

## Analysis of User Satisfaction Virtual Reality Tourism Kemenparekraf Using the End User Computing Satisfaction Method

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### ABSTRACT

Virtual Reality (VR) has developed on the concept of tourism where people can enjoy virtual tourist destinations called VR Tourism. The tourism industry, one of which is Indonesia, is utilizing this technology development as a marketing strategy for tourist objects, one of which is VR Tourism Kemenparekraf. Previous research on how VR affects marketing has been carried out a lot, but this research will focus on user responses to VR Tourism services which are still little done. From this, by utilizing the End User Computing Satisfaction (EUCS) method, it is used to measure the satisfaction of VR Tourism Kemenparekraf users, as well as to see whether this method is still relevant to use. Respondents were determined as many as 75 people who had used VR Tourism Kemenparekraf at least once. The data was processed using SPSS software, where the research results found that all variables contained in the EUCS method had a positive effect on user satisfaction. Users are satisfied with VR Tourism Kemenparekraf. The EUCS method is still relevant for use in testing user satisfaction in VR Tourism Ministry of Tourism and Creative Economy.

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## 1. INTRODUCTION

Technology is an important part of life today and continues to evolve to make it easier for humans to get what they need and want. One of the technology sections is (IT) Information Technology [1]. IT is a medium for obtaining information without being hindered by distance, space and time [1]. IT is currently more focused on computer technology [2], with various forms ranging from applications, websites, electronic devices, internet and a number of other forms. (VR) Virtual Reality is a part of IT development [3].

VR is a technology that can help users interact with the environment or objects using a computer device [4]. Just like other IT, VR helps humans to obtain information.

VR is a part of IT and has existed since the 1960s, where this technology has developed in various business aspects such as games, exhibitions, and entertainment [5]. One of the developments in VR in the entertainment business aspect is VR Tourism.

VR develops on the Tourism concept where users can enjoy virtual simulations of tourist objects or destinations through 3600 videos [6]. VR Tourism has become a trend in society, especially since the Covid 19 outbreak hit [7], so that people's consumption patterns are increasingly using the internet to fulfill their life needs [8]. This is also encouraged by the tourism sector which has been affected by the lockdown to have a strategy so that it can still generate income, one of which is the use of VR Tourism [9].

In terms of the empirical gap, existing research only discusses how VR can affect marketing [10]. The focus of previous research only wanted to find out the role of VR Tourism in terms of branding a tourist destination wisata [11][12]. The most basic research that focuses on user responses to VR Tourism services is still very little [13]. This research will be a contribution in looking at user interface interactions with services. As explained by Lazar [14] in a book entitled Research Methods in Human-Computer Interaction the role of the user interface in a system is very important.

Based on the gaps described previously, this study will use the End User Computing Satisfaction (EUCS) evaluation model. EUCS is a method of measuring end user satisfaction from a computer-based information system whose concept is an affective attitude towards a computer system by someone who interacts with the system directly [15]. Analysis using this model emphasizes End user satisfaction with technological aspects, by assessing the Content, Accuracy, Format, Ease of Use, and Timelines of the system [15].

EUCS is generally widely used to measure systems such as applications and websites. As was done by Indarto [16] and Diansyah [17] where the EUCS model is used to measure the satisfaction of Grab and Tokopedia application users. The use of the EUCS model to measure website user satisfaction, for example, is carried out by Saputra [18] which measures satisfaction on the E-Campus website and measurement of satisfaction with the information management website Adi Unggul Bhirawa Surakarta conducted by Sutanto [19]. Even though VR Tourism is part of an information system, the authors have not found the use of EUCS to measure VR Tourism systems. So apart from the gap that has been explained, this research will also see whether EUCS can still be used in measuring VR Tourism.

Kementerian Pariwisata dan Ekonomi Kreatif Republik Indonesia (Kemendparekraf) is now creating its own VR Tourism. Through the YouTube account, the Ministry of Tourism and Creative Economy has provided VR Tourism with several tourist objects in Indonesia which can be enjoyed free of charge [20]. This is a form of support from the Indonesian government in the use of technology in the tourism industry. The existence of VR Tourism certainly brings benefits to the tourism industry thanks to existing content or simulations that can encourage tourists to come [7]. The existence of this research is a form of support or follow-up carried out by researchers on technology development for the tourism industry in Indonesia to make it more sustainable.

