

Technology Acceptance Analysis Using UTAUT: A Study of QRIS Acceptance during the Pandemic

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Abstract— Background: The COVID-19 pandemic situation has compelled society to practice physical distancing. One of the government's efforts is to encourage the use of QRIS payment method to minimize direct physical contact during transactions. **Objective:** The purpose of this research is to analyze the primary driving factors in the adoption of QRIS technology. The research urgency is to determine the most contributing predictor from the variables within the UTAUT model among the people of Jabodetabek. **Methods:** This research used quantitative method by conducting an online survey among 384 respondents distributed across the Jabodetabek region. The sampling technique utilized was non-purposive sampling with criteria including domicile, age, reasons, frequency, and experience of QRIS usage. **Conclusion:** The results of the factor analysis test indicate that the performance expectancy and effort expectancy variables are combined into one variable, while the social influence variable is divided into two independent variables. The research finding reveal that the perceived risk variable is the predictor with the most significant contribution in the context of the pandemic situation. Future researches are expected to be able to develop the research model in the other context with different goals.

Keywords— UTAUT; COVID-19; QRIS; Perceived Risk; Technology Acceptance

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I. INTRODUCTION

This research aims to analyze the driving factors behind the usage of the Quick Responses Code Indonesian Standard (QRIS) by the people of Jabodetabek during the Corona Virus Disease 2019 (COVID-19) pandemic. The researchers consider this important because the use of cashless payment methods in the context of the pandemic is believed to be one of the solutions to mitigate the spread of the COVID-19 virus [1], [2]. The adoption of QRIS technology needs to be examined considering its benefits, not only as an alternative payment method but also as a form of implementing health protocols to curb the spread of the COVID-19 virus. However, this can only be realized if the majority of the population has accepted and utilized it [3], [4], [5], [6].

To contribute in breaking the chain of COVID-19 transmission, the Indonesian government encourages the public to use cashless payment methods as a solution to conduct transactions and avoid physical contact between individuals. Bank of Indonesia has also recorded an increasing trend in cashless transactions in Indonesia during the COVID-19 pandemic. One of the best alternative cashless payment options to completely avoid transmission is through the use of QR codes. In response to the growing digital-based cashless payment methods, Bank of Indonesia has also regulated their standardization. As reported by Kominfo, starting from January 1, 2020, Bank of Indonesia has mandated that all cashless payment service providers must use QRIS. Quoted from the Bank of Indonesia's website, QRIS is a QR Code standard for digital payments through electronic money applications, including server-based, e-wallets, and mobile banking.

This research aims to investigate the most significant predictors that can influence the level of QRIS technology acceptance using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Through their research, [7] identified four factors that determine the behavior of accepting and using technology: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating condition (FC). These four factors have an influence on individuals' attitudes and behaviors regarding their interest in using technology [8], [9]. Additionally, there are several control variables that affect these factors, including gender, age, experience, and willingness to use technology, which allows the UTAUT model to be depicted as shown in Figure 1.

