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Analysis of Factors That Influence in Using SIMVONI with UTAUT

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ABSTRACT

The Covid-19 pandemic has hampered many sectors of life. But accelerating the coming of the future with the increasing use of IT in all sectors. One of the technologies adopted by SIMVONI in the midst of a pandemic is virtual tour technology which is implemented in museums which allows people to travel to museums virtually. The use of virtual tour technology is very useful during a pandemic or even after a pandemic because the reach of museum tourists is wider. This study uses the UTAUT model with several variables, namely Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Behavioral Intention to Use, Gender, and Age. The purpose of this analysis is to find out what factors are the user's interest in using SIMVONI as well as. In addition, the results of this research can be the basis for further development by the developer. The research was conducted by distributing questionnaires to 126 SIMVONI users and analyzed using the Structural Equation Model (SEM) method. The results of the SEM analysis show that several variables are factors that significantly affect the use of SIMVONI.

Keywords: Virtual Tour, SIMVONI, UTAUT, SEM-PLS, Museum

Introduction

The world has been hit by the COVID-19 pandemic for almost three years. Even though it has subsided a lot now, Covid is still there. At a time when Covid cases are high, all sectors of life become paralyzed and constrained. The high rate of spread of the virus makes it difficult for people to meet face-to-face, communicate, and socialize. One of the areas affected by the pandemic due to restrictions on social activities is tourism, one of which is museums. The museum is one of the places visited by many people and foreign tourists to learn history. Museums are one of the media for learning history that can improve critical thinking skills through interaction with existing objects (Budi et al., 2021). However, the number of museum visitors has fallen drastically due to restrictions on social activities during the pandemic.

However, behind these difficulties, the future seems to come more quickly with the use of IT to help the constrained sectors, including the tourism sector. One of the uses of IT in this field is the implementation of virtual tour technology in museums. The existence of this technology makes it much easier for local people and even foreign tourists to visit museums without having to leave the house. In his research, Wibowo said that the interest of the Indonesian people in virtual tours showed increased starting in March 2020 and continued to fluctuate (Umar et al., 2020).

SIMVONI adopts virtual museum tours. Launched on July 1, 2021, SIMVONI presents a virtual tour facility at the MPU Tantular Sidoarjo Museum. As time goes by, SIMVONI adds virtual tour facilities at the 10 Nopember Museum. SIMVONI provides free access to enjoy virtual walks in the two museums. Visitors can enjoy museum objects with high-resolution images and the sensation

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of walking virtually inside the building like using Google Street View. Not only can visitors see the object, but visitors can also read some of the information embedded near the figure.

