User Satisfaction Analysis of Online Public Access Catalog Using End User Computing Satisfaction Method

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Abstract

Libraries are organizations with the activities of collecting, processing, disseminating, preserving, and presenting information that in which the Online Public Access Catalog (OPAC) have been widely adopted. However, the analysis of OPAC satisfaction is still rare. This study discusses the analysis of user satisfaction of OPAC. This study aims to determine the effect of content dimensions, accuracy, format, ease of use, and timeliness using the End User Computing Satisfaction (EUCS) method, a method for measuring the level of user satisfaction of a system. SPSS software was used to analyze user satisfaction. Sig. value of the content variable is greater than 0.1 (0.667), hence the hypothesis zero (H0) is accepted. It means that the content variable has no effect on user satisfaction. Sig. value for the accuracy variable is less than 0.1 (0.009), hence the H0 is rejected. Therefore, the accuracy variable has an effect on user satisfaction. Sig. value of the format variable is less than 0.1 (0.054),
hence $H_0$ was rejected, implying that the format variable has an effect on user satisfaction. Sig. value of the ease of use variable is greater than 0.1 (0.700), hence $H_0$ is accepted, meaning that the ease of use variable has no effect on user satisfaction. Sig. value of the timeliness variable was 0.120 (> 0.1), hence $H_0$ is accepted. Therefore, the timeliness variable has no effect on user satisfaction.

**Keywords:** EUCS, OPAC, Sig.Value, SPSS

1. **Introduction**

   Currently, the development of information and communication technology is quite rapid in the era of globalization and affects various aspects of life, both in government and private institutions, as well as on entertainment and education. This makes people aware of the importance of information through an information media, a medium that can be used in the information transaction process. In library operation, information technology can be used to support the service (Putra, 2014).

   Libraries are organizations with the activities of collecting, processing, disseminating, preserving, and presenting information. The development of information and communication technology has brought changes in various sectors including the world of libraries. The use of information and communication technology has brought big changes in the world of libraries, such as activities that were previously carried out manually can now be done online (Pudjiono, 2006).

   The digital library or digital library offers convenience for users to access electronic sources at unlimited times and opportunities. Users can use these information sources without having to be tied to library operating hours such as working hours or library opening hours (Saleh, 2010).

   Since the Regional Libraries have implemented OPAC services, until now there has never been an analysis of user satisfaction with these OPAC services. By knowing the effect of content, accuracy, appearance, user ease of
use, and timeliness can be used as materials to evaluate in providing library services, and can improve good and satisfying service.

Based on the background described above, the authors are interested in analyzing the OPAC service to determine the level of satisfaction of OPAC users. Therefore, a research was conducted to analyze user satisfaction of OPAC using EUCS Method.

2. Research Methods

EUCS is a method for measuring the satisfaction level of information system users by comparing expectations and reality, when viewed from the system side End User Computing Satisfaction is an overall evaluation of all information system users based on their experience in using the system (Suprapta, 2018).

EUCS model was developed by Doll and Torkzadeh by emphasizing end-user satisfaction with technological aspects, by assessing content, accuracy, format, ease of use of the system and timeliness (Nursyanti & Erlangga, 2013). Describe the chronology of research, including research design, research procedures (in algorithmic, pseudocode or other form), how to test and data acquisition. The description of the research program must be supported by references, hence the explanation can be scientifically accepted.

SPSS (Statistical Product and Service Solutions) is a program package that is useful for analyzing statistical data. SPSS can be used for almost all data files and at the same time creating tabulated reports, graphs, and plots for various distributions and descriptive statistics (SPSS 2015). SPSS is a program or software used to process statistical data (Duwi Prayitno, 2008). In this study, data analysis was carried out with the help of software SPSS version 22.