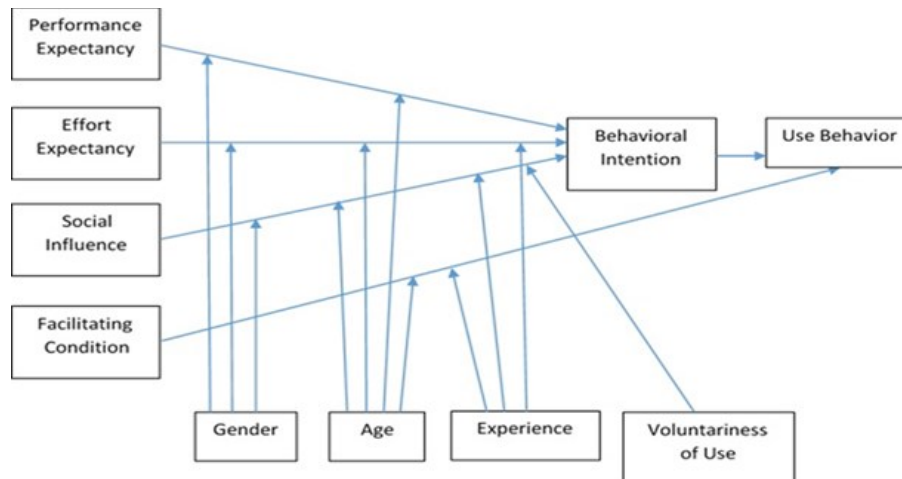


Fig 1. UTAUT Model

From the theoretical comparison and the theoretical model used in research on the acceptance and use of information technology, UTAUT holds a stronger position in explaining the factors that influence behavioral intention (BI) [5], [6], [10], [11], [12], [13]. However, the ongoing pandemic condition at the time of the research led the researchers to consider adding other independent variables. This refers to the findings of the study conducted by [1] which discovered another predictor that influences technology acceptance during a health emergency, namely perceived risk (PR). This further strengthens the findings from the study by [14] where PR is considered as one of the significant moderating variables to be added to the UTAUT model.

Based on the literature review conducted, there have been numerous studies that attempt to measure the level of technology acceptance using the UTAUT model, including the works of [15], [16], [17], [18], [19] who investigated the acceptance of mobile payment technology using the UTAUT model. [12] and [13] found that PE is the predictor with the most significant contribution to BI. Similarly, [20] and [21] in their research, which included control variables according to the research context (language, position, educational level, etc.), also found that PE is the most significant predictor. Furthermore, studies conducted by [22], [23], [24], specifically examining the acceptance of mobile payment technology during the COVID-19 pandemic, resulted in PE as the most significant predictor. This is because the use of mobile payment is considered to accelerate transactions and reduce direct interactions during a health emergency. Several other studies also reinforce the finding that PE is the most significant predictor of BI [25], [26], [27], [28], [29].

The purposes of this research is to answer the question of which variable contributes most significantly to the behavior of the Jabodetabek people in using QRIS technology as a payment method during the COVID-19 pandemic. From the literature review conducted, the difference between this research and previous research is its effort to enrich the study of technology

acceptance based on the UTAUT model in the context of the health crisis caused by the COVID-19 pandemic. In this regard, the researchers have added the PR variable beyond the variables included in the UTAUT model. The emphasis on the incorporation of health protocol implementation during the pandemic as part of the predictors in the UTAUT model is the novelty of this research. Based on this, the research model can be depicted as shown in Figure 2.

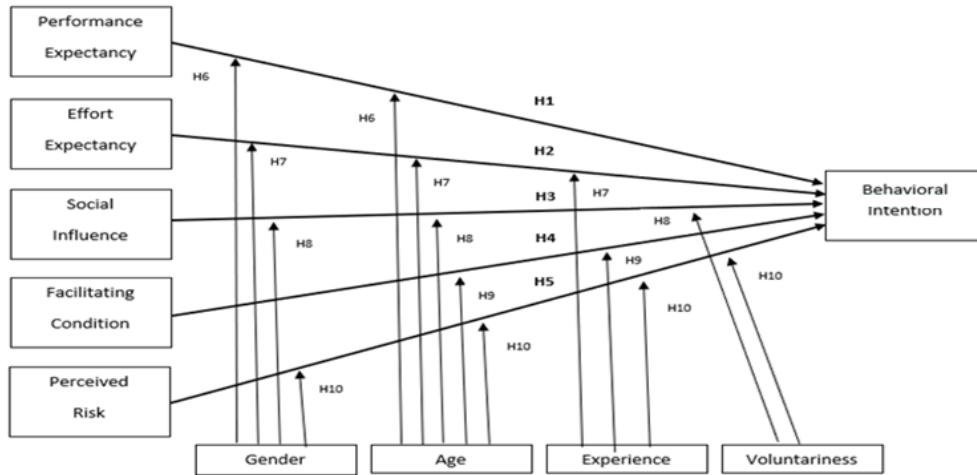


Fig 2. Research Model

Based on the developed research model, the researchers formulated several research hypotheses, which can be observed in detail in Table 1.