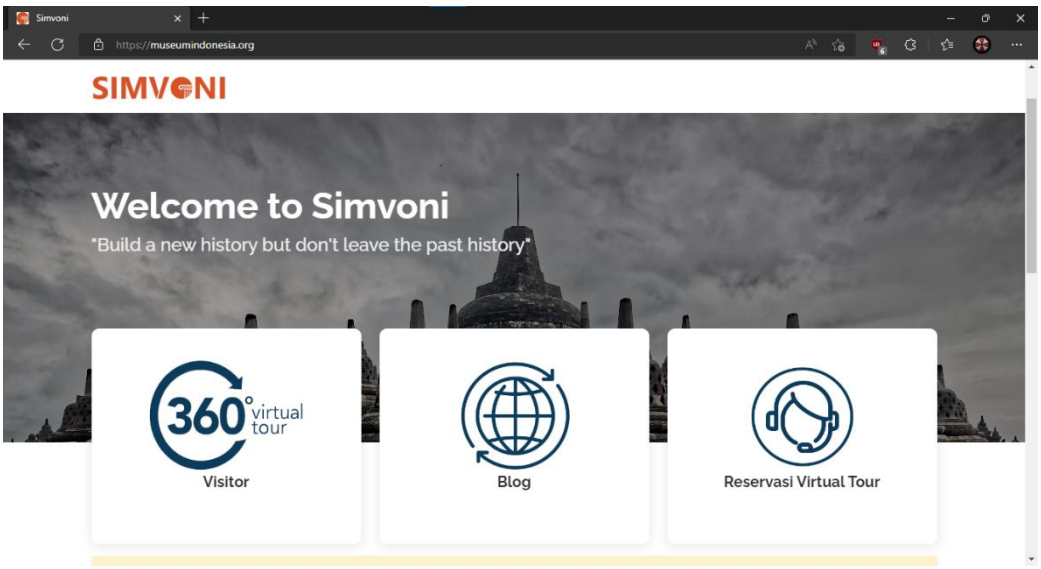


Figure 1. Interface SIMVONI

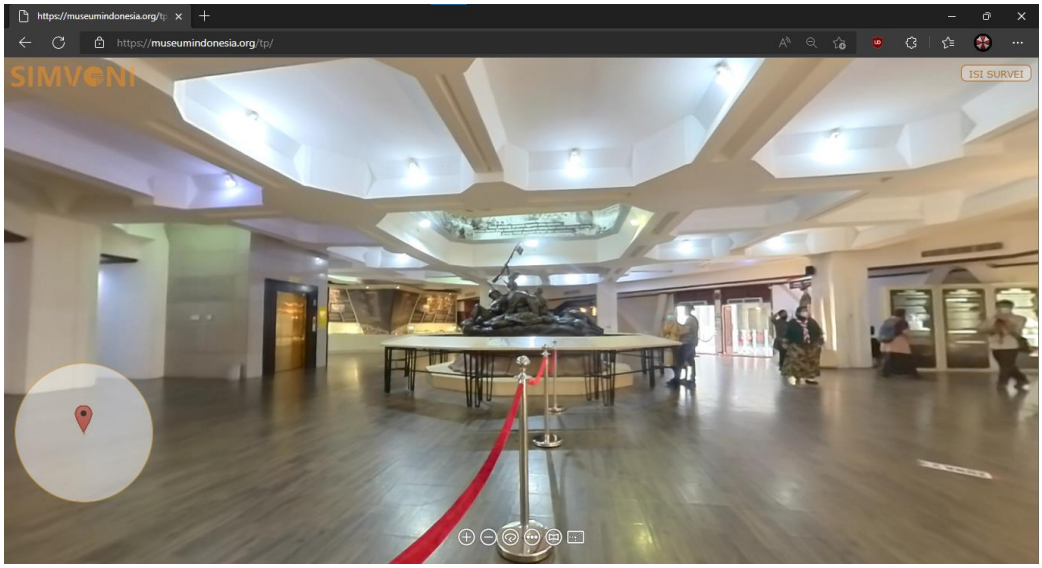


Figure 2. Interface virtual tour on 10 November Museum

This research is based on the SIMVONI website which has been running for some time so it is necessary to analyze what factors influence interest in using this website. This study uses the Unified Theory of Acceptance and Use Technology (UTAUT) method proposed by Venkatesh. UTAUT is one of the methods used to measure the acceptance of information technology (Venkatesh et al., 2003). The use of this method is expected to determine the factors that influence the interest in using SIMVONI.

Several studies have been conducted previously to analyze the factors that influence the interest in using a system or application as follows:

1. Chiao et al. (2018) conducted research on the usability of The Cultural Tourism Digital Guiding Platform (CTDGP) with the conclusion that Performance Expectancy, Effort

Expectancy, Social Influence, and Interaction have a significant influence on Intention to Use. Facilitating Condition has a significant influence on Behavioral Use.

2. Puspitasari et al. (2019) conducted a study on the adoption of the Integrated License Service Management System using UTAUT with the conclusion that Performance Expectancy is the most influential factor in the use of the Integrated Licensing Service Information System.

Material and Methods

Method and model

Unified Theory and Acceptance and Use Technology (UTAUT) is a model proposed by Venkatesh et al. This model uses the behavioral intention variable as a predictor variable for user behavior. According to Mutiara, the definition of behavioral intention is a measure of a person's intention to carry out certain activities in an environment to support his work (Indah & Agustin, 2019). Venkatesh said that the behavioral intention indicator can measure the likelihood that consumers will behave in a certain way in the future such as buying/reusing a product and recommending it to others (Venkatesh et al., 2012).