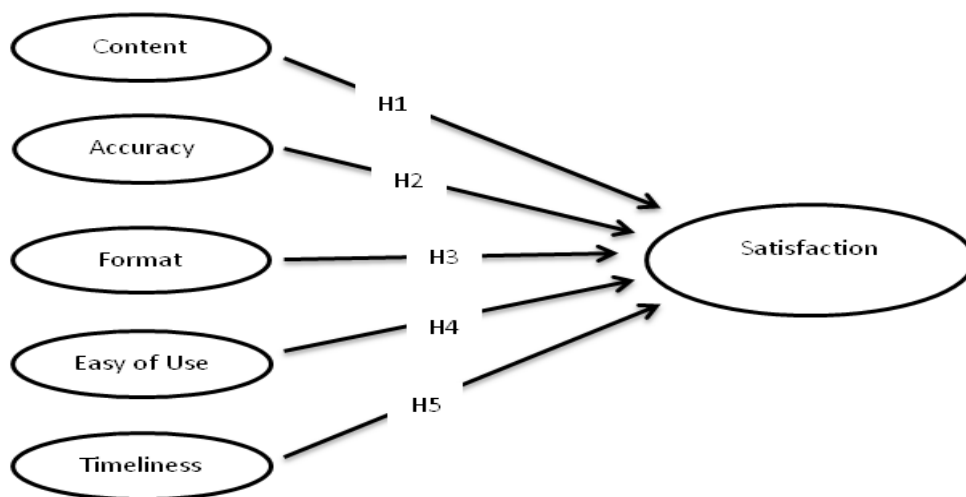
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## 2. RESEARCH METHOD

The type in this research is quantitative survey, where research has samples from certain populations by utilizing questionnaire media to be used as a main data collection tool [21]. The population in this study were users of the VR Tourism service, visitors to the Kemenparekraf YouTube account who had watched a 360° video at least once. The population in this study is infinite, so the sample determination uses Hair et al [22] where the minimum number of samples is 5 : 1 the number of indicators. Based on the calculation, the number of samples used in this study were 75 people.

The basis for preparing the hypothesis is by following Doll & Torkzadeh [15], the following hypothesis is used:

- H1: Information content has a positive effect on VR Tourism Kemenparekraf user satisfaction
- H2: The accuracy of the resulting information has a positive effect on the satisfaction of VR Tourism Kemenparekraf users
- H3: Information presentation format has a positive effect on user satisfaction of VR Tourism Kemenparekraf
- H4: Ease of use has a positive effect on user satisfaction of VR Tourism Kemenparekraf
- H5: Timeliness has a positive effect on user satisfaction of VR Tourism Kemenparekraf



Source: author(2023)

Figure 1. Research Model End User Computing Satisfaction

**Table 1.** Operational Definition

Variabel	Operasional Definition	Instrument
Content	The content contained in VR Tourism Kemenparekraf is assessed from the information of VR Tourism Kemenparekraf users	C1 = Contents of VR Tourism Ministry of Tourism and Creative Economy as needed. C2 = Complete contents of VR Tourism Kemenparekraf. C3 = The contents of VR Tourism Kemenparekraf are clear C4 = The contents of VR Tourism Kemenparekraf can be understood.
Accuracy	The accuracy of the information generated by VR Tourism Kemenparekraf is assessed from the accuracy of the details of the tourist objects	A1 = VR Tourism Kemenparekraf is able to display tourist destination objects according to their shape. A2 = VR Tourism each side showing the proper location.
Format	The format for presenting VR Tourism Kemenparekraf information is assessed from the aesthetics of the interface display, the usefulness of the type of service report format that has been completed	F1 = 360 video display has attractive color settings. F2 = 360 video display has a comfortable layout to view. F3 = VR Tourism Kemenparekraf has an active feature.
Ease of Use	The ease of using VR Tourism Kemenparekraf is measured by how easy it is for users to use the system.	E1 = VR Tourism Kemenparekraf is very easy to use. E2 = Kemenparekraf VR Tourism is easy to access anytime and anywhere.
Timeliness	The timeliness of the presentation of VR Tourism Kemenparekraf is assessed from the presentation of information that is always updated about tourist destinations.	T1 = Information about tourist destinations that need to be quickly obtained through VR Tourism Ministry of Tourism and Creative Economy. T2 = Does VR Tourism Kemenparekraf provide the latest information about tourist destinations.
Satisfaction	End user satisfaction in this case is the user from VR Tourism Kemenparekraf for the quality provided.	S1 = Do you feel satisfied using VR Tourism Ministry of Tourism and Creative Economy. S2 = Is what is displayed in VR Tourism Kemenparekraf in accordance with what users expect.

