



## Analysis the Effect of Web Portal on Electronic Satisfaction

Wiry Utami<sup>a</sup>, Purbo Jadmiko<sup>b</sup>, Elfitra Azliyanti<sup>c</sup>

Management Department, Faculty of Economics, Bung Hatta University  
wiryutamibunghatta.ac.id

### Abstract

*The study aims to analyze the effect of web portal on electronic satisfaction to Bung Hatta University Student. The Method used in this study is a quantitative method, using survey. The technique of taking sample is by using convenience sampling. Data was taken as primary data by spreading questionnaire and was measured by using Likert scale method. Method of analysis used descriptive analysis and data was processed by using SEM Smart PLS tools. In this paper used 381 student of Bung Hatta University. The result showed that the content usefulness, adequacy of information, accessibility have not positive significant on electronic satisfaction, while usefulness and interaction have positive significant on electronic satisfaction*

Keyword: usefulness of content, adequacy of information, usefulness, accessibility, interaction, web portal, electronic satisfaction

### 1. INTRODUCTION

Internet technology is important role in all aspects of activities. Internet has become one of the needs for society. One of the uses of the internet is providing electronic services quality. From some research on electronic services, generally testing about online services such as online retailing, job portals, online shopping. From some research, generally more about on transactions on the website such as online shopping and product delivery. There are still few studies that test about web portal in an organization.

The industrial revolution 4.0 forced all company and organizations to carry out technological transformation where the internet has turned into the internet of things. Furthermore, in the context of education, internet technology is more important because it can provide many advantages, especially for a university. The academic portal at the University can be used for students and lecturers. This portal is connected to the internet which makes it easy for students to see grades, fill KRS, online study, communicate with PA lecturers, so its play an important role in the process of teaching and learning at the

University. Bung Hatta University is one of the university that provide academic portal services for students (<https://portal.bunghatta.ac.id>) since 2009. This portal is connected to the internet ,so that it can facilitate the process of student academic activities such as communicating with supporting lecturers, with PA lecturers, study online, see grades and others wherever located.

So, a good access of portal is important to create student satisfaction. To measure student satisfaction of portal Bung Hatta University, we using Web portal Scale. This method is the development of electronic service quality methods (E-service quality). Web portal is used to measure the quality of web portal consisting of five dimensions, are usefulness of content, adequacy of information, usability, accessibility, and interaction (Yang *et al.*, 2005).

Following to improve the quality of academic portal of Bung Hatta University, this study is expected to provide information as well as to realize excellent service to access information systems for students. This study is expected to give excellent service to access information systems for students. Therefore, it is very important to examine how high student satisfaction to academic portal of Bung Hatta University.

## **2. LITERATURE REVIEW**

### **2.1. Electronic satisfaction**

According to Kotler and Keller (2012), satisfaction is a person feeling of pleasure or disappointment resulting from comparing a product perceived performance or outcome in relation to their expectations. The model of expectancy disconfirmation related to satisfaction by Oliver (1980) suggests that the performance or results that exceed expectations show positive disconfirmation condition, performance or results based on expectations showing the condition confirmed, and the performance or results outside of expectations showing confirmed negative conditions. In another word, if the performance is below to customers expectation, the customers will be dissatisfaction and if performance is equal to customer expectations, the customer will be satisfied. If the performance exceeds to customers expectations, the customers will be very satisfied or pleased.

Satisfaction is an emotional or cognitive response to a focus (product, experience, at a time (after taking, after choosing, gathering experiences. Satisfaction is a post purchase phenomenon. Satisfaction only evaluates when the evaluation process occurs (Giese and Cote, 2002). Electronic satisfaction as a construct that reflects the cumulative effect of the convenience of experience related to service providers in a certain period of time (Szymanski

and Hise, 2000). In this study, electronic satisfaction is student satisfaction in using the academic web portal at Bung Hatta University

## 2.2. Web Portal

Web Portal is a media that can be used by organizations to communicate and can facilitate activities in an organization. As more people use IP Web portal, providing user-oriented, quality IP web portal services have become an important way for owners to satisfy their users (Van Riel *et al.*, 2001). Web portals of this type include commercial portals that provide information about corporations and their products or services and non commercial Web sites built by government agencies, universities, and non-profit organizations. (Yang *et al.*, 2005). Research related to the Portal requires a combination of both traditional and quality web design.