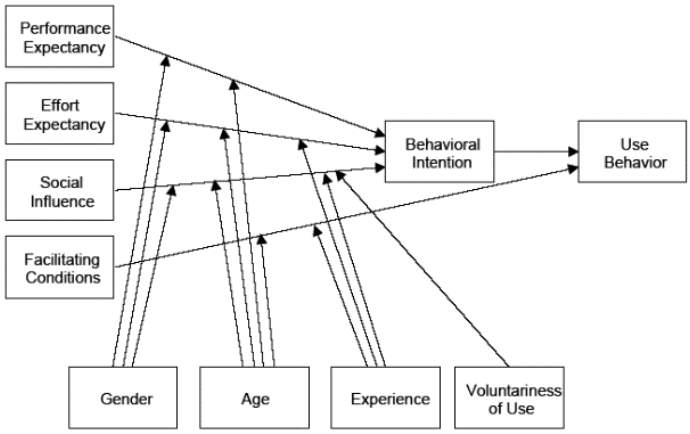


Figure 1. Model UTAUT

This study uses the same variables as the model above but there are some changes. The independent variables used are Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition. While the dependent variables used are behavioral intention and use behavior. In this study, there is no moderating variable because the researcher wants to know the usage interest of all users without segmentation. Figure 4 is the model used in this study.

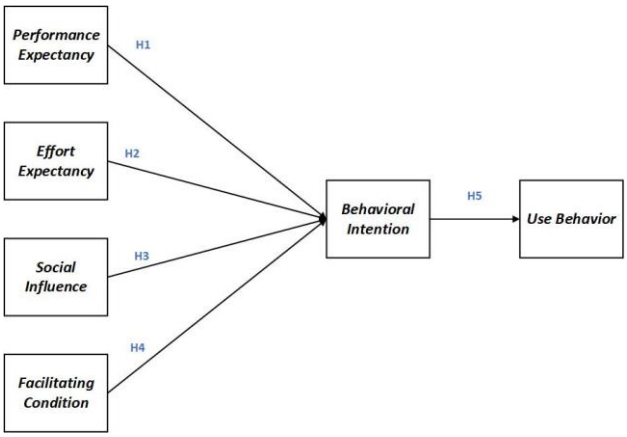


Figure 4. Research model

The data collection method in this study used a questionnaire distributed to the SIMVONI website accessors. The Performance Expectancy variable has four 4 variable indicators, effort expectancy has 4 variable indicators, social influence has 3 variable indicators, facilitating condition has 4 variable indicators, intention to use has 4 variable indicators and usage behavior has 4 variable indicators. Questionnaire statements are presented in Table 1.

Table 1. Research instrument

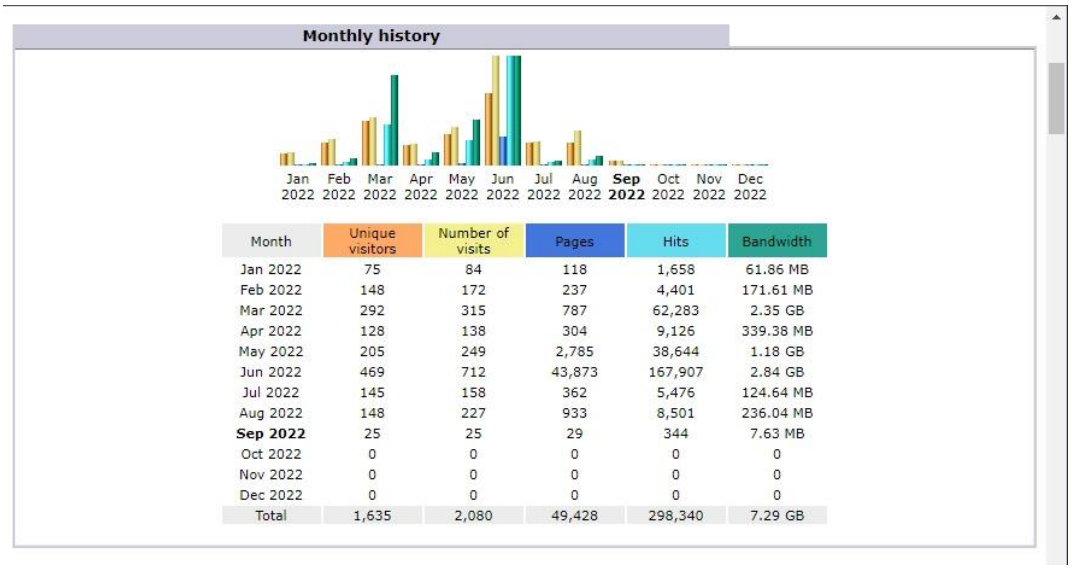
Variable	Indicator	Statement	Source
Performance Expectancy (PE)	PE1	Using SIMVONI can increase productivity in studying history	(Venkatesh et al., 2012)
	PE2	The existence of SIMVONI makes it easier for virtual visits to museums	(Bharata & Widyaningrum, 2017)
	PE3	Using SIMVONI can improve the quality of my knowledge of history and museums	(Bharata & Widyaningrum, 2017)
	PE4	The use of SIMVONI can increase the effectiveness of visiting museums	(Bharata & Widyaningrum, 2017)
Effort Expectancy (EE)	EE1	The interaction in SIMVONI is clear and easy to understand	(Venkatesh et al., 2003)
	EE2	Easy for me to learn to use SIMVONI	(Venkatesh et al., 2003)
	EE3	Using SIMVONI makes studying history and visiting museums more efficient in terms of energy and time	(Venkatesh et al., 2003)
	EE4	I can easily access SIMVONI	(Venkatesh et al., 2012)
Social Influence (SC)	SI1	My friend recommends using SIMVONI	(Bharata & Widyaningrum, 2017)
	SI2	Someone who are influential to me suggested using SIMVONI	(Venkatesh et al., 2012)
	SI3	Someone important to me recommends me to use SIMVONI	(Venkatesh et al., 2003)
Facilitating Condition (FC)	FC1	I have resources that support to access SIMVONI (Phone/Laptop/Tablet/etc)	(Venkatesh et al., 2003)
	FC2	I have the necessary knowledge to use SIMVONI	(Venkatesh et al., 2003)
	FC3	I got a guide using SIMVONI	(Bashir, 2020)
	FC4	I can get help from other people when I have difficulty using SIMVONI	(Venkatesh et al., 2003)
Intention to Use (IU)	IU1	I've used SIMVONI before	(Venkatesh et al., 2012)
	IU2	I'm trying to use SIMVONI to study history	(Venkatesh et al., 2003)
	IU3	I plan to use SIMVONI often	(Venkatesh et al., 2012)