Previous research has been conducted by Nurmaini Dalimunthe and Cici Ismiati (Dalimunthe & Ismiati, 2016) which aims to determine the application of the OPAC used and to determine the level of satisfaction of the OPAC users of the UIN Suska Riau library. The results showed that the level of satisfaction of visitors to the OPAC as a whole was included in the category of agreeing, the users were satisfied with using OPAC, with a percentage value of 74.10%.
While the difference research with the research conducted by the author is that the author conducts research that aims to determine the satisfaction of OPAC users using the EUCS method.

A study by Fatimah Nur Arifah, et al (Arifah et al., 2015) determine and measure the level of user satisfaction of OPAC application at the library of STMIK AMIKOM Yogyakarta. The result indicated that the users of the OPAC Library of STMIK AMIKOM Yogyakarta were quite satisfied with the calculation results of the IKP 78.01%. This research was expected to provide input to OPAC managers as a reference for improving OPAC performance.

Another research by Apris Robi Darwi and Efrizon (Darwi & Efrizon, 2019) make improvements with facilities that will later give satisfaction to users who have accessed and engaged in e-learning information systems that have been implemented in the electronics engineering department of FT UNP. It indicated that the variables in the EUCS method together contribute a significance of 45% to user satisfaction of the e-learning information system in the electronics engineering department of FT UNP.

2.1. Research Concept

Figure 1 shows the research framework. First, Problem Identification step identify the problem. Identification of research process problems is important because it can determine the quality of the research carried out and to formulate problems that will become the background contained in the OPAC which will serve as problem formulations. From the identified problems presented in the background, the problem formulation obtained in this study is "How to analyze the OPAC using the EUCS method. Second, Data Collection step was carried out by, among others: observation, interviews, literature study, documentation, and questionnaires. Third, EUCS method is conducted including some other steps as follow.
a. Determination of Research Model

The research model was carried out using the End User Computing Satisfaction (EUCS) method which consists of five dimensions, namely Content, Accuracy, Format, Ease of Use, and Timeliness. The research model used in this study uses the theory of Wijaya (2017) as shown Figure 2.
Figure 2 explains that this research is focused on variable content accuracy, format, Ease of use and timeliness. The independent and dependent variable model forms of the End User Computing Satisfaction method are:

1) Independent Variable (X)
   Independent variable (free) is a variable that affects other variables. The independent variables consist of content, accuracy, format, Ease of use, and timeliness.

2) Dependent Variable (Y)
   Dependent variable (dependent) is a variable that is influenced by other variables. The dependent variable consists of user satisfaction.

b. Research Hypothesis
   The hypothesis is a temporary answer whose answer must be proven first used in research. The hypothesis can be accepted and rejected as evidence of whether or not there is a relationship between the variables used.

   H1: There is an influence on the variable content, accuracy, format, ease of use timeliness on the variable user satisfaction. H0: There is no influence on the variable content, accuracy, format, ease of use timeliness on the variable user satisfaction.
c. Research Indicators

Research indicators on variable content, accuracy, format, ease of use, and timeliness.

d. Research Instrument

The research instrument is a tool for collecting data or questionnaires. The research instrument used a Likert scale. The Likert scale is a scale that can be used to measure a person's attitudes, opinions, perceptions of objects and phenomena. The Likert scale has two forms of statement, namely positive and negative statements. The form of the Likert Scale answer consists of Strongly Agree, Agree, Doubt, Disagree, Strongly Disagree (Sugiyono, 2015).

e. Population and Sample Determination

Population is a generalization area consisting of objects, subjects that have certain qualities, characteristics and are determined by researchers to be studied and conclusions drawn (Sugiyono, 2011). In this study, the population used is all people who access the OPAC.

f. Sample

The sample is the amount owned by the population, if the population is large, it is impossible for the researcher to study everything in the population, for example, such as limited manpower, funds, and time. That way the researchers took samples from this population (Sugiyono, 2011). Sampling technique is a sampling technique used in research. In this study, using probability sampling techniques using simple random sampling, simple sampling by taking a sample of members of the population which is done randomly without paying attention to the strata contained in the population. The sample used in this study is a sample taken based on the number of users who access the Online Public Access Catalog service of 526. By taking a sampling error rate of 10% (0.1).