Table 1. Research Hypotheses

Hypotheses	Description
H1	PE is related to BI in using QRIS
H2	EE is related to BI in using QRIS
H3	SI is related to BI in using QRIS
H4	FC is related to BI in using QRIS
H5	PR is related to BI in using QRIS
H6	Age, gender, and experience are related to PE, especially in young males
H7	Age, gender, and experience are related to EE, especially in older women who have recently been exposed to technology
H8	Age, gender, and voluntariness are related to SI, especially in older women, particularly in situations where the use of new technology is mandatory
H9	Age and experience are related to FC, especially in individuals of older age who have recently been exposed to technology
H10	Age and gender are related to PR, especially in older males

II. RESEARCH METHOD

This research used quantitative approach to measure the primary driving factors in the adoption of QRIS technology by the people of the Jabodetabek. The research steps are shown in Figure 3.

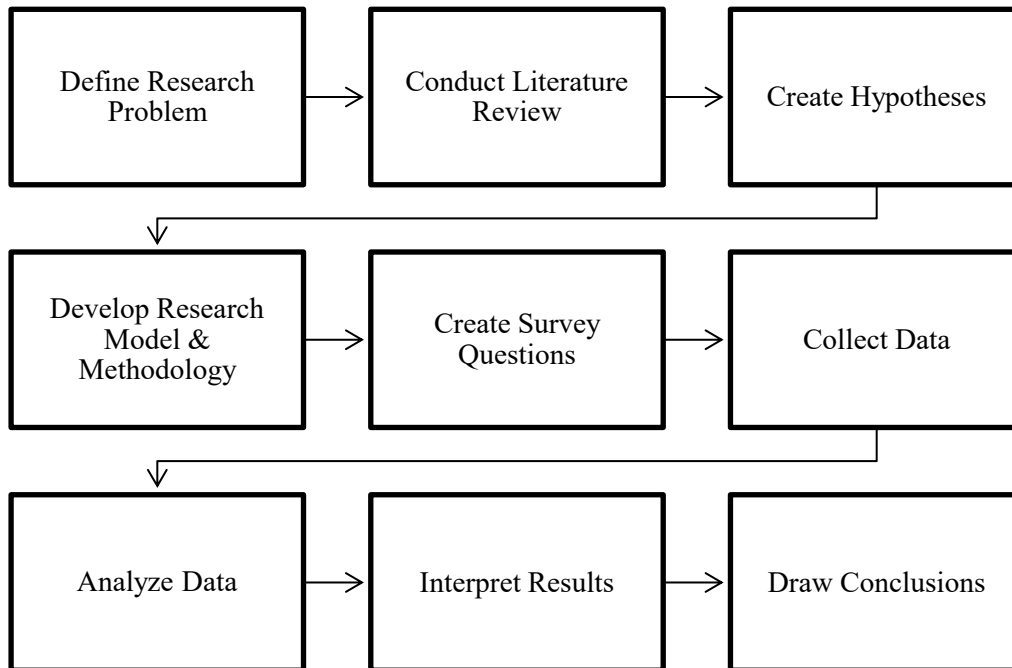


Fig 3. Research Diagram

The researchers utilized a questionnaire as the research instrument with 28 indicators to measure each variable in the UTAUT model (refer to Table 2). The measurements were conducted using a six-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree). The selection of a six-point scale was based on the consideration to enrich the variety of respondents' responses and to avoid neutral answers, enabling respondents to choose responses that lean towards being either in favor or against the given statements.

Table 2. Measurement Indicators for Variables

Variable	Dimension	Indicator
PE	Usefulness	PE1: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic is beneficial PE2: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic is in accordance with the needs