Source: author(2023)

The measuring instrument used in this study is the Likert scale. The measurement used will provide data results in the form of an interval scale set for each question item. In particular, the study uses a five-point Likert scale. Each answer is connected with a form of statement or support which is expressed in the following sentences:

- a. Strongly Disagree
- b. Don't agree
- c. Simply Agree
- d. Agree
- e. Strongly agree

The data analysis technique used consists of an instrument test which in this test is divided into a validity test and a reliability test. Next, a classic assumption test is performed which consists of a normality test, multicollinearity test, and

heteroscedasticity test. Furthermore, a hypothesis test was carried out using multiple linear regression tests.

### 3. RESULTS AND DISCUSSION

#### 3.1. Instrument Test

To find out how good the instrument used is to measure the concept being measured, a validity test is carried out [23]. The validity test was carried out by correlating the question item scores with the total item scores. The validity test results are as follows:

**Table 2.** Validity Test Results

Variabel	Kode	$r_{hitung}$	$r_{tabel}$	Keterangan
<i>Content</i>	C1	0,871	0,296	Valid
	C2	0,786	0,296	Valid
	C3	0,828	0,296	Valid
	C4	0,853	0,296	Valid
<i>Accuracy</i>	A1	0,859	0,296	Valid
	A2	0,868	0,296	Valid
<i>Format</i>	F1	0,787	0,296	Valid
	F2	0,817	0,296	Valid
	F3	0,847	0,296	Valid
<i>Ease Of Use</i>	E1	0,847	0,296	Valid
	E2	0,798	0,296	Valid
<i>Timeliness</i>	T1	0,874	0,296	Valid
	T2	0,822	0,296	Valid
<i>Satisfaction</i>	S1	0,773	0,296	Valid
	S2	0,886	0,296	Valid

Source: author(2023)

The test results show that of the 15 items tested for validity, they are declared "valid" in other words, the indicators used in this questionnaire meet the requirements for use and can be trusted to collect the necessary data.

To measure the accuracy of the measurement results, a reliability test was carried out [24]. The instrument is said to be reliable if the results are relatively the same when used again on other objects at different times[25]. The following are the results of the reliability test:

**Table 3.** Reliability Test Results

Variabel	Cronbach Alpha	Standar Reliabilitas	Keterangan
<i>Content</i>	0,889	0,60	Reliabel
<i>Accuracy</i>	0,856	0,60	Reliabel
<i>Format</i>	0,840	0,60	Reliabel
<i>Ease of Use</i>	0,847	0,60	Reliabel
<i>Timeliness</i>	0,838	0,60	Reliabel
<i>Satisfaction</i>	0,802	0,60	Reliabel

Source: author(2023)

From table 3 the alpha value seen from the number of Cronbach's Alpha shows that it is greater than the existing provisions, namely 0.60. With these data, the instrument is declared "reliable".

**3.2. Classic Assumption Test**

The normality assessment is by comparing the Asymp.Sig.(2-tailed) value with the alpha level. If the Asymp.Sig.(2-tailed) value > alpha level, it means that the data is normally distributed [26]. According to the results in Figure 2 where the value of Asymp.Sig.(2-tailed) = 0.200 > alpha level = 0.010 (1%) it is said that the data is normally distributed. This means that there is a significant relationship with the 99% confidence level because the data is normally distributed. Following are the results of the normality test:

		Unstandardized Residual
N		75
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	,94754160
Most Extreme Differences	Absolute	,067
	Positive	,067
	Negative	-,062
Test Statistic		,067
Asymp. Sig. (2-tailed)		,200 <sup>c,d</sup>

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Source: author(2023)

**Figure 2.** Image of the results of the Normality Test

Based on Ustiawaty [27], to see the occurrence of multicollinearity, namely through the VIF value, if the VIF value is between 1-10 then multicollinearity does not occur. According to the results shown in figure 3 where the VIF value of each variable is still between 1-10 or less than 10, the data multicollinearity does not occur. The following is the output of the multicollinearity test:

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	Content	,085	,079	,165	1,075	,286	,134	7,444
	Accuracy	,299	,121	,303	2,459	,016	,209	4,789
	Format	,127	,095	,177	1,343	,184	,181	5,515
	Ease of use	,247	,106	,247	2,328	,023	,280	3,567
	Timeliness	,053	,114	,059	,464	,644	,194	5,149

a. Dependent Variable: Satisfaction

Source: autor(2023)

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**Figure 3.** Image of Multicollinearity Test Results

