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3165 Words

CHARACTER COUNT

17469 Characters

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Examining the Acceptance of Virtual Assistant - Vanika for University Students

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Abstract— Finding the right information in easily manner is a need of the community. Virtual assistant is a mobile application to fill this necessity in easily, effective, and efficient manners. Vanika was the virtual assistant developed by Soegijapranata Catholic University (SCU) to serve students and prospective students in finding the right information about the SCU. This study aims to examine the acceptance of virtual assistant-Vanika among them. The answers of two hundred questionnaires were collected from students and prospective students of SCU after they utilized Vanika at least twice. The result reveals that all of factors Information Service Quality, Perceived Ease of Use, and Perceived Usefulness have statistically correlation on Behavioral Intention and each other. Only Information Service Quality has statistically significant direct effect on Behavioral Intention. Prospective students frequently spend more time in searching university information than students, conversely, student perceived easier in using Vanika than prospective students. The last, males spend more time in searching university information than females, and females have more *intention to use Vanika than males*. The practical implications derived from the findings are the actions to increase individual's acceptance to use Vanika by means of increasing factors relating to Information Service Quality, Perceived Ease of Use, Perceived Usefulness, Age, and Gender.

Keywords— technology acceptance, student, virtual assistant, vanika

I. INTRODUCTION

Currently the method to find information by visiting locations and searching the internet make people spend a lot of time. People need to find information quickly and precisely. The necessity can be met by virtual assistant application. Virtual assistants can help users to answer the questions sought by the community.

Virtual assistant is application to support users in finding the right information [1]. In general, virtual assistant is human interface application that can help users in answering questions easily and quickly with right information. The examples of virtual assistants running in LINE platform are Vira, Ngesti, and Sabrina. Vira and Sabrina is a virtual assistant developed by BCA and BRI Banks, respectively. Ngesti is developed by Wayang Orang Ngesti Pandawa, Indonesia [2] .

Vanika was designed by team of authors as stated on [3] to serve students and prospective students with right information of academic, library facility, career, and financial affairs. The information can be obtained through chatting facilities and menus on the application. The Vanika mobile application was launched by SCU as stated on [4] and presents on Figure 1.

Fig. 1. Virtual assistant – Vanika

The study has purpose to examine the acceptance to use virtual assistant-Vanika by university students and prospective students. The acceptance to use Vanika was examined using statistical techniques to reveal the correlation among factors and the causal effect of the factors on Behavioral Intention based on the proposed theoretical model. The practical implication derived from the findings was presented to serve Vanika's developer and other's developer with the advices to increase the acceptance to use virtual assistant-Vanika.Previous Studies in Acceptance to Use Technology

A. Information Service Quality on Behavioral Intention

According to [5], Information Service Quality (ISQ) is the quality of information perceived by the user regard to sufficiency, accuracy, relevance, and timeliness of the information. ISQ is a factor used by e-commerce technology acceptance as study conducted by [5] and [6]. Study conducted by [5] proved that ISQ have significantly direct effect on Behavioral Intention (BI). Other study by [6] proved that ISQ have significantly direct effect on Use Behavior. So that, we proposed that Information Service Quality has positive direct effect on Behavioral Intention to use virtual assistant-Vanika (H1).

B. Perceived Ease of Use on Behavioral Intention

Perceived Ease of Use (PEOU) is defined by [7] as the degree of ease related to the use of the system and Perceived Usefulness (PU) is defined as the degree to which an individual believes that using the system will help them to gain personal goal. PEOU and PU are the most commonly used factors on technology acceptance. The studies on acceptance of E-Commerce technology ([8], [9], [10], [11])

proved that PEOU have significantly direct effect on BI, meanwhile study by [12] proved that PEOU has partially direct effect on BI and study by [13] proved that PEOU has direct effect on Attitude and Attitude on BI.

PEOU also has significantly direct effect on acceptance of online media entertain studies conducted by [14] and [15], meanwhile study conducted by [5] proved that PEOU has partially direct effect on BI and [16] proved that PEOU has direct effect on Attitude and then on BI. Other studies on acceptance technology conducted by [17] have same result that PEOU has significantly direct effect on BI. So that, we proposed that Perceived Ease of Use has positive direct effect on Behavioral Intention to use virtual assistant-Vanika (H2).