Variable	Dimension	Indicator
	Quickness	PE3: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic accelerates transactions
		PE4: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic shortens the duration of interactions with others
	Productivity	PE5: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic enhances transaction efficiency
		PE6: In my opinion, the use of QRIS technology as a payment method during the COVID-19 pandemic enhances productivity
EE	Complexity	EE1: In my opinion, the process of adopting and using QRIS technology as a payment method during the COVID-19 pandemic is easily comprehensible
		EE2: In my opinion, the process of adopting and using QRIS technology as a payment method during the COVID-19 pandemic does not require specialized skills
	Ease of Use	EE3: In my opinion, the process of adopting and using QRIS technology as a payment method during the COVID-19 pandemic is user-friendly
		EE4: In my opinion, the process of adopting and using QRIS technology as a payment method during the COVID-19 pandemic is simple and does not require any special expertise
SI	Social Factor	SI1: I use QRIS technology as a payment method during the COVID-19 pandemic because important people in my life (family, close friends, colleagues) have recommended it
		SI2: I use QRIS technology as a payment method during the COVID-19 pandemic because important individuals in my life (family, close friends, colleagues) will assist me in using it
		SI3: I use QRIS technology as a payment method during the COVID-19 pandemic because important individuals in my life (family, close friends, colleagues) have demonstrated its benefits
	Subjective Norms	SI4: The government recommends me to use QRIS technology as a payment method during the COVID-19 pandemic
		SI5: The company offering the use of QRIS technology guarantees that the technology functions properly
FC	Resource	FC1: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of smartphones
		FC2: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of accompanying applications (mobile banking/e-wallet)
	Knowledge	FC3: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of knowledge on how to use QRIS
		FC4: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of knowledge on how to operate a smartphone

Variable	Dimension	Indicator
	Compatibility	FC5: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of compatibility with smartphones
		FC6: I use QRIS technology as a payment method during the COVID-19 pandemic because there is a supporting factor in the form of compatibility between the merchant's application and my own application
PR	COVID-19 Fear	PR1: I use QRIS technology as a payment method during the COVID-19 pandemic to mitigate health risks as I feel uncomfortable conducting cash transactions
		PR2: I use QRIS technology as a payment method during the COVID-19 pandemic to reduce health risks because I am concerned about the presence of droplets on cash
		PR3: I use QRIS technology as a payment method during the COVID-19 pandemic to mitigate health risks as I am afraid of being exposed to COVID-19
BI	Willingness	BI1: I have the desire to use QRIS technology during the COVID-19 pandemic
		BI2: If I have access to QRIS technology, I will always use it during the COVID-19 pandemic
	Continuation	BI3: I will use QRIS technology as a payment method during the COVID-19 pandemic
		BI4: I will use QRIS technology as a payment method indefinitely, even after the COVID-19 pandemic is over

The research population consists of QRIS users during the pandemic in the Jabodetabek area. The selection of this research location is based on the COVID-19 Task Force's risk map as of July 31, 2022, which indicates that Jabodetabek is among the regions with the highest risk. Data collection was conducted through an online survey using Google Form with a non-probability purposive sampling technique, which according to [30], is commonly used in field research where respondents are selected based on the research objectives. This technique was chosen because the researchers aimed to obtain respondents who meet the following criteria: (1) residing in the Jabodetabek area, (2) having experience using QRIS as a payment method during 2019-2022, (3) being male or female, (4) having an age range of 17-64 years, (5) using QRIS voluntarily or due to health protocol requirements, and (6) using QRIS at least once per month.

From the distributed online questionnaire, a total of 453 responses were obtained, out of which 35 were deemed invalid as they did not meet the respondent selection criteria. Then, from the 418 valid data, 384 respondent entries were selected as the research sample. The selected data was further analyzed using IBM SPSS Statistics 26 software to test the validity, reliability, classical assumptions, and hypothesis testing. The processed data output will be presented in the form of tables in the following section for easier reading and comprehension.

III. RESULT AND DISCUSSION

3.1. Respondents' Demographics

A total of 384 questionnaire responses were successfully collected from respondents residing in the Jabodetabek area. The highest number of respondents was from the Bogor region, while the lowest was from North Jakarta. Based on gender, the data indicates that female respondents were more dominant compared to male respondents. In terms of age range, the highest number of respondents was found in the 25 to 34 age group, while the lowest was in the 55 to 64 age group. Furthermore, when examined based on educational attainment, the highest number of respondents had a bachelor's degree or equivalent, while the lowest number had a doctoral degree. In terms of profession, the highest number of respondents were employed in the private sector, while the lowest number of respondents were unemployed.