To be continued…

	IU4	I think using SIMVONI is the right step in learning history and visiting museums virtually	(Bashir, 2020)
Usage Behavior (UB)	UB1	I often use SIMVONI	(Venkatesh et al., 2003)
	UB2	Saya biasa memantau perkembangan sejarah dan museum melalui SIMVONI	(Venkatesh et al., 2003)
	UB3	I prefer to use SIMVONI instead of having to come directly to the museum	(Venkatesh et al., 2003)
	UB4	I use SIMVONI with duration as needed	(Bashir, 2020)

Population dan sample

Arikunto (2013) stated that the population of all research subjects and the population is a subject that represents the population studied. The population of this study was obtained from the number of visitors to the SIMVONI website from January to August 2022. Based on data obtained from SIMVONI website statistics, unique visitors from January to August 2022 amounted to 1610 visitors. By using the Slovin formula with a significance level of 10%, the required number of samples is a minimum of 95 respondents.



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2022	75	84	118	1,658	61.86 MB
Feb 2022	148	172	237	4,401	171.61 MB
Mar 2022	292	315	787	62,283	2.35 GB
Apr 2022	128	138	304	9,126	339.38 MB
May 2022	205	249	2,785	38,644	1.18 GB
Jun 2022	469	712	43,873	167,907	2.84 GB
Jul 2022	145	158	362	5,476	124.64 MB
Aug 2022	148	227	933	8,501	236.04 MB
Sep 2022	25	25	29	344	7.63 MB
Oct 2022	0	0	0	0	0
Nov 2022	0	0	0	0	0
Dec 2022	0	0	0	0	0
Total	1,635	2,080	49,428	298,340	7.29 GB

Figure 2. SIMVONI Visitors Statistics

Hypothesis

Puspitasari said the hypothesis is defined as a tentative answer to a problem being tested because it is still an assumption (Puspitasari et al., 2019). The following are several hypotheses based on the research model that has been described.

Table 2. Hypothesis

Code	Hypothesis
H1	Performance expectancy has a significant positive effect on behavioral intention
H2	Effort expectancy has a significant positive effect on behavioral intention
H3	Social influence has a significant positive effect on behavioral intention
H4	Facilitating conditions has a significant positive effect on behavioral intention
H5	The behavioral intention has a significant positive effect on use behavior

Results and Discussion

Respondent's demographic

Respondent's age

Respondents who filled out this questionnaire were dominated the age of 17-25 years with a total of 113 people which equaled 89.7%, followed by the age group of 26-35 years with a total of 11 people which equaled 8.7%, and 10-16 years old and more than 46 years each with a value of 0.8% as shown in Figure 6.