Determination of the sample size of the population can use the Slovin formula, where the determination of the sample takes into account the accuracy limit that can affect the sampling error of the population.

Distribution of Questionnaires
Questionnaires are distributed to all users who access the OPAC service. The population in this study were 526 users who accessed OPAC. The sampling technique used is probability sampling using simple random sampling, the size of the sample to be taken is using the Slovin formula as below:

\[ n = \frac{N}{1+N.(e)^2} \]  
\[ n = \frac{526}{1+(526(0,1))^2} \]  
\[ n = \frac{526}{1+(526(0,01))} \]  
\[ n = 526 / 6.26 \]  
\[ n = 84.0255591 \]

Based on the calculation of the sample that has been done using Slovin opinion, the sample to be used in this study is 85 people.

Data analysis in Figure 1 contains many tests as follow.

a. Validity Test

The validity test is a test of the level of reliability of the measuring instrument used. The instrument is said to be valid if \( r_{count} > r_{table} \) with a significance value of 0.1 and \( df = n-2 \) it is said that the question item is valid, but if \( r_{count} < r_{table} \) then the question item is invalid.

b. Reliability Test

Reliability test is the extent to which the results of measurements using the same object will produce the same data, if the correlation is 0.7, it is said that the item provides a sufficient level of reliability, on the contrary, if the correlation value is below 0.7, it is said that the item is less reliable.

1) Classic Assumption Test

a) Normality Test

b) The normality test aims to test the sample used to have a normal or abnormal distribution. Normality test, that is, before the actual analysis is carried out, the research data must be tested for normal distribution, because good data is normal in its distribution. The normality test was performed using the Kolmogorov Smirnov test.
d) The multicollinearity test is carried out to determine whether in a regression model there is a correlation between the independent variables (Sugiyono, 2016). A good regression model does not find any correlation between the independent variables. Multicollinearity testing is done with the Tolerance Value and Variance Inflation Factor (VIF). Tolerance Value measures the variability of selected independent variables that are not explained by other independent variables (Ghozali, 2011). Multicollinearity can be seen if the VIF value > 10 and the Tolerance Value is not less than 0.1, it can be said to be free from multicollinearity.

2) Hypothesis Testing
   a) Multiple Linear Regression Analysis
   b) Multiple linear regression is a linear regression consisting of 1 dependent variable (Y) and at least 2 independent variables (X). For multiple linear regression equations such as \( Y = \alpha + \beta_1X_1 + \beta_2X_2 + \ldots + \beta_n X_n \). Where Y is the dependent variable, \( \alpha \) is a constant, \( \beta_1-\beta_5 \) is the regression coefficient, \( X_1 \) is the independent variable.
   c) F Test
   d) The F test is a test carried out to see whether all the independent variables jointly influence the dependent variable or not by comparing the calculated F value with the F table.
   e) Coefficient of Determination Test (RSquare)
   f) The coefficient of determination test is a test used to measure the accuracy or similarity of the regression line derived from the hypothesis. The coefficient of determination is used to see the contribution given by the independent variable to the dependent variable.

The results are carried out by documenting from the beginning of the problem formulation to getting the results of the user satisfaction analysis carried out using the End User Computing Satisfaction method, and drawing conclusions.
Conclusions are the answer to a predetermined goal, while suggestions must be written in a study that must be appropriate based on the research results and conclusions that have been made (Sugiyono, 2018). The final step and drawing conclusions are taken to obtain a proper understanding and determine the effect of the variable content, accuracy, format, ease of use, timeliness on user satisfaction on the Online Public Access Catalog.