When examined based on the reasons for using QRIS as a payment method, a higher number of respondents indicated that they used it voluntarily compared to those who used it due to health protocols. Based on the frequency of QRIS usage, respondents who rarely used it were more dominant compared to those who always used it. Regarding the knowledge about the government's recommendation to use QRIS as a payment method, the majority of respondents were not aware of it. More detailed characteristics of the respondents can be seen in Table 3.

Table 3. Respondents' Demographics

Category	Description	Total	Percentage
Residence	Central Jakarta	22	6%
	North Jakarta	13	3%
	West Jakarta	29	7%
	East Jakarta	37	10%
	South Jakarta	27	7%
	Bogor	87	23%
	Depok	30	8%
	Tangerang	55	14%
	Bekasi	84	22%
Gender	Male	153	40%
	Female	231	60%
Age	17-24	90	23,4%
	25-34	143	37,3%
	35-44	58	15,1%
	45-54	80	20,8%
	55-64	13	3,4%

Category	Description	Total	Percentage
Education	High School/Equivalent	38	10%
	Diploma (D1-D3)	35	9,1%
	Bachelor's Degree	260	67,7%
	Master's Degree	47	12,2%
	Doctoral's Degree	4	1%
Occupation	State-Owned Enterprise Employee	20	5,3%
	Civil Servant/ Military/Police	68	17,7%
	Private Sector Employee	171	44,5%
	Entrepreneur/Business Owner	16	4,2%
	Freelancer	15	4%
	Social Institution Employee	5	1,3%
	Student	50	13%
	Unemployed	4	1%
	Housewife	27	7%
	Others	8	2%
Reasons for Usage	Voluntarily	311	81%
	Due to Health Protocols	32	8,3%
	Others	41	10,7%
Frequency of Usage	Rarely	265	70%
	Frequently	89	23,1%
	Always	30	7,8%
Knowledge about Government's Recommendation	Aware	301	78,4%
	Not Aware	83	21,6%

3.2. Reliability and Validity Test

Based on the data obtained from the questionnaires distributed to the respondents, the researchers conducted reliability and validity test on the indicators used in the research. The first step involved testing the reliability to ensure the consistency of each variable's indicators by examining the Cronbach's Alpha values. If the result falls within the range of 0.70 to 0.90, it can be considered that the variable has a high level of reliability.

Table 4. Reliability Test Result

Variable	Cronbach's Alpha based on standardized items	N of Items	Conclusion
PE	0,940	6	Reliable
EE	0,907	4	Reliable
SI	0,845	6	Reliable
FC	0,948	8	Reliable
PR	0,920	3	Reliable
BI	0,851	4	Reliable

From the test results table 4, it is known that the Cronbach's Alpha values of all variables are above 0.80, with the FC variable having the highest value at 0.948. Meanwhile, the SI variable

obtained the lowest value at 0.845. From these results, it can be concluded that there is no indicator that needs to be discarded as all indicators have been deemed reliable.

Furthermore, the researchers conducted a validity test aimed at ensuring that the indicators used in the research are indeed appropriate for measuring the intended variables. In conducting the validity test, the researchers wanted to ascertain whether the measurement instrument already has a construction that aligns with the variable's construct. Therefore, the researchers performed a construct validity test using a factor analysis approach. Based on the test results by reading the output in the form of a Rotated Factor Matrix, it was found that the indicators used to measure the EE variable actually grouped together with the indicators of the PE variable. Meanwhile, the indicators of the SI variable were divided into two groups. Furthermore, the other indicators were deemed valid as they could be used to measure the corresponding variable. These results led the researchers to consider merging the PE and EE variables, as well as splitting the SI variable into two independent variables.