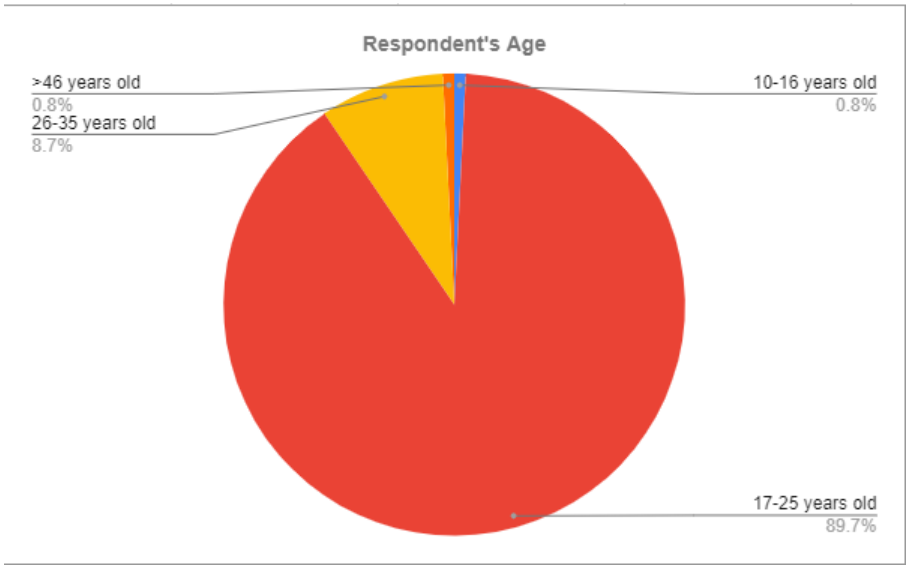


Figure 3. Respondent's Age

Respondent's gender

This questionnaire was filled out by 53 men, equivalent to 42.1%, and 73 women, equivalent to 57.9% as shown in Figure 7.

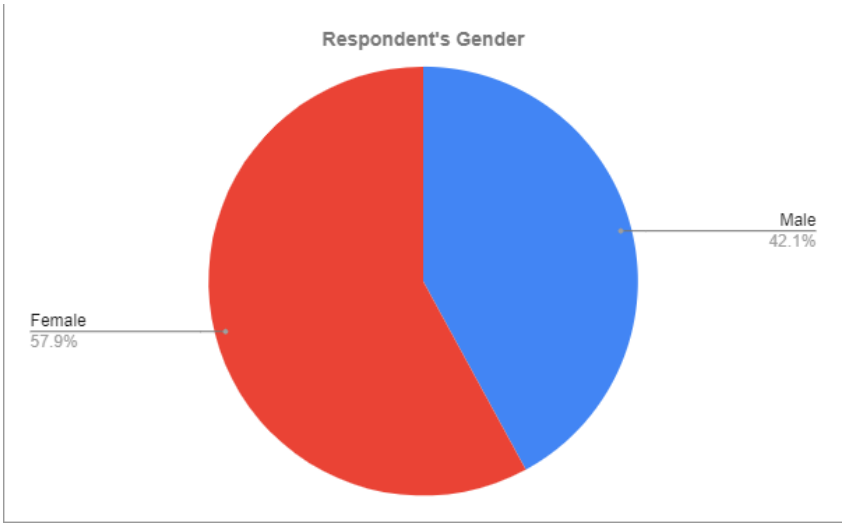


Figure 4. Respondent's Gender

Respondent's Domicile city

Most of the respondents who filled out this questionnaire came from Surabaya with 69 people worth 54.8%, followed by Sidoarjo with 16 people worth 12.7%, and Gresik with 7 people valued at 5.6%. The rest come from various regions in Indonesia.