Based on Siregar [28], this study will use the Glejser method, starting from finding the unstandardized residual value then the absolute residual value and from the residual value regressing the independent variables with the absolute residual value. The test criterion is a significant value  $> 0.01$ , then there is no heteroscedasticity. Based on the results in Figure 4, the significance value of each variable is  $> 0.01$ . With this the test results mean that the data does not occur heteroscedasticity. The following is the output of the heteroscedasticity test:

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Content	,085	,079	,165	1,075	,286
	Accuracy	,299	,121	,303	2,459	,016
	Format	,127	,095	,177	1,343	,184
	Ease of use	,247	,106	,247	2,328	,023
	Timeliness	,053	,114	,059	,464	,644

a. Dependent Variable: Satisfaction

Source: autor(2023)

**Figure 4.** Image of Heteroscedasticity Test Results

### 3.2.1. Multiple Linear Regression Test

Multiple linear regression tests were carried out to see the effect of the independent variables on the dependent variable. Based on Sudaryono [29], the multiple linear regression test in this study is seen from the perspective of person correlation in each independent variable. Here is the SPSS output:

		Correlations					
		Satisfaction	Content	Accuracy	Format	Ease of use	Timeliness
Pearson Correlation	Satisfaction	1,000	,833	,837	,822	,807	,780
	Content	,833	1,000	,864	,872	,811	,879
	Accuracy	,837	,864	1,000	,832	,793	,818
	Format	,822	,872	,832	1,000	,806	,844
	Ease of use	,807	,811	,793	,806	1,000	,723
	Timeliness	,780	,879	,818	,844	,723	1,000
Sig. (1-tailed)	Satisfaction	.	,000	,000	,000	,000	,000
	Content	,000	.	,000	,000	,000	,000
	Accuracy	,000	,000	.	,000	,000	,000
	Format	,000	,000	,000	.	,000	,000
	Ease of use	,000	,000	,000	,000	.	,000
	Timeliness	,000	,000	,000	,000	,000	.
N	Satisfaction	75	75	75	75	75	75
	Content	75	75	75	75	75	75
	Accuracy	75	75	75	75	75	75
	Format	75	75	75	75	75	75
	Ease of use	75	75	75	75	75	75
	Timeliness	75	75	75	75	75	75

Source: autor(2023)

Figure 5. Multiple Linear Regression Test Results

In the analysis of the demographic data of the respondent's profile, several things can be identified. First, the difference in the sex of the respondents was three people where there were 36 or 48% of the respondents who were male, while there were 39 or 52% of the respondents who were female. The number of respondents constituted the entire data collected by the researcher through random distribution of questionnaires through the comments column on the 360<sup>0</sup> YouTube video accounts belonging to the Ministry of Tourism and Creative Economy to meet the required number of samples. Second, the age range of respondents is dominated by <20 to 25 years. This age is a productive age in using technology and is assumed to be more careful in making judgments. With these respondents, the assessment given is absolute. Respondents can give an assessment as someone who has good experience in using technology.

In Figure 5 it can be seen that the correlation is partially the relationship between the dependent variable and the independent variable. The results of the analysis carried out by the researcher, namely the partial correlation between the content variable (X1) and satisfaction (Y), obtained a value of  $r = 0.833$ . This value indicates a very strong positive relationship between X1 and Y. The strong and positive meaning here is that there is a unidirectional relationship between X1 and Y. This means that if X1 rises, the level of user satisfaction will increase very significantly. With this, H1 = Information content has a positive effect on user satisfaction of VR Tourism Kemenparekraf accepted. By maintaining and improving the quality of information, there will be no decrease in user satisfaction [7]. The quality of the information in question is the recording of tourist objects that meet the needs and storytelling that is clear and easy to understand. It is hoped that the VR tourism developer Kemenparekraf can maintain or improve the quality of the information provided.



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The partial correlation between the variable accuracy (X2) and the level of satisfaction (Y) obtained a value of  $r = 0.837$ . This value indicates a very strong positive relationship between X2 and Y. This means that if X2 increases, the level of user satisfaction will increase significantly. These results prove that H2 = The accuracy of the resulting information has a positive effect on user satisfaction VR Tourism Kemenparekraf is accepted. Kemenparekraf VR Tourism developers must maintain the accuracy of the details of tourist objects. Details of tourist objects in this case such as displaying tourist destination objects according to their shape and no bugs occur in the use of Kemenparekraf VR tourism. The results of this study support the findings from previous literature which states that a decrease in the accuracy of an information system can lead to a decrease in end user satisfaction [10].