## 2.3. Web Portal Dimensions

Web portals is a site that provided user with online information and information-related services, such as search functions, community building features, commerce offerings, personal productivity applications and a channel of communication with the site owner and peer user (Eisenman and Pothen (2000) in Yang *et al.*, 2005). There are five dimensions of the Web portal are:

a. Usefulness of Content

Usefulness of Content refers to the value, reliability, currency and accuracy of information in portal. Value is about clearness of Information in portal. Information reliability refers to accuracy, dependability and consistency. Information currency is concerned with information timeliness and continuous update. Information accuracy describes the degree to which the system information is free of error.

b. Adequacy of Information

Adequacy of Information is the extent of completeness of information. Web sites need to provide information to facilitate user understanding of the product and system decision making. In addition, user need supplemental service such as company information, professional advice, research reports, hyperlinks to relevant website, contact information and archives in addition to the core offering.

c. Usability

Usability is related to user friendliness. Researcher have identified various factor, primarily content layout and classification, website structure, user interface, web site

appearance and visual design, intuitiveness, readability, comprehension, clarity, search facility and ease of navigation. One critical requisite is technical adequacy, which concerns web site technical feature, capacities of system, networking, hardware and software and system integrity.

d. Accesibility

Accesibility is related about the convenience benefit of using a web site as an information cannot be achieved without accessibility. It involves two aspects: availability and responsiveness. Customers expect the web-based services to be available at all times and they also desire speedy log-on, access, search and web page download.

e. Interaction

Interaction involves three type of operation between: users and service provides employees, user and the web site and among peer user of similar products.

## 2.4. Research Hypothesis

Usefulness of content is refers to the value, reliability, accuracy of information. Information value is concerned with relevancy and clearness. Information reliability refers to its accuracy, dependability and consistency. Information currency is concerned with information timeliness and continuous update. Information accuracy describes the degree to which the system information is free of error. A good usefulness of content, the information accuracy and reliability in using the portal lead to user satisfaction (Yang *et al.*, 2005). The higher usefulness of content will create satisfaction for portal users. Based on these explanations, the hypothesis can be formulated as follows:

*H1: Usefulness of content has a positive effect on electronic satisfaction*

Adequacy of information is the extent of completeness of information. Web sites need to provide information to facilitate user understanding of the product and system decision making. In addition, user need supplemental service such as company information, professional advice, research reports, hyperlinks to relevant website, contact information and archives in addition to the core offering. So, the higher of information provided by the portal, it will increase portal user satisfaction. Based on this explanation, the hypothesis can be formulated as follows:

*H2: Adequacy of information has a positive effect on electronic satisfaction*

Usability is related to user friendliness. Usability in the portal relates to the technical use of the portal and ease of use of the portal such as layout, content, portal structure, portal display, design, ease of navigation (Yang *et al.*, 2005). Usability is a very important one influencing user satisfaction of portal (Yang *et al.*, 2005). Web portals should have a good design and content that are easy to use with an attractive appearance, interesting layout and easy to use the features available on the portal so that it can increase portal user satisfaction. Szymanski and Hise (2000) mentioned that a good site design is a site with good organization, so consumers will be easy to find information. Easy to navigate features found to create satisfaction (Szymanski and Hise, 2000). So, the higher usability, it will increase electronic satisfaction. Based on the explanation, a hypothesis can be formulated as follows:

