item}$, $r_{table} = r_{\alpha}$; $(n-2) = 0.254$ obtained that all indicators are valid because $r_{count} > r_{table}$. Validity test results can be seen in tables 2 and 3 below:

Table 2. Interest Variable Validity Test Results (X_2)

No.	X_2	r_{count}	r_{table}	Information
1	$X_{2.1}$	0.46	0.254	Valid
2	$X_{2.2}$	0.46	0.254	Valid
3	$X_{2.3}$	0.54	0.254	Valid
4	$X_{2.4}$	0.46	0.254	Valid

Source: Processed from primary data (2019)

Based on the results of testing the validity of the interest variable, the instruments $X_{2.1}$ to $X_{2.4}$ have valid information because the value of $r_{count} > r_{table}$.

Table 3. Test Results of Validity of Perception Variables (Y₁) and Usage (Y₂)

No	Y	r _{count}	r _{table}	Information
1	Y _{1.2}	.37	0.254	Valid
2	Y _{1.3}	0.60	0.254	Valid
3	Y _{1.4}	.72	0.254	Valid
4	Y _{1.5}	.72	0.254	Valid
5	Y _{2.1}	0.49	0.254	Valid
6	Y _{2.2}	0.44	0.254	Valid

Source: Processed from primary data (2019)

Based on the results of testing the perception of the validity of the variables, it was found that the instruments Y1.2 to Y1.5 have valid information because the value of $r_{count} > r_{table}$. On the usage variable, instruments Y2.1 and Y2.2 have valid information. The results of research conducted by Setyo (2015) tested the validity of using 50 respondents with a significance of 0.05 or 5%. In the KMO and Bartlett tests all variables were stated to have reached values greater than 0.05.

In determining the reliability test results, according to Suhar (2014), a significance level of 5% or 0.05, $r_{count} = \text{Alpha (Cronbach)}$, $r_{table} = r_{\alpha}; (n-2) = 0.254$. The criteria for decision making are as follows: if $r_{count} < r_{table}$ then H0 is accepted, while $r_{count} > r_{table}$ then H0 is rejected. The results of the reliability test analysis using SPSS are described in table 4 below:

Table 4. Reliability Testing Results

No.	Variable	r _{alpha}	r _{table}	Information
1	Interest	0.736	0.254	Reliable
2	Perception	0.784	0.254	Reliable
3	Use	.879	0.254	Reliable

Source: Processed from primary data (2019)

Based on the results of table 4, it can be seen that the value of r_{alpha} is greater than r_{table} , hence the questionnaire is declared reliable. Referring to the results of the study conducted by Setyo (2015), the reliability test of all variables in the study with a Cronbach's alpha value > 6 , then it was concluded that the entire variable was declared reliable.

The results of the Spearman rank test analysis using SPSS can be seen in Table 5 below:

Table 5. Spearman Rank Correlation Test Results

Variable		Education (X ₁)	Interests (X ₂)	Farming Experience (X ₃)	Perception (Y ₁)
Education (X ₁)	Correlation Coefficient	1,000	0.003	-0,465	-0,189
	Sig. (2-tailed)	-	.982	0,000	.148
Interests (X ₂)	Correlation Coefficient	0.03	1,000	-0,011	0.480
	Sig. (2-tailed)	.982	-	0.931	0,000
	Correlation Coefficient	-0,465	-0,011	1,000	0.23

Farming Experience (X ₃)	Sig. (2-tailed)	0,000	0.931	-	0.862
Perception (Y ₁)	Correlation Coefficient	-0,189	0.480	0.23	1,000
	Sig. (2-tailed)	.148	0,000	0.862	-

Source: Processed from primary data (2019)

Based on Table 5 it was found that: 1) Determination of the Spearman rank correlation that is every relationship between variables has a weak relationship; 2) The relationship between education (X₁) with perception has a significant value of 0.148, greater than 0.05, then H₀ is accepted, meaning there is no relationship between education and perception; 3) The relationship between interest (X₂) and perception has a significant value of 0,000 less than 0.05 then H₀ is rejected, which means the relationship between interest and perception; 4) The relationship between farming experience (X₃) with perception has a significant value of 0.862, greater than 0.05, then H₀ is accepted; meaning that there is no relationship between farming experience and perception

Based on the results of the hypothesis, there is no relationship between education and perception. This can be motivated by the low level of education of farmers, where due to economic limitations families require farmers to quit school or spend time at home to help their parents in the fields. According to (Krisnawati, 2013), the higher the formal education level of a farmer, the more observant and critical in adopting new information. Formal education is an internal factor that can affect perception. However, the results of this study are inversely proportional to the results of research by (Krisnawati, 2013), namely a farmer's formal education has a relationship with farmers' perceptions of the role of agricultural extension. The difference in the results of research conducted by Krisnawati is because respondents in this study mostly have their last education at the elementary or middle school, which will affect their perceptions of the adoption of new technologies.