3.3. Classic Assumption Test

Furthermore, the researchers conducted classic assumption tests including normality test, heteroscedasticity test, and multicollinearity test. The normality test was performed using the Monte Carlo method with a 95% confidence level. From the normality test, it was found that the Monte Carlo sig. (2-tailed) result was 0.348, indicating that the sig. value > 0.05. Therefore, it can be concluded that the data is normally distributed. The data processing was then followed by a heteroscedasticity test using Spearman's rho technique, which resulted in sig. values > 0.05 for all variables. From these results, it can be concluded that there is no heteroscedasticity present. The values of sig. (2-tailed) can be seen in Table 5.

Table 5. Heteroscedasticity Test Result

			FC	PR	SI 1	SI 2	PE & EE	Unstandar rdized residual
Spearm an's rho	Unstandar dized residual	Correlation Coefficient	0,069	0,030	0,053	0,019	0,045	1,000
		Sig. (2-tailed)	0,180	0,560	0,300	0,706	0,380	.
		N	384	384	384	384	384	384

**correlation significant at the 0,01 level (2-tailed)

The final classic assumption test is the multicollinearity test, and the results indicate that all VIF (Variance Inflation Factor) values for each variable are less than 10.00, and the tolerance

values for each variable are greater than 0.10, indicating that there is no multicollinearity in the data. The results can be seen in the following table 6.

Table 6. Multicollinearity Test Result

Variable	Colinearity Tolerance	Statistic VIF
FC	0,407	2,458
PR	0,720	1,389
PE & EE	0,373	2,680
SI1	0,683	1,464
SI2	0,636	1,571

Dependent variable: Behavioral Intention

3.4. Hypotheses test

According to [31], the strength of correlation relationship is as follows: if the correlation value is 0, there is no correlation. If the correlation value is between 0.00 and 0.25, the correlation is very weak. If the correlation value is between 0.25 and 0.50, the correlation is considered moderate. If the correlation value is between 0.50 and 0.75, the correlation is strong. If the correlation value is between 0.75 and 0.99, the correlation is very strong. And if the correlation value is 1, it indicates a perfect correlation. Based on the test results on table 7, it is known that the FC, PR, PE & EE, as well as SI2 variables have a strong correlation, while the SI1 variable has a moderate correlation.

Table 7. Correlation Test Result

Variable	Correlation Values	Description	N
FC	0,615	Strong Correlation	384
PR	0,578	Strong Correlation	384
PE & EE	0,662	Strong Correlation	384
SI1	0,477	Moderate Correlation	384
SI2	0,500	Strong Correlation	384

Next, the researchers conducted a test to determine the extent of the contribution of each independent variable to the dependent variable. The test results can be seen in Table 8.

Table 8. R-square Test Result

Independent Variables	Dependent Variable	Standardized Coefficients Beta	Sig	R-square
PE & EE	BI	0,299	0,00	0,584
FC	BI	0,198	0,00	
PR	BI	0,303	0,00	
SI1	BI	0,101	0,012	
SI2	BI	0,082	0,049	

The value in the R-square column which is 0.584, indicates that the variation in all dependent variables can contribute to the independent variable by 0.584 (58.4%). The remaining 41.6% is influenced by other variables outside the scope of this study. Among all independent variables, PR variable has the biggest contribution, which is 0.303 or 30.3%. It is followed by the PE & EE, FC, SI1, and SI2 variables, with the weakest contribution at 0.082 or 8.2% to the dependent variable, which is BI. This testing on table 9 also serves as evidence for several hypotheses, where H1 to H3 are rejected due to the changes in variables after conducting factor analysis. The same applies to H6 to H8. Meanwhile, H4 and H5 are accepted with contributions matching the results of the R-square test.

Table 9. Hypotheses Test

Hypotheses	Independent Variable	Dependent Variable	Standardized Coefficients Beta	Description
H1	PE	BI	-	Rejected
H2	EE	BI	-	Rejected
H3	SI	BI	-	Rejected
H4	FC	BI	0,198	Accepted
H5	PR	BI	0,303	Accepted

To provide evidence for hypotheses H9 and H10, the researchers conducted a crosstab analysis with the results shown in Table 10.