C. Perceived Usefulness on Behavioral Intention

Perceived Useful (PU) was also most frequently used as a factor to predict the acceptance of e-commerce technology. On studies conducted by [8], [9], [10], [11], [18], and [19], PU have significantly direct effect on BI. Meanwhile the studies conduct by [13] proved that PU has significantly direct effect on Attitude and then on BI. One studies conducted by [12] proved that PU has partially significant direct effect on BI. The last, PU has significantly direct effect on Use Behavior according to study conduct by [6] and [20].

The studies on the acceptance of media entertain technology conducted by [7] and [15] also stated that PU has significantly direct effect on BI. Furthermore the study conducted by [16] stated that PU has direct effect on Attitude and then on BI.

The studies on user acceptance of technology conducted by [11] stated that PU has significantly direct effect on BI. Furthermore, on the acceptance of mobile internet and smartphone usage conducted by [9] and [17], respectively also have same result. Meanwhile, the study on acceptance of online newspaper conducted by [21] proved that PU has significantly direct effect on Attitude and Attitude on BI. So that, we proposed that Perceived Useful has positive direct effect on Behavioral Intention to use virtual assistant-Vanika (H3). The proposed model presenting hypotheses H1, H2, and H3 is shown on Fig. 2.
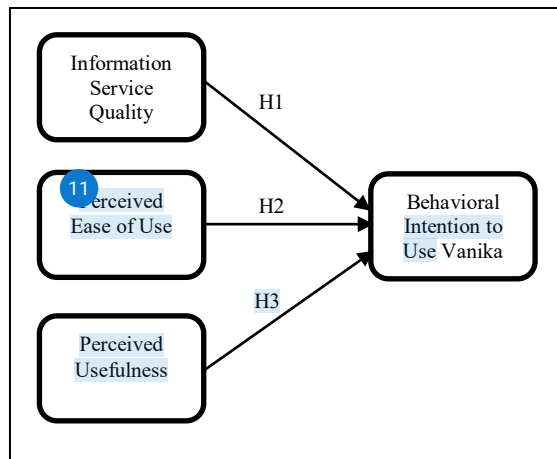

Fig. 2.   Proposed Theoretical Model

II. METHOD

The study examined the acceptance of Vanika as virtual assistant on new students in SCU campus orientation event and prospective students having interest to register as new students in SCU.   The two hundred questionnaires were collected from them to test the proposed model. After validity and reliability test of the questionnaires, the correlation factor analysis was conducted to reveal the relationship among factors on the model. The last, the causal effect analysis was conducted on the relation of the factors on Behavioral Intention to use Vanika. From these two analyses, the acceptance of Vanika was revealed and the recommendation to improve the Vanika application was delivered to Vanika's developer and the campus.

III. RESULT AND DISCUSSION

A. Demographic of Respondent

The demographic of respondent regard to age, gender, and education are shown on Table I, II, and III, respectively.

TABLE I.   AGE OF RESPONDENTS

Age (years)	Frequency	Percent
16	1	.5
17	14	7.0
18	90	45.0
19	44	22.0
20	31	15.5
21	14	7.0
22	6	3.0
Total	200	100.0

Table 1 show that the respondents are on sixteen to twenty two years old and almost half of respondents are eighteen years old.

TABLE II.   GENDER OF RESPONDENTS

Gender	Frequency	Percent
Female	108	54.0
Male	92	46.0
Total	200	100.0

Females are more than males as respondents in the study as shown in Table II and prospective students in senior high school grade are more than university students in the study as shown in Table III.

The others data of respondent are shown on Table IV presenting the frequency of respondent in searching university information. From the data on Table IV, almost half of respondents do searching university information in once a day.