The hypothesis in this study is the relationship between interest and perception. Farmers in Junrejo Village had a good interest in the *Among Tani* application. When conducting research directly to farmers, they wanted more training on the application, because according to them counseling provided by the Batu City government is still lacking. Older farmers found it difficult to understand the information conveyed. Interest variable was one of the variables used in this study, but in previous studies there were no studies using this variable.

Based on the results of the hypothesis, there is no relationship between the experiences of farming with perception. Robiyan (2014) said that experience would affect the accuracy of perception. The experience gained by farmers is not only through a formal learning process but also through a series of events that have been encountered. Farmers in Junrejo village have participated in counseling about the *Among Tani* application by the Batu City Government, only the lack of frequency of training on the application has caused some difficulties to the farmers in using the application. The results of this study are inversely proportional to the results of research conducted by (Robiyan, 2014) namely there is a relationship between experience with the implementation of Cocoa SL-PHT counseling.

Analysis of the Relationship between Farmers' Perceptions and the Use of Among Tani Application to Increase Sales of Agricultural Products

Farmers' perception with the use of *Among Tani* application in increasing sales of agricultural products was measured through data analysis tool, *Chi Square* test. The following table shows the *Chi-Square* test results :

Table 6. Chi Square Test Results

No	Perception (Y ₁)	Usage (Y ₂)						Total	
		High		Moderate		Low		Fo	Fe
		Fo	Fe	Fo	Fe	Fo	Fe		
1	High	10	6.3	14	14.85	3	5.85	27	27
2	Moderate	4	4.9	16	11.55	1	4.55	21	21
3	Low	0	2.8	3	6.6	9	2.6	12	12
	Total	14	14	33	33	13	13	60	60

Source: Processed from primary data (2019)

Based on table 6, the calculation results are manually shown to look for the Chi-Square value. X² value of 28.73 had been obtained, the significant level (α) is 0.05, the standard deviation (Df) is 4 and X²table is 9,487. Based on the values described above, it was found that X²count 28.73 > X²table 9,487 which means there is a significant relationship between farmers' perceptions with the use of *Among Tani* application in increasing sales of agricultural products.

Most farmers already had *Among Tani* application account and used the *Among Tani* application; it's just that some of them still did not use the application optimally. Based on the results of research conducted by Mania, (2017), the Chi Square test results obtained a value of 0.009 < 0.05, which means there is a relationship between the variable perception of promotion with interest in *BPJS Mandiri* Health membership.

CONCLUSION

Based on the conclusions that have been outlined, suggestions that can be proposed are: 1) there is a relationship between interests and perceptions, but there is no relationship between education and experience of farming with perceptions. So, the Batu City government should provide a lot of training on the *Among Tani* application because of the good farmers' interest in the platform; 2) Some farmers have not optimized the use of the *Among Tani* application, therefore an extension program approach is needed to provide guidance to farmers that the *Among Tani* application is able to help them sell agricultural products and provide consultation regarding problems that occur on their land; 3) This study has a weakness in the question of interest (X²), which is less precise, because it would be more appropriate if the question sentence begins with "I will / want / carry out ..."; 4) One of the variables used in this study is the interest variable, where the variable has not been used by previous researchers.

RECOMMENDATION

Based on the conclusions that have been outlined, suggestions that can be proposed are: 1) there is a relationship between interests and perceptions, but there is no relationship between education and experience of farming with perceptions. So, the Batu City government should provide a lot of training on the *Among Tani*

application because of the good farmers' interest in the platform; 2) Some farmers have not optimized the use of the *Among Tani* application, therefore an extension program approach is needed to provide guidance to farmers that the *Among Tani* application is able to help them sell agricultural products and provide consultation regarding problems that occur on their land.