On the results of the partial correlation between the format variable (X3) and the level of satisfaction (Y) a value of  $r = 0.822$  is obtained. This value shows a strong and positive relationship between format and user satisfaction. The format for presenting tourist destination information includes clear video quality, feature icons that don't interfere when the system is used, and the available features function properly. Based on these findings, the researchers provide recommendations to the VR tourism developer Kemenparekraf to always maintain the quality of the presentation format so that there is no decrease in user satisfaction. It can be concluded that H3 = Format for presenting information has a positive effect on user satisfaction. VR Tourism Kemenparekraf is accepted.

Partial correlation measurement between the variable easy of use (X4) and the level of satisfaction (Y) obtained a value of  $r = 0.807$ . This value shows a very strong positive relationship between X4 and Y. With this, H4 = Ease of use has a positive effect on user satisfaction VR Tourism Kemenparekraf is accepted. Researchers found that VR tourism is quite easy for users to use. In this case the ease of use of the system means that the system can be used anywhere and anytime. By maintaining or improving ease of use, there will be no decrease in user satisfaction.

The last test was carried out on the timeliness variable (X3) with the level of satisfaction (Y) obtained a value of  $r = 0.780$ . The partial correlation value shows a positive relationship between X5 and Y. The results of the study stated that H5 = Timeliness of presenting information has a positive effect on user satisfaction VR Tourism Kemenparekraf is accepted. From the overall results of the analysis carried out, the Timeliness variable is known to have the lowest influence compared to other variables. VR tourism is a non-interactive system[30]. Users can only view tourist attractions without being able to control conditions in the system such as moving water or dropping leaves from trees. The current state of objects such as tides or low tides cannot be obtained by the user.

When looking back at the background, the purpose of this study was conducted to see the interaction between the service user interface and the user. [14] stated that the role of the user interface in a system will affect whether or not the user is satisfied with system performance. If the user is satisfied, the system can be said to be successful, and vice versa if the user is not satisfied, the system will fail [5]. The findings in this study

indicate that the majority of Kemenparekraf VR tourism users are satisfied. By looking at the person correlation value for each independent variable which has a positive value, it proves that Kemenparekraf's VR Tourism is a successful system.

The EUCS method is generally widely used to measure information systems such as applications and websites [16] [17] [18] [19]. VR tourism user satisfaction, which is also an information system[4], has so far not been known using EUCS as a measurement method. The findings in this study are that the variables in the EUCS method, namely content, accuracy, format, easy of use, and timeliness partially have a positive influence on VR tourism user satisfaction. This is evidenced by the acceptance of all hypotheses in this study. From these findings it can be seen that the EUCS method is still relevant for use in testing VR tourism user satisfaction.

This research still has some limitations. First, this research is only conducted at one time and is not longitudinal. Second, this research was conducted only using the online survey method, of course there is still a bias in the results of data collection. Interesting facts were obtained when looking at the distribution of respondents in this study. From the total sample size of 75 people, the distribution of respondents was dominated by the island of Java. In VR tourism belonging to the Ministry of Tourism and Creative Economy, the island of Java has 2 tourist destinations, namely Mount Bromo in East Java province and the city of Bandung in West Java province. The enthusiasm from respondents who were at the Kemenparekraf VR tourism location was quite high. This may be due to the pride and support of local residents for their regional tourist destinations. Other evidence is obtained by looking at the quantity of user comments on VR tourism of Mount Bromo and the city of Bandung.

Third, the researcher assumes that survey research methods are not sufficiently capable of measuring the very complex behavioral responses of VR tourism users. Based on the research results, it is known that the enthusiasm of the respondents did not occur in the province of Bali, even though Bali itself has two VR tourism provided by the Ministry of Tourism and Creative Economy. The number of respondents that the researcher managed to collect was only 3 people. Apart from the limited access of researchers to be able to reach users in the province, there may be other factors. Of course, further research is needed to explain this phenomenon.

#### 4. CONCLUSION

After carrying out the research stages, namely research preparation, research methodology, data collection, data processing, the required results are obtained, namely seeing the relationship between the variables content, format, accuracy, ease of use, and timeliness which have a positive influence on the satisfaction variable. VR Tourism Kemenparekraf users are satisfied with it so it can be concluded that the system is successful. The EUCS method is still relevant for use in testing user satisfaction in VR Tourism Ministry of Tourism and Creative Economy. Suggestions for further research are to be able to conduct research using the same method and other objects, namely VR Tourism, so that it can be used as a comparison.

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