TABLE III.   EDUCATION OF RESPONDENTS

Education	Frequency	Percent
Senior High School (prospective students)	104	52.0
University (students)	96	48.0
Total	200	100.0

TABLE IV. FREQUENCY IN SEARCHING UNIVERSITY INFORMATION PER DAY

	Frequency	Percent
Once a Day	94	47.0
Twice a Day	50	25.0
Third a Day	53	26.5
Never	3	1.5
Total	200	100.0

B. Validity and Realibility test of Questionnaires

The validity test and reliability test of questionnaires are presented on Table V and VI, respectively.

TABLE V. CONSTRUCT VALIDITY OF QUESTIONNAIRES

	ISQ	PEOU-PU	BI
ISQ2	.846	.119	.187
ISQ3	.837	.142	.172
ISQ1	.768	.144	.306
PEOU3	.176	.818	.115
PEOU2	.155	.792	.168
PEOU1	.038	.761	.267
PU1	.462	.429	.173
PU2	.504	.526	.227
PU3	.424	.439	.378
BI2	.148	.186	.868
BI1	.174	.149	.852
BI3	.494	.274	.620

The result of validity test on Table V shows that all indicators employed on the study are valid and convergent on each of the factor. The reliability test on Table VI shows that the internal consistencies of factors are on range acceptable and good. The result indicates that the questionnaires are valid and reliable and can be used to analyze correlation among factors and causal effect of the factors.

TABLE VI. REALIBILITY TEST OF QUESTIONIRES

Variable	Cronbach's Alpha	Internal Consistency
PEOU	.806	Good
ISQ	.864	Good
PU	.767	Acceptable
BI	.823	Good

C. Correlation Analysis of Factors

The correlation analysis of factors employed on the study on Table VII reveals that Information Service Quality, Perceived Ease of Use, Perceived Usefulness, and Behavioral Intention are correlated to each other. Age is correlated to frequency per day in searching university information and Information Service Quality.

The correlation among gender and other factors are revealed through analyzing the mean differences between females and males as shown on Tables VIII

TABLE VII. CORRELATION ANALYSIS OF FACTORS

	AGE	F/D	PEOU	PU	ISQ	BI
AGE	1	.174*	-.166*	.040	.043	-.098
F/D	.174*	1	.020	-.051	-.042	-.078
PEOU	-.166*	.020	1	.545**	.390**	.468**
PU	.040	-.051	.545**	1	.560**	.581**
ISQ	.043	-.042	.390**	.560**	1	.550**
BI	-.098	-.078	.468**	.581**	.550**	1

TABLE VIII. MEAN DIFFERENCES BETWEEN FEMALES AND MALES

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	Sig. (2-tailed)	Mean Difference
AGE	7.317	.007	-2.178	.031	-.3671
F/D	1.210	.273	-2.139	.034	-.2637
PEOU	2.816	.095	.442	.659	.04026
PU	.535	.465	.149	.881	.01275
ISQ	.062	.803	.360	.719	.04133
BI	3.720	.055	3.215	.002	.28060

The Table shows that age, frequency per day in searching university information, and Behavioral Intention have difference in mean between females and males.

D. Causal Effect Analysis

The causal effect analysis for proposed model was examined using Structural Equation Modeling (SEM) analysis and the result was shown on Figure 3. The result on Figure 3 shows that Perceived Ease of Use and Perceived Usefulness have no statistically significant direct effect on Behavioral Intention. Otherwise, Information Service Quality has statistically significance direct effect on Behavioral Intention with coefficient value of .024***. The mark (***) indicates statistical significance at a level of 0.001.

The result from SEM analysis on Figure 3 and Correlation analysis reveal that the hypothesis H1 is fully support; meanwhile H2 and H3 are partially support. The fully support of H1 that states Information Service Quality has statistically significant direct effect on Behavioral Intention is accordance with Reference [5] and confirmed by Reference [6]. The hypotheses H2 and H3 that states Perceived Ease of Use and Perceived Usefulness have statistically significant direct effect on Behavioral Intention are partially support and they are accordance with the results on previous studies conducted by Reference [12]. Meanwhile the result from Reference [8], [9], [10], [11], [18], and [19] represent the different results with this study.