3. Results and Discussion

3.1. Validity Test

The validity test is done by showing the extent of the measuring instrument used to measure what is being measured. The validity test is conducted to test the statements used in the questionnaire are valid or invalid. The validity test was carried out using SPSS version 22 software with the bivariate person correlation formula. By comparing the value of R count with R table. The criterion for testing the validity is if the value of R count > R table then the test is declared valid, conversely if the value of R count < R table then the test is declared invalid. The validity test was carried out on 85 respondents with the number of df which was calculated with the provisions of N-2, N was the number of respondents reduced by 2 (two). So that df = 85-2 = 83, and alpha of 0.1. By using df 83 the r table value is 0.1796.

| Statement Item Symbol | R count  | R table (α=0.1) | Result |
|-----------------------|----------|-----------------|--------|
| C1                    | 0.740    | 0.1796          | Valid  |
| C2                    | 0.747    | 0.1796          | Valid  |
| C3                    | 0.759    | 0.1796          | Valid  |
| A1                    | 0.839    | 0.1796          | Valid  |
| A2                    | 0.861    | 0.1796          | Valid  |
| F1                    | 0.693    | 0.1796          | Valid  |
| F2                    | 0.784    | 0.1796          | Valid  |
| F3                    | 0.772    | 0.1796          | Valid  |
| EOU1                  | 0.806    | 0.1796          | Valid  |
| EOU2                  | 0.888    | 0.1796          | Valid  |
| T1                    | 0.886    | 0.1796          | Valid  |
3.2. Reliability Test

Reliability test in this study using SPSS version 22 software. Done to test the accuracy of measuring instruments or research instruments. By looking at the results tested, their accuracy, if not correct, then re-measurement will be carried out. If the measured research instrument is said to be reliable, the measured results are reliable, and vice versa if the measured research instrument is not reliable, the measured results are not reliable.

| Statement Item Symbol | R count | R table (α=0.1) | Result |
|-----------------------|---------|-----------------|--------|
| T2                    | 0.821   | 0.1796          | Valid  |
| US1                   | 0.850   | 0.1796          | Valid  |
| US2                   | 0.853   | 0.1796          | Valid  |

Source: Research Result (2021)

3.3. Normality Test

The normality test in this study was conducted to see whether the data tested was normally distributed or not. The normality test was carried out using SPSS software version 22 with the Kolmogonov Smirnov technique using the Asymp.Sig (2 tailed) value > 0.1 or 10%, it can be said that the data tested was normally distributed. The normality test is carried out on the Content variable, the Accuracy variable, the Format variable, the Ease of Use variable, the Timeliness variable and the User Satisfaction variable. The criteria for determining decisions in the normality test are:

a. If the significant value (Sig.) is greater than 0.1, then the data is declared to be normally distributed.

Source: Research Result (2021)
b. Conversely, if the significant value (Sig.) is smaller than 0.1, the data is declared to be not normally distributed.

**One-Sample Kolmogorov-Smirnov Test**

| Test Statistic               | Unstandardized Residual |
|-----------------------------|-------------------------|
| N                           | 85                      |
| Normal Parameters<sup>a,b</sup> | Mean: 0.0000000         |
|                             | Std. Deviation: 0.76275666 |
| Most Extreme Differences    |                         |
| Absolute                    | 0.085                   |
| Positive                    | 0.049                   |
| Negative                    | -0.065                  |
| Asymp. Sig. (2-tailed)      | 0.085                   |
| Source: Research Result (2021) |

**Figure 3. Normality Test**

From the normality test, the Sig value is obtained in the Normality Test of Content Variables, Accuracy, Format, Ease of Use, Timeliness and User Satisfaction. 0.195 is greater than 0.1, so it can be concluded that the data is normally distributed.

**3.4. Multicollinearity Test**

Multicollinearity test was conducted in this study to test whether there is intercorrelation or collinearity between independent variables in a regression model. Intercorrelation is a linear relationship or a strong relationship between one independent variable and another. A good regression model is a model that does not occur multicollinearity. The multicollinearity test was used to determine the significance value of the Variance Inflation Factor (VIF).