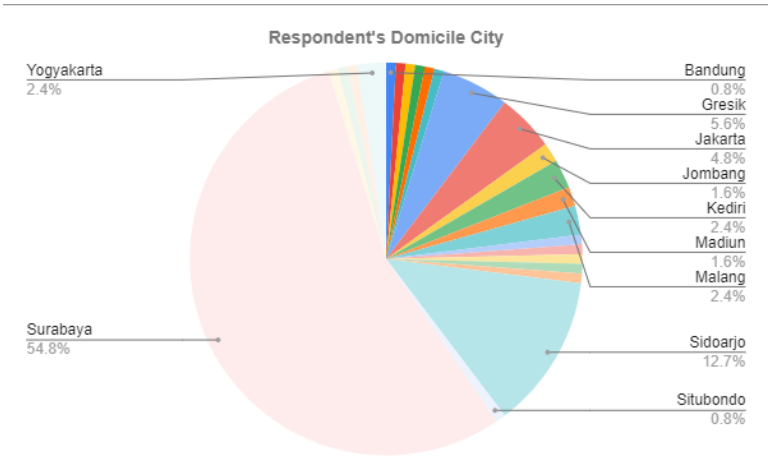


Figure 5. Respondent's Domicile city

Data analysis

The results of the distributed questionnaires were calculated using SmartPLS 3.0. The analysis steps carried out in this study were the analysis of the outer model, inner model, and hypothesis testing.

Outer model

The purpose of the outer model analysis is to test the relationship between the indicators and latent variables to test the validity and reliability of each indicator (Indah & Agustin, 2019). The analysis of the outer model in this study was carried out in two stages because, in the first stage, an indicator was found that did not meet the rule of thumb, the outer loading value of all indicators must be more than 0.7 (Indah & Agustin, 2019) as shown in Figure 9.

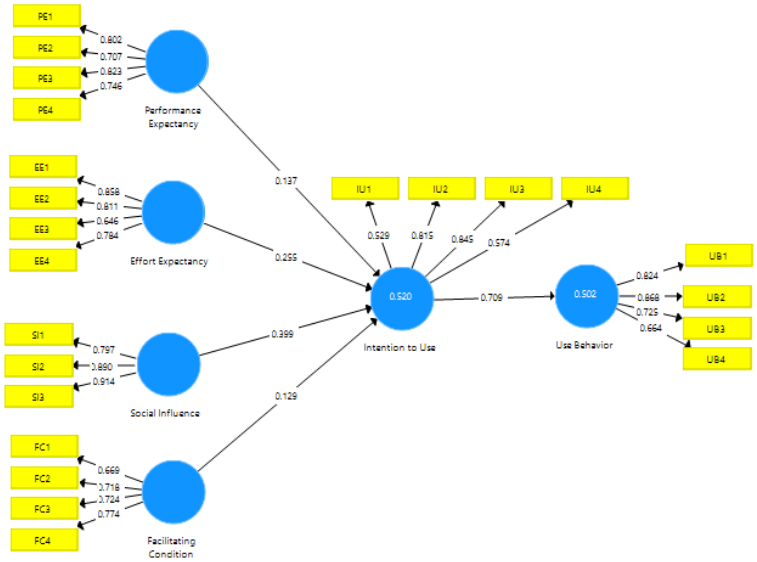


Figure 6. First outer loadings test

Hartono said that invalid indicators must be removed because they are not contained in the construct that represents them (Hartono & Abdillah, 2014). Deletion of indicators with codes PE2, EE1, FC1, FC2, IU1, IU4, UB4 and the following results were obtained.