IV. CONCLUSIONS

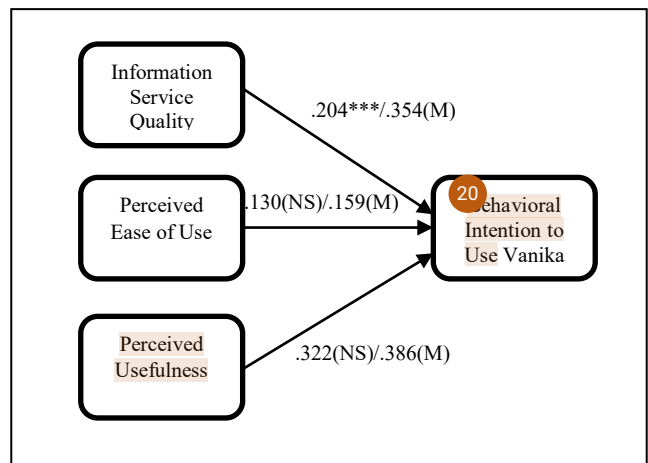From the result of Correlation and Causal Effect Analysis, it can be conclude that:

Fig. 3. SEM Result

1) The positive correlation among factors are visible on Information Service Quality, Perceived Ease of Use, Perceived Usefulness, and Behavioral Intention. Only Information Service Quality has significant direct effect on Behavioral Intention in the study. It means that user believed that they get good information service from virtual assistant-Vanika than perceived easy and perceived useful in using Vanika.

2) The individual factor, Age, has correlation on Frequency per day in searching university information and on negative value of Perceive Ease of Use. It means that younger students frequently spend more time in searching university information than older students. Furthermore, older students perceived more easy in using virtual assistant-Vanika than younger students.

3) There are difference among females and males on factors of Age (-), F/D (-), and Behavioral Intention (+). It means that males students are older than females in the study, males students spend more time in searching university information than females, and females students have more acceptance to use Vanika.

Table IX illustrates the practical implications derived from this study. The findings have practical implications displaying on Table IX. The practical implication can be used by Vanika's developer and University management to improve Vanika application. The other application's developers can use the findings to get the useful advises regarding examining the application they designed.

TABLE IX. PRACTICAL IMPLICATION RELATED TO INCREASE AN INDIVIDUAL'S ACCEPTANCE TO USE VANIKA

Action	Particular attention	Related Factors
Implications: Increasing an individual's acceptance to use Vanika		
1. Increase the quality of information perceived by the user regard to sufficiency, accuracy, relevance, and timeliness of the information.	The action should be given to all respondents regardless of their age and gender.	Information Service Quality, Age, and Gender
2. Increase the degree of ease related to the use of the system. Designing good application adapting this goal will increase acceptance to use Vanika.	The action should be given to all respondents regardless of their gender. Particular attention should be given to younger respondent or prospective students because the effect of Perceived Ease of Use was not strong for them.	Perceived Ease of Use, Age, and Gender
3. Increase the degree to which an individual believes that using the system will help them to gain personal goal. Knowing the personal goal of respondents in using the application will increase acceptance to use Vanika.	The action should be given to all respondents regardless of their age and gender.	Perceived Usefulness, Age, and Gender
4. Increase promoting the application will increase acceptance to use Vanika	The action should be given to all respondents regardless of their Age. Particular attention should be given to males respondents because they have less acceptane to use Vanika than females.	Behavioral Intention, and Age, and Gender

REFERENCES

[1] M. Gäde/V. Trkulja/V. Petras (Eds.), "Everything Changes, Everything Stays the Same? Understanding Information Spaces," In Proc. 15th International Symposium of Information Science (ISI 2017), Berlin, 13th—15th March 2017. Glückstadt: Verlag Werner Hülsbusch, pp. 116—130.

[2] A. Dwiyoga, R. Sanjaya, T. Rahardjo, and R. Djati, "Review on the Application of Financial Technology for the Wayang Orang Ngesti Pandowo Cultural Creative Industry," In Proc. 4th International Conference on Information Tech., Computer, and Electrical Engineering (ICITACEE), 2017, pp. 221–225.