The criteria for decision making from the multicollinearity test are:

a. If the VIF value is <10 and the Tolerance Value is greater than 0.1, it can be concluded that the test in these variables is declared to have no multicollinearity.

b. Conversely, if the VIF value> than 10, it can be concluded that there is multicollinearity.
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| Model | Unstandardized Coefficients | Standardized Coefficients | t | Sig | Collinearity Statistics |
|-------|------------------------------|---------------------------|---|-----|------------------------|
|       | B                            | Std. Error                | Beta |     | Tolerance | VIF |
| 1     | (Constant)                   | 1.513                     |     |     | 1.510      | .111 |
| X1    | .038                         | .088                      | .47 | .432 | .657       | .531 |
| X2    | 2.55                         | .111                      | .310 | 2.681 | .609       | .527 |
| X3    | 1.36                         | .070                      | .205 | 1.955 | .654       | .676 |
| X4    | .038                         | .098                      | .61 | .386 | .700       | .652 |
| X5    | 1.57                         | .125                      | .189 | 1.573 | .120       | .513 |

a. Dependent Variable: Y

Source: Research Result (2021)

Figure 4. Multicollinearity Test

From the multicollinearity test, the VIF value of the content variable is 1.586. The VIF value for accuracy variable is 1.898. The VIF value of the format variable is 1.479. The VIF value of the ease of use variable is 1.535. And the VIF value of the timeliness variable is 1.949. Of the five variables, the VIF value of each variable is less than 10. For the Tolerance Value of the content variable is 0.631. The Tolerance Value for the accuracy variable is 0.527. The Tolerance Value of the format variable is 0.676. The Tolerance Value value for the ease of use variable is 0.652. And the Tolerance Value of the timeliness variable is 0.513. All of the Tolerance Value on each independent variable (free) is greater than 0.1.

Thus, in the regression model the effect of content, accuracy, format, ease of use, timeliness on user satisfaction can be stated that there is no multicollinearity, this is based on all VIF values of all independent variables less than 10 and the Tolerance Value of all independent variables is greater from 0.1.

3.5. Multiple Linear Regression Test

Source: Research Result (2021)

Figure 5. Multiple Linear Regression Test

PIKSEL status is accredited by the Directorate General of Research Strengthening and Development No. 28/E/KPT/2019 with Indonesian Scientific Index (SINTA) journal-level of S5, starting from Volume 6 (1) 2018 to Volume 10 (1) 2022.
\[ Y = 1,613 + 0.038X1 + 0.295X2 + 0.136X3 + 0.038X4 + 0.197X5 \]

Where \( Y \) is user satisfaction, \( \alpha \) is a constant, \( \beta_1-\beta_5 \) is the regression coefficient \( X1 \) is Content, \( X2 \) is Accuracy, \( X3 \) is Format, \( X4 \) is Ease of use, and \( X5 \) is Timeliness. The regression equation above can be explained as follows:

a. If other variables are constant, the \( Y \) value (user satisfaction) will change by itself at a constant value of 1.613.

b. If other variables are constant, the \( Y \) value (user satisfaction) will change by 0.038 for each \( X1 \) (content).

The Sig value on the content variable was obtained 0.667 > 0.1, so H0 was accepted, meaning that the content variable had no effect on user satisfaction.

c. If other variables are constant, the \( Y \) value (user satisfaction) will change by 0.295 per \( X2 \) (accuracy).

Sig value. for the accuracy variable, it is obtained 0.009 <0.1, so H0 is rejected, meaning that the accuracy variable has an effect on user satisfaction.

d. If other variables are constant, the \( Y \) value (user satisfaction) will change by 0.136 for each \( X3 \) (format).

Sig value. in the format variable, it was obtained 0.054 <0.1, so H0 was rejected, meaning that the format variable had an effect on user satisfaction.

e. If other variables are constant, the \( Y \) value (user satisfaction) will change by 0.038 for each \( X4 \) (ease of use).