*H3: The usability has a positive effect on electronic satisfaction*

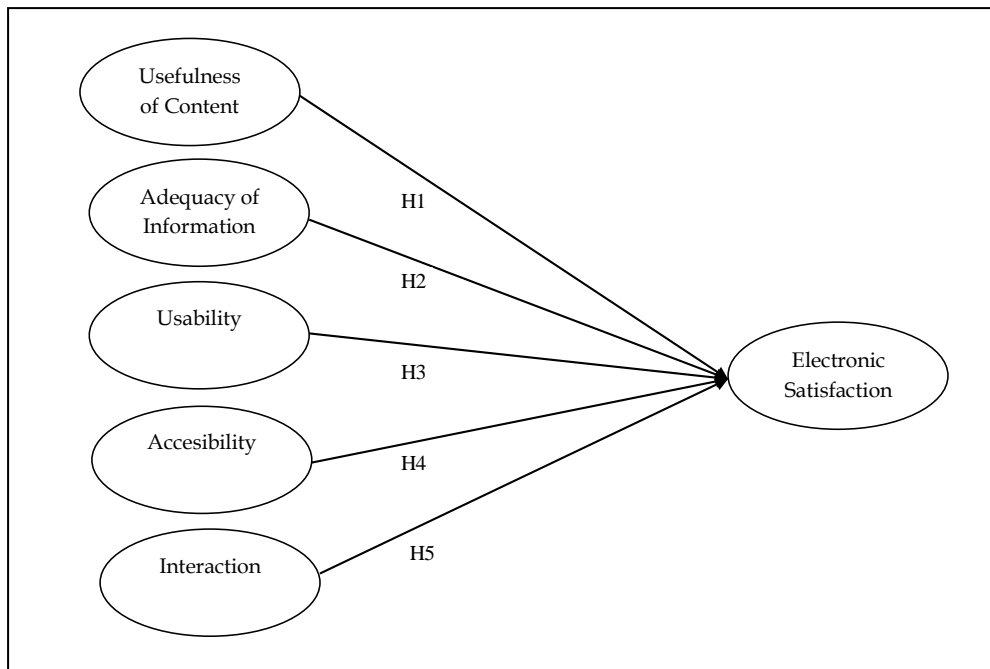
Accessibility is related to comfort in using web portals such as the speed of accessing the portal, the speed of downloading pages on the portal and easy access to search (Yang *et al.*, 2005). Accessibility means that users expect to access Web portal anytime and view its content quickly. So the better the accessibility provided by the portal will increase the electronic satisfaction of portal users. Based on this explanation, the hypothesis can be formulated as follows:

*H4: Accessibility has a positive effect on electronic satisfaction.*

Interaction is a relationship or interaction and communication between portal users. Web portal generally consist of three type of interaction: between customers and the portal employee via either internet-based communication tools (email, chat room, etc) or traditional channel (mail, fax), between customers and the portal and among peer users of similar goods and services via email, chat rooms (Yang *et al.*, 2005). Facilities may include user chat rooms, message board, customer reviews, reputation system and customer rating. Good interaction between portal users will increase electronic satisfaction. Based on the explanation above, the hypothesis can be formulated as follows:

*H5: Interaction has a positive effect on electronic satisfaction*

## 2.5. Research Model



**Figure 1:** Research Model

## 3. METHOD

This study was conducted to determine the effect of dimensions of web portal are usability of content, adequacy of information, usability, accesibility and interaction on electronic satisfaction. This study is an explanatory research. The method used in this study is a quantitative method using survey methods. Data collection techniques with this survey using a self-administered survey in which each questionnaire was filled directly by respondents (Cooper and Schindler, 2011). The sampling technique used convenience sampling techniques. The total sample in this study was 381 respondents. This study was conducted with respondents who are students of Bung Hatta University who are still active. The object of research in this study is Bung Hatta University portal.

The data used in this study was primary data which was directly taken to the field. The questions in this study consist of 23 statement items and use a 5 point Likert scale from strongly disagree to strongly agree. Data analysis techniques in this study using Structural Equation Modeling (SEM) using SmartPLS 2.0 software.

The influence significant test is affirmed by t-statistic which should be bigger than 1,96. Before performing the influence significant test, we perform validity test by observing convergent validity and discriminant validity and reliability test by observing the value of composite reliability. Convergent validity of measurement model with a reflective indicator

were based on the correlation between the scored items/score component is estimated by PLS Software. The size of individual said to be high if more than 0,70 correlated with the construct being measured. A good discriminant validity is indicated also by AVE root value which is bigger than the correlation between variables which is bigger than 0,5.