Table 10. Crosstab Analysis

Hypotheses	Independent Variables	Dependent Variable	Control Variables	Chi-Square Values	Crosstab Test Result	Conclusion
H6	PE	BI	Age	-	-	H6 rejected
			Gender	-	-	
H7	EE	BI	Age	-	-	H7 rejected
			Gender	-	-	
			Experience	-	-	
H8	SI	BI	Age	-	-	H8 rejected
			Gender	-	-	
			Voluntariness	-	-	
H9	FC	BI	Age	0.596	-	H9 rejected
			Experience	0.165	-	
H10	PR	BI	Age	0.705	-	H10 rejected
			Gender	0.131	-	
			Experience	0.413	-	
			Voluntariness	0.919	-	

**If the chi-square value is less than 0.05, then there is significant relationship*

From Tables 9 and 10, it can be observed that H1, H2, H6, and H7 are rejected because, after conducting factor analysis, the PE and EE variables are merged into one variable. Similarly, H3

and H8 are rejected because, after performing factor analysis, the SI variable is divided into SI1 and SI2. Furthermore, testing H9 and H10 using chi-square and crosstab analysis resulted in values above 0.05, indicating no significant relationship between the control variables and the contribution of independent variables to the dependent variable. Therefore, H9 and H10 are also rejected.

As for the adjusted variables, which were further analyzed as a follow up to the factor analysis, their relationship with the control variables was examined using chi-square test and crosstab analysis. The results are presented in Table 11.

Table 11. Crosstab Analysis of New Variables Based on Factor Analysis

Independent Variables	Dependent Variable	Control Variables	Chi-Square Values	Crosstab Test Results
PE & EE	BI	Age	0.396	-
		Gender	0.659	-
		Experience	0.595	-
		Voluntariness	0.000*	Not under coercion
SI1	BI	Age	0.006*	17-35 years old (young)
		Gender	0.489	-
		Experience	0.516	-
		Voluntariness	0.192	-
SI2	BI	Age	0.029*	17-35 years old (young)
		Gender	0.103	-
		Experience	0.969	-
		Voluntariness	0.867	-

**If the chi-square value is less than 0.05, then there is a relationship*

The test results indicate that the contribution of PE & EE to BI is most strongly perceived by the group of individuals who are not in a coercive situation, meaning they use QRIS voluntarily. Additionally, the contribution of SI1 and SI2 to BI is most strongly perceived among the younger age group, specifically those aged 17 to 35 years. Based on the series of tests conducted, the model and research findings can be depicted as shown in Figure 4.