REFERENCES

- Arifianto, E. Y. (2018). Perancangan E-Commerce Untuk Mengembangkan Pemasaran dan Pemesanan Produk Industri Kreatif Kerajinan Kayu. *National Seminar IENACO*, 575–582.
- Feshina, S. S., Konovalova, O. V, & Sinyavsky, N. G. (2019). Industry 4 . 0 — Transition to New Economic Reality. *Springer International Publishing AG*, 111–120.
- Krisnawati. (2013). Persepsi Petani Terhadap Peranan Penyuluh Pertanian Di Desa Sidomulyo dan Muari. Sistrick Oransbari, South Manokwari Regency. *Sosiokonsepsia*, 18(3), 303–314.
- M.Th.Handayani. (2012). Kontribusi Pendapatan Ibu Rumah Tangga Pembuat Makanan Olahan Terhadap Pendapatan Keluarga. *Jurnal Piramida*, V(1).
- Made Antara. (2009). Karakteristik Petani Kakao Dan Produksinya Di Kabupaten Parigi Moutong. *Agrisains*, 10(Vol 10, No 1 (2009)), 1–9. Retrieved from <http://jurnal.untad.ac.id/jurnal/index.php/AGRISAINS/article/view/2133>
- Manja Mania. (2017). Analisis Hubungan Persepsi Bauran Pemasaran Dengan Minat Petani Dalam Kepesertaan Bpjs Kesehatan Mandiri Di Kecamatan Pracimantoro Kabupaten Wonogiri. *Jurnal Kesehatan Masyarakat (E-Journal)*, 5(3), 12–18.
- MG. Catur Yuantari. (2015). Pemanfaatan Teknologi Informasi Untuk Meningkatkan Pemasaran Hasil Pertanian Di Desa Curut Kecamatan Penawangan Kabupaten Grobogan Jawa Tengah. *Jurnal Angkasa*, 15 No.01(September), 45–56. Retrieved from http://stta.ac.id/data_lp3m/04.Mei2015_AbdulHaris.pdf
- Pingkan Aditiawati. (2014). Persepsi Petani Terhadap Inovasi Teknologi Pestisida Nabati Limbah Tembakau (Suatu Kasus Pada Petani Tembakau di Kabupaten Sumedang). *Sosiohumaniora*, 16(2), 184–192. <https://doi.org/10.1038/132817a0>
- Robiyan, R. (2014). Persepsi Petani Terhadap Program SL-PHT Dalam Meningkatkan Produktivitas dan Pendapatan Usahatani Kakao. *JIA*, 2(3), 301–308. Retrieved from <http://jurnal.fp.unila.ac.id/index.php/JIA/article/view/814/744>
- Roma Y. (2012). Peranan Wanita Nelayan (Istri Nelayan) Jaring Insang Dalam Meningkatkan Pendapatan Keluarga Di Desa Bejalen, Perairan Rawa Pening, Kecamatan Ambarawa, Kabupaten Semarang. *Journal of Fisheries Resources Utilization Management and Technology*, 1(1), 1–10. Retrieved from <http://www.ejournal-s1.undip.ac.id/index.php/jfrumt1>
- Rudyanto, R. (2018). Pengaruh Pemasaran Jejaring Media Sosial Dan Keterkaitan Konsumen Terhadap Niat Beli Konsumen. *Jurnal Manajemen Dan Pemasaran Jasa*, 11(2), 177. <https://doi.org/10.25105/jmpj.v11i2.3126>
- Schut, M. (2017). *Synopsis of Innovation Platforms in Agricultural Research and Development. Encyclopedia of Food Security and Sustainability* (Vol. 3). Elsevier. <https://doi.org/10.1016/B978-0-08-100596-5.22197-5>
- Setiawan, A. (2012). Inovasi Pelayanan Publik di Bidang Pertanian Melalui Aplikasi

- Among Tani di Kota Batu. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
- Setyo Ferry Wibowo. (2015). Pengaruh Persepsi Manfaat, Persepsi Kemudahan, Fitur Layanan, Dan Kepercayaan Terhadap Minat Menggunakan E-Money Card (Studi Pada Pengguna Jasa Commuterline Di Jakarta). *JRMSI - Jurnal Riset Manajemen Sains Indonesia*, 6(1), 440. <https://doi.org/10.21009/jrmsi.006.1.06>
- Sochi Rusmawanti. (2015). Pengaruh Pemahaman Pajak, Sanksi Pajak, Dan Sensus Pajak Terhadap Kepatuhan Wajib Pajak Pribadi Yang Memiliki Usaha. *Jurnal Akuntansi*, 3(2), 75–91. <https://doi.org/10.24964/ja.v3i2.53>
- Suhar Janti. (2014). Validitas dan Reliabilitas Dengan Skala Likert Terhadap Pengembangan SI/TI Dalam Penentuan Pengambilan Keputusan Penerapan Strategic Planning Pada Industri Garmen. *Prosiding Seminar Nasional Aplikasi Sains & Teknologi*, 1(2), 211–216.
- Tjandrawinata, R. R., & Medica, D. (2016). Industri 4 . 0 : revolusi industri abad ini dan pengaruhnya pada bidang kesehatan dan bioteknologi, (February), 1–12. <https://doi.org/10.5281/zenodo.49404>
- Yuliansyah. (2016). *Meningkatkan Response Rate Pada Penelitian Survey*.