Sig value. in the ease of use variable it was obtained 0.700 > 0.1 so H0 was accepted, meaning the ease of use variable had no effect on user satisfaction.

f. If other variables are constant, the \( Y \) value (user satisfaction) will change by 0.197 for each \( X5 \) (timeliness).

Sig value. the timeliness variable obtained 0.120 > 0.1 so H0 is accepted, meaning that the timeliness variable has no effect on user satisfaction.
3.6. F Test

The F test was carried out to determine whether the content, accuracy format, ease of use, timeliness variables together had a significant effect on the dependent variable (Y).

| Model     | Sum of Squares | df | Mean Square | F       | Sig.  |
|-----------|----------------|----|-------------|---------|-------|
| Regression| 34.376         | 5  | 6.875       | 11.114  | .000b |
| Residual  | 48.871         | 79 | .619        |         |       |
| Total     | 83.247         | 84 |             |         |       |

a. Dependent Variable: Y
b. Predictors: (Constant), X5, X1, X3, X4, X2

Source: Research Result (2021)

Based on the results of the F test that has been carried out, it can be concluded that the Sig. 0.000 <0.1 so it can be concluded that the variable content (X1), accuracy (X2), format (X3), ease of use (X4), timelines (X5) simultaneously (together) affect the user satisfaction variable (Y).

3.7. Coefficient Of Determination Test (R Square)

The coefficient of determination test is a test used to measure the accuracy or similarity of the regression line derived from the hypothesis. The coefficient of determination is used to see the contribution given by the independent variable to the dependent variable.

| Model Summary |
|---------------|
| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1     | .643a | .413     | .376              | .787                       |

a. Predictors: (Constant), X5, X1, X3, X4, X2

Source: Research Result (2021)

Based on the table above, the coefficient of determination (R Square) can be seen in the model summary of the regression results. The coefficient of determination (R Square) of 0.413 comes from squaring the value of the
correlation coefficient or "R", which is 0.643 x 0.643 = 0.413. The amount of the coefficient of determination (R Square) is 0.413 or equal to 41.3%. This figure implies that the variable content (X1), accuracy (X2), format (X3), ease of use (X4), timeliness (X5) simultaneously (together) affect the user satisfaction variable (Y) by 41.3%. While the rest (100% - 41.3% = 58.7%) is influenced by other variables outside this regression equation or variables not studied.

4. Conclusions

Based on the results of research on the Online Public Access Catalog User Satisfaction Analysis using the End User Computing Satisfaction method, the following conclusions can be drawn. First, based on the analysis of the Multiple Linear Regression Test, the Sig. value of the content variable was 0.667 that greater than 0.1, hence H0 is accepted and prove the content variable has no effect on user satisfaction. Sig. value of the accuracy variable was 0.009 that less than 0.1, hence H0 is rejected and prove that the accuracy variable has an effect on user satisfaction. Sig. value of the format variable was 0.054 that less than 0.1, hence H0 is rejected and prove that the format variable had an effect on user satisfaction. Sig. value of the ease of use variable was 0.700 that greater than 0.1, hence H0 was accepted and prove that the ease of use variable had no effect on user satisfaction. Sig. value of timeliness variable was 0.120 that greater than 0.1, hence H0 is accepted and prove that the timeliness variable has no effect on user satisfaction. Second, based on the results of the F test, it can be concluded that the Sig. value was 0.000 that less than 0.1, hence it can be concluded that the variable content (X1), accuracy (X2), format (X3), ease of use (X4), timeliness (X5) simultaneously (together) affect the user satisfaction variable (Y).

Author Contributions

Dista Trianisfi the topic; Dista Trianisfi, Nurfaizah and Eka Tripustikasari conceived models and designed the experiments; Dista Trianisfi, Nurfaizah and Eka Tripustikasari the algorithms; Dista Trianisfi, Nurfaizah and Eka Tripustikasari analysed the result.
Conflicts of Interest
The author declare no conflict of interest.

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