The instrument validity for indicators in the reflective construct was evaluated based on convergent validity and discriminant validity of the indicators that were run using SmartPLS 2.0 software. Convergent validity is assessed based on correlation (outer loading) between item or indicator score (component score) and construct score. Convergent validity is used to determine the validity of each relationship between the indicator and its latent construct (indicator).

Convergent validity is said to be high if the loading factor is  $> 0.70$  (Haryono, 2017). Indicators whose loading is less than 0.70 are dropped from the analysis and re-estimated. Another measure of Convergent Validity is the Average Variance Extracted (AVE) value. AVE values describe the magnitude of the variance or diversity of manifest variables that can be owned by latent constructs. Thus, the greater the representation of manifest variables with other constructs. A minimum AVE value of 0.5 indicates a good measure of convergent validity (Haryono, 2017). Whereas discriminant validity seen from the AVE root value must be higher than the correlation between constructs and other constructs or AVE value is higher than the square of correlation between constructs. Reliability Tests are carried out to determine the extent to which these measurement tools have a consistent measurement accuracy and accuracy over time. According to Haryono (2017) a good reliability if the composite reliability value is greater than 0.70.

## **4. RESULTS AND DISCUSSION**

### **4.1. Descriptive Analysis**

From mean and total percentage of respondent for each variable as follows:

**Table 1**  
**Descriptive Analysis**

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Usefulness of Content	381	1	5	3,8513	0,6113
Adequacy of Information	381	1	5	3,6226	0,60993
Usability	381	1	5	3,8419	0,58469
Accesibility	381	1	5	3,4318	0,83229
Interaction	381	1	5	3,8438	0,61228
Electronic Satisfaction	381	1	5	3,6476	0,65721

*Source: Data is processed (2019)*

From Table 1 it can be seen that the response of respondents in this research is good, this can be seen from the average value of the variables approaching 4, it means the average respondent answers the questionnaire is agree. While, the standard deviation for all variables in this study is above 0.5 and shows that the respondent's answers for each variable are quite varied on a scale of 1-5.

#### **4.2. Convergent validity and Measurement Model**

Before performing the hypotheses test, we perform the validity test using convergent validity. The convergent validity test of the indicator of adequacy information can be seen that there is only one indicator namely AI2 which not meet the convergent validity requirement because the value of convergent validity is less 0,5 and other variable and indicator s have convergent validity value over 0,5.

#### **4.3. Discriminant Validity**

Validity test can be evaluated using discriminant validity test which by comparing each AVE root to the correlation value within the constructs. If AVE root value higher is compared to correlation value within construct, it is criteria of discriminant validity.



**Table 2**  
**Latent Variable Correlations**

	Accessibility	Interaction	Adequacy of Information	Usability	Usefulness of Content	Electronic Satisfaction
Accessibility	1.000000					
Interaction	0.605929	1.000000				
Adequacy of Information	0.547804	0.532952	1.000000			
Usability	0.645785	0.629706	0.686359	1.000000		
Usefulness of Content	0.509523	0.505266	0.672243	0.667351	1.000000	
Electronic Satisfaction	0.629661	0.626742	0.628680	0.701190	0.618153	1.000000

*Source: Data is processed (2019)*

Based on Table 2 show the diagonal show the AVE root and the value below it are correlation within construct. So the AVE root value show higher that correlation value except for the construct electronic satisfaction. It can be concluded all variable has good discriminant validity.

#### 4.4. Composite Reliability and Average Variance Extracted (AVE)

Validity and reliability criteria can also be seen form reliability value of construct and average variance extracted (AVE) from each construct or variables. Construct can be reliable if value of composite reliability is over 0,70 and AVE value is over 0,50.

**Table 3**  
**Composite reliability, AVE and AVE Root**

Variable	Composite Reliability	AVE	AVE Root
Usefulness of content	0.856493	0.599317	0,7741
Adequacy of information	0.895271	0.681750	0,8256
Usability	0.897482	0.593803	0,7706
Accessibility	0.943434	0.892926	0,9449
Interaction	0.844817	0.731574	0,8553
Electronic Satisfaction	0.916088	0.731882	0,8555

*Source: Data is processed (2019)*

Table 3 show that the composite reliability value of electronic satisfaction, usefulness of content, adequacy of information, usefulness, accessibility and interaction are higher or than 0,70 thus it can be concluded that the model has a good reliability.