[3] D. Gunadi and R. Sanjaya, "Aspek Teknis Pengelolaan Asisten Virtual untuk Wayang Orang Ngesti Pandawa," In Proc. Seminar Nasional Teknologi Informasi dan Komputer (SENATIKOM), 2018.

[4] P. A. Luhur, "Pandu Peserta PMB, Unika Luncurkan Virtual Assistant," Suara Merdeka, May. 4, 2018. [Online].

[5] S. K. Sharma and M. Sharma, "Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation," International Journal of Information Management, vol. 44, pp. 65-75, 2019.

[6] A. M. Baabdullah, A. A. Alalwan, N. P. Rana, H. Kizgin, P. Patil, "Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model," International Journal of Information Management, vol. 44, pp. Pages 38-52, 2019.

[7] B. Harnadi, "An investigation of the adoption of online game technologies in Indonesia," International Journal of Gaming and Computer-Mediated Simulations, vol.9, issue 1, pp. 1–27, 2017.

[8] P. K. Chopdar, N. Korfiatis, VJ. Sivakumar, and M. D. Lytras, "Mobile shopping apps adoption and perceived risks: A cross-country perspective utilizing the Unified Theory of Acceptance and Use of Technology," Computers in Human Behaviour, vol. 86, pp. 109-128, 2018.

[9] A. A. Alalwan, Y. K. Dwivedi, N. P. Rana, R. Algharabat, "Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk," Journal of Retailing and Consumer Services, vol. 40, pp.125-138, 2018.

[10] A. A. Alalwan, Y. K. Dwivedi, N. P. Rana, "Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust," International Journal of Information Management, vol. 37, Issue 3, pp. 99-110, 2017.

[11] V. Venkatesh, J. Y. L. Thong, & X. Xu, "Extending the Unified Theory of Acceptance and Use of Technology", MIS Quarterly, vol. 36, no. 1, pp. 157–178, 2012.

[12] C. Martins, T. Oliveira, A. Popovič, "Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application," International Journal of Information Management, vol. 34, Issue 1, pp. 1-13, 2014.

[13] F. M-Leiva, S. C-Climent, F. L-Cabanillas, "Determinants of intention to use the mobile banking apps: An extension of the classic TAM model," Spanish Journal of Marketing - ESIC, vol. 21, Issue 1, pp. 25-38, 2017.

[14] Q. Wang, X. Sun, "Investigating gameplay intention of the elderly using an Extended Technology Acceptance Model (ETAM)," Technological Forecasting and Social Change, vol. 107, pp 59-68, 2016.

[15] L. Fan, C. G. Ghu, Y. H. Suh, and S. C. Lee, "How to attract Chinese online game users," Asian Journal on Quality, vol. 13, no. 1, pp. 7–21, 2012.

[16] L. S. L. Chen, C. J.Kuan, Y. H. Lee, and H. L. Huang, "Applicability of the UTAUT Model in Playing Online Game through Mobile Phones: Moderating Effects of User Experience," in Proc. IEEE International Technology Management Conference (ITMC), 2011, pp. 625-629.

[17] J. Joo and Y. Sang, "Exploring Koreans' smartphone usage: An integrated model of the technology acceptance model and uses and gratifications theory," Computers in Human Behavior, vol. 29, Issue 6, pp. 2512-2518, 2013.

[18] S. Agrebi, J. Jallais, "Explain the intention to use smartphones for mobile shopping, Journal of Retailing and Consumer Services," vol. 22, pp. 16-23,2015.

[19] K. A. Alshare, and Abeer A. Mousa,"The Moderating Effect of Espoused Cultural Dimensions on Consumer's Intention to Use

Mobile Payment Devices," Thirty Fifth International Conference on Information Systems, Auckland, pp. 1-15 , 2014.

[20] T. Zhou, Y. Lu, B. Wang, "Integrating TTF and UTAUT to explain mobile banking user adoption," Computers in Human Behavior, vol 26, Issue 4, pp. 760-767, 2010.

[21] M. M. Luo, S. Chea, and J.-S. Chen, "Web-based information service adoption: A comparison of the motivational model and the uses and gratifications theory," Decision Support Systems, vol. 51, Issue 1, pp. 21-30, 2011.

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