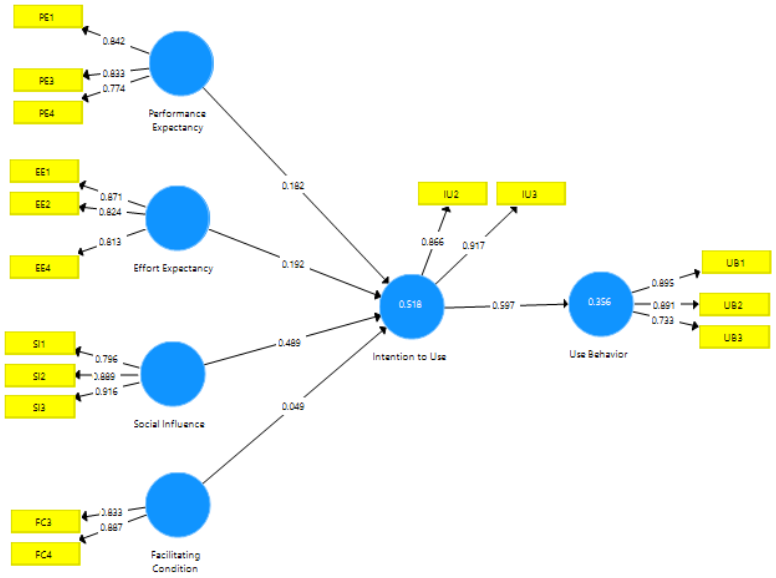


Figure 10. Second outer loadings test

Table 3. Result of validity and reliability test

Variable	Variable's Indicator	Outer Loadings	AVE	Composite Reliability
Performance Expectancy	PE1	0.842	0.667	0.857
	PE3	0.833		
	PE4	0.774		
Effort Expectancy	EE1	0.871	0.699	0.875
	EE2	0.842		
	EE4	0.813		
Facilitating Condition	FC3	0.833	0.796	0.851
	FC4	0.887		
Social Influence	SI1	0.796	0.754	0.902
	SI2	0.889		
	SI3	0.916		
Intention to Use	IU2	0.866	0.796	0.886
	IU3	0.917		
Use Behavior	UB1	0.895	0.711	0.88
	UB2	0.891		
	UB3	0.733		

In Table 3, the outer loadings values of all indicators have shown >0.7 so all indicators can be said to be valid. To measure convergent validity, one must calculate the Average Variance Extracted (AVE) value where the AVE value must be above 0.5, and for the variable to be considered valid it must meet the composite reliability value of 0.7 (Warastuti et al., 2021). In Table 2, all the AVE values of all variables are above 0.5 and the composite reliability value is above 0.7 so that overall it can be considered valid and reliable.

Inner model

The evaluation of the inner model aims to determine whether variables have a direct influence or not (Indah & Agustin, 2019). The inner model test is carried out by looking at the value of the R square.

Table 3. Result of inner model test

	R Square
Intention to Use	0.518
Use Behavior	0.356

The results of the evaluation of the inner model show the number 0.518 for the variable intention to use, which means that the variables of performance expectancy, effort expectancy, social influence, and facilitating conditions have an effect of 51.8% on intention to use, while the remaining 48.2% is influenced by other factors.

The table also shows the number 0.356 for user behavior, which means that the variable intention to use affects use behavior by 35.6%, while the other 64.4% is influenced by other factors.

Hypothesis test

Hypothesis testing is done by bootstrapping procedure on SmartPLS 3.0 application. The observed results are path coefficients on the Original Sample and T Statistics values. If the original sample is positive, the direction of the hypothesis relationship is positive, and vice versa (Hartono & Abdillah, 2009). The level of significance of the influence between variables can be seen through the value of T Statistics. If the T statistic value is more than 1.9, then the relationship between variables has a significant effect (Bashir, 2020). The results of the path coefficients analysis are shown in Table 5.

Table 4: Result of path coefficient analysis

	Original Sample (O)	T Statistics (|O/STDEV|)	Correlation
Performance Expectancy -> Intention to Use	0.182	1.896	Positive Not Significant
Effort Expectancy -> Intention to Use	0.192	1.911	Positive Significant
Facilitating Condition -> Intention to Use	0.049	0.479	Positive Not Significant
Social Influence -> Intention to Use	0.489	6.499	Positive Significant
Intention to Use -> Usage Behavior	0.597	11.652	Positive Significant

From Table 5, the performance expectancy variable has a positive effect on the intention to use and is close to significant because the number 1.896 is close to the number 1.9. Effort expectancy and social influence variables have a positive effect on the intention to use and intention to use has a significant positive effect on usage behavior because the original sample has a positive value and the T Statistics value is more than 1.9. Facilitating conditions have a positive effect on the intention to use but are not significant because the original sample is positive but the T Statistics value does not meet the number 1.9.

Conclusion

From the results of a series of analyses above, it can be concluded that users feel that using SIMVONI can facilitate their activities, which in this case is visiting museums and studying history so that it significantly affects an interest in using the SIMVONI website. Users also feel that using the SIMVONI website is quite easy and the surrounding social conditions also support using the SIMVONI website so it significantly affects their interest in using SIMVONI. This usage interest also affects the continuous use to use it considering that the benefits obtained are also many.

Unfortunately, users feel that their condition has not facilitated optimally to access SIMVONI so this factor does not have a significant effect on interest in using SIMVONI.

Acknowledgment

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