#### 4.5. Structural Model (Inner Model)

Inner model of structural model is done, the correlation within constructs, significant value and R-square of the research model. Structural model will be evaluated by using R-square for construct endogen, t-statistic and significant of the coefficient parameter on path structural.

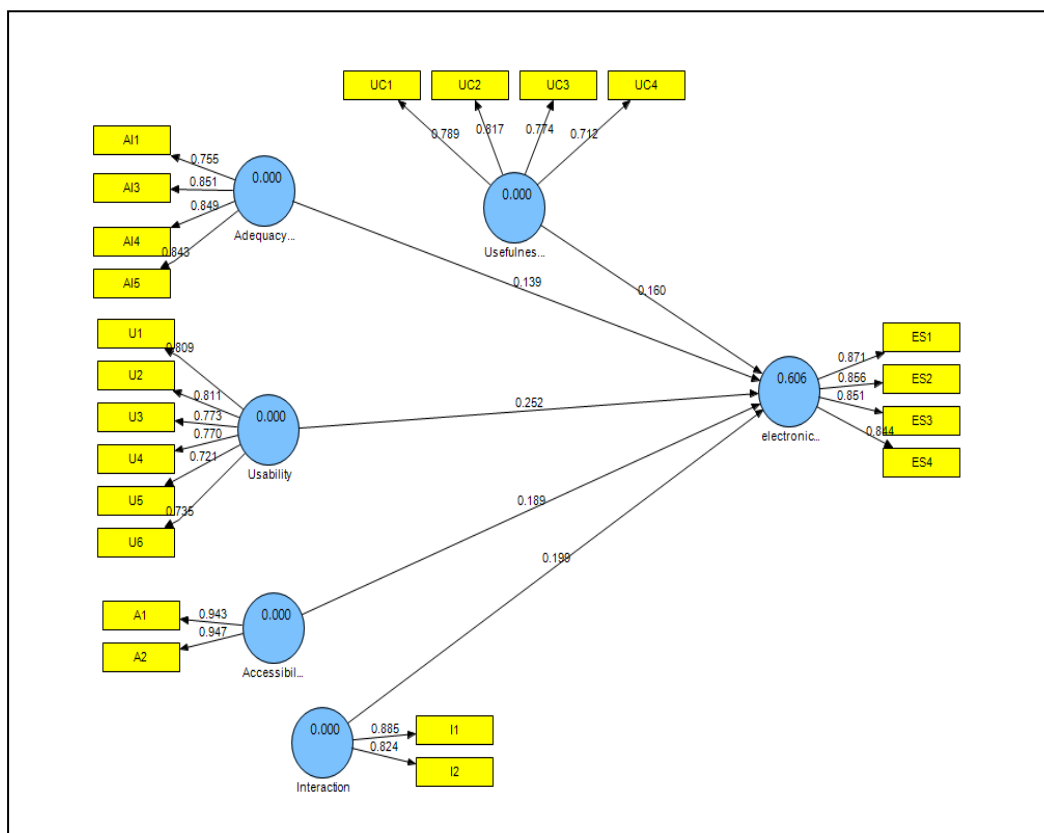


Figure 2 : The Result of Structural Model of PLS

Figure 2 show that R-square value of electronic satisfaction (KK) variable is 0,606381. This means that electronic satisfaction can be explained by usefulness of content, adequacy of information, usefulness, accessibility and interaction as much 60,6 % and 39,4% is explained by other variable that is not examined in this study

**Table 4**  
**R-Square**

<b>Electronic Satisfaction</b>	<b>0.606381</b>
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Source: Data is processed (2019)

#### 4.6. The Result of Hypothesis Testing

For hypothesis test in the model we utilize bootstrapping process to calculate the t-statistic value. The result of hypothesis is shown on Table 5.