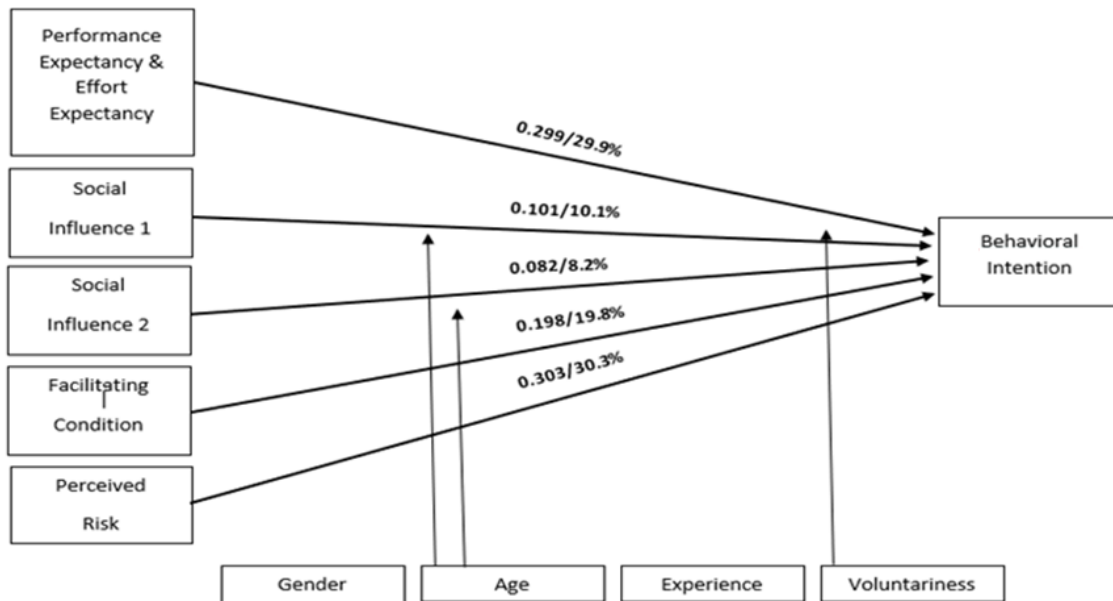


Fig 4. Research Model After Testing

3.5. Discussion

All variables in this research have passed the reliability test using Cronbach's Alpha value as a reference, indicating that all variables are reliable. The variable with the highest reliability level (0.948) is the FC variable, while the variable with the lowest reliability level (0.845) is the SI variable.

The factor analysis results indicate that this research can be represented by five independent variables. However, there are several variables that need to be merged into one variable, namely PE and EE, while the SI variable can be split into two variables. This subsequently has an impact on the changes in the research model developed from the UTAUT model. However, the changes in the SI variable are actually in line with the study conducted by [1], where they divided the SI variable into two distinct variables, namely SI1 and SI2. The SI1 variable represents influence from close individuals such as family and friends, while the SI2 variable represents influence from the government, both in terms of support and implemented policies.

Furthermore, regarding the normality test, the use of the Monte Carlo method can achieve a confidence level of 95%, with a sig. (2-tailed) value of 0.348, which is greater than 0.05. Therefore, it can be concluded that the data is normally distributed. This is also supported by the P-P Plot graph, which shows that the data is scattered around the diagonal line, thus fulfilling the assumption of normality. Furthermore, from the Pearson correlation test conducted, it was found that the variables PE & EE, FC, PR, and SI2 have a strong correlation to the BI variable, while the SI1 variable has a moderate correlation to the BI variable.

Based on the data processing and analysis, the finding of this research is that the PR variable has the most significant contribution to BI. The result of this research differs from previous researches which stated that PE is the most contributing predictor in technology acceptance [15], [16], [20], [21], [24], [25], [26], [27], [32], [33]. The main difference lies in the research context. The PE variable becomes the most significant predictor in normal situations. However, in the health crisis and pandemic situation as this study was conducted, it turns out that the PR variable has a stronger contribution compared to PE due to the public's perception being more focused on concerns of disease transmission, which subsequently motivates their willingness to use QRIS technology.

IV. CONCLUSION

In response to the research question posed at the beginning, this research found that the PR variable is the predictor with the most significant contribution to technology acceptance in terms of QRIS usage as a payment method during the COVID-19 pandemic by the Jabodetabek community. These findings differ from previous researches conducted outside the context of a pandemic, which resulted in PE as the variable with the most significant contribution. Furthermore, from hypothesis testing, it is known that H1, H2, H3, H6, H7, and H8 are rejected due to adjustments made to several variables as a follow up to the factor analysis test. On the other hand, H9 and H10 are rejected because the values obtained from the testing results indicate that there is no relationship between control variables and the contribution of independent variables to the dependent variable. Therefore, out of the ten hypotheses presented initially, only two hypotheses are accepted, namely H4 and H5.

Theoretically, this research is expected to contribute in enriching the study on technology acceptance based on UTAUT in a specific context, namely the health crisis caused by the COVID-19 pandemic. On an empirical level, this research is expected to provide insights for the government in determining the most effective measures to promote the acceptance and usage of QRIS as a payment method in order to curb the spread of the COVID-19 virus. However, this research still has several limitations, including the researchers' difficulty to obtain real data regarding the number of QRIS users in Jabodetabek. As a result, the determination of the population is based solely on the overall population data from the Central Statistics Agency. Furthermore, the distribution of respondents is not evenly distributed down to the city and district levels according to the actual proportion of the population in Jabodetabek. Another limitation is that the research is only limited to the context of the COVID-19 pandemic, thus it cannot be generalized to normal conditions or other pandemic situations. Therefore, future research should

examine in another object or context to see if there different results. Moreover, future research can add more constructs to expand the model and have new findings.

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