**Table 5**  
**The Result of Hypothesis Testing**

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>Standard Error (STERR)</b>	<b>T Statistics ( O/STERR )</b>
<b>Usefulness of content =&gt; electronic satisfaction</b>	0.160034	0.161354	0.109563	0.109563	1.460654
<b>Adequacy of information =&gt; electronic satisfaction</b>	0.138675	0.138305	0.112994	0.112994	1.227276
<b>Usability =&gt; electronic satisfaction</b>	0.252004	0.264452	0.127910	0.127910	1.970161*
<b>Accessibility =&gt; electronic satisfaction</b>	0.188960	0.180079	0.097897	0.097897	1.930192
<b>Interaction =&gt; electronic satisfaction</b>	0.198791	0.201900	0.096242	0.096242	2.065537*

Source: Data is processed (2019)

\*)Significant at  $P > 1,96$

From the bootstrapping process, it can be seen that usefulness of content value of original sample is positive and t-statistic is  $1,460654 < 1,96$ . It indicate that usefulness of content variable has not significant effect on electronic satisfaction. Furthermore, the t-statistic value of the adequacy of information on electronic satisfaction  $1,227276 < 1,96$ , it means that adequacy of information has not significant effect on electronic satisfaction. Then the t-statistic of the effect of usability on electronic satisfaction is  $1,970161 > 1,96$  with the original sample having a positive value, it means that usability has a positive and significant effect on electronic satisfaction. While the effect of accessibility on electronic satisfaction is  $1,930192 > 1,96$ , it means that accessibility does not have a significant effect on electronic satisfaction. Furthermore the significant value of the interaction on electronic satisfaction is  $2,065537 > 1,96$  with the original sample having a positive value, it means that interaction has a positive and significant effect on electronic satisfaction.

Based on testing the hypothesis 1 in this study is the effect of usefulness of content on electronic satisfaction shows that it does not have effect on electronic satisfaction. Because t-statistic is smaller than 1,96 ( $1,460654 < 1,96$ ). so it can be concluded that hypothesis 1 in

this study is not supported. These results are not in accordance with research Yang *et al.*, (2005) which states that the usefulness of the content has significant effect on satisfaction. Hypothesis 2 in this study show that adequacy information from web portal has a positive and not significant effect on electronic satisfaction. This results show that there is a positive and not significant influence ( $1.227276 < 1,96$ ), so it can be concluded that hypothesis 2 in this study is not supported. These findings are not in accordance with the Yang *et al.*, (2005) suggesting that adequacy of information has positive effect on satisfaction. This shows that there is still some information needed by students.

Hypothesis 3 in this study states that usability has positive effect on electronic satisfaction ( $1.970161 > 1,96$ ), so it can be concluded that hypothesis 3 in this study is supported. It means that the higher usability of Bung Hatta Portal will increase student satisfaction. The findings are in accordance with Yang *et al.*, (2005) show that the usability dimension has positive effect on satisfaction. Usability is related to how the portal makes it easy for students using the portal. In addition, the Portal provides a good layout and content that makes it easy for students to use the portal.

Hypothesis 4 in this study states that accessibility has not positive effect on electronic satisfaction ( $1.930192 < 1,96$ ), so it can be concluded that hypothesis 4 in this study is not supported. These findings are not in accordance with the results of research from Yang *et al.*, (2005) suggested that the accessibility dimension of web portal has positive effect on satisfaction. This is thought to be due to weather and system disturbances that occur that do not access portal.

Hypothesis 5 in this study states that interaction has a positive and significant effect on satisfaction ( $2.065537 > 1,96$ ), so it can be concluded that the hypothesis 5 in this study were supported. The finding is consistent with the results of research from Yang *et al.*, (2005) suggested that interaction from web portal influence on satisfaction. This proves that interaction is one of the determinants of student satisfaction in using the Portal.

## 5. CONCLUSION AND IMPLICATIONS

This research purposes to analyze the effect of web portal to electronic satisfaction on students Bung Hatta University. The result show that the content usefulness, adequacy of information, accessibility have not positive significant on electronic satisfaction, while usefulness and interaction have positive significant on electronic satisfaction. So, usefulness and interaction are determinant student satisfaction of Bung Hatta academic portal.

The suggestions for future research is using a larger sample size with a wide area. This study only uses five dimensions from Yang *et al.*,(2005) are usefulness of content, adequacy of information, usefulness, accessibility and interaction from web portal. So, that future research can add another dimension related with Web portal.

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