Website Quality Measurement of Higher Education Services Institution Region IV Using Webqual 4.0 Method

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ABSTRACT
The purpose of this study is to measure and describe the Higher Education Services Institution Region IV website quality using the Webqual 4.0 method. The questionnaire filling, depth interviews, and observation are the methods used in this research. The measurement results showed that the overall of the Higher Education Services Institution Region IV website quality was included in Good criteria. In detail from the measurement results, the dimension criteria that gained the highest score was the usability dimension which is 741.63 with a percentage of 81.05 (good criteria). The information quality dimension obtained an average score of 730.57 with a percentage 79.84 (good criteria). While the dimension that obtained the lowest score was the service interaction dimension which was 710.50 with the percentage of 77.10 (good criteria). In addition, in order to accommodate the needs of visitors, this study found the fact that visitors expected website developers to build the website navigate easily, information updated more, implement a comprehensive recommendation system, and more interactive.

1. INTRODUCTION
Higher Education Services Institution Region IV (LL-Dikti IV) is a government agency tasked to formulate policies and carry out supervision, control, and development of private higher education in West Java and Banten. In carrying out its duties, LL-Dikti IV has a wide range of functions among others, the implementation of higher education mapping quality, facilitating the implementation of higher education quality improvement, the implementation of higher education quality improvement management, the implementation of higher education readiness in external quality assurance, implementing, evaluating and reporting the implementation of facilitation of the improvement quality of higher education, data management and information in the field of higher education quality, as well as the administration implementation of the higher education in region of West Java and Banten.

Based on DATA FORLAP DIKTI the number of higher education which are under the guidance of LL-Dikti IV recorded 478 higher educations with the distribution are 368 in West Java
and 110 in Banten [1]. The distribution of higher education under the guidance of LL-Dikti IV based on its form can be seen in infographics in the following figure 1.

![Figure 1. Infographics of higher education under the guidance of LL-Dikti IV](image)

These facts showed that the LL-Dikti IV need to figure out the information media that can reach the entire academic community in higher education which are under the of LL-Dikti IV. One way that has been done by LL-Dikti IV is using the website to distribute information with regard to the duties and functions. The website can be accessed through the URL www.lldikti4.or.id. As it has been known that one of the website functions is as a means to disseminate information to the public. Similarly with the website LL-Dikti IV is used as a mouthpiece of official information LL-Dikti IV to public, particularly the higher educations which are under the guidance of of LL-Dikti IV. The information between the other information of administrative services of higher education, information of lecturer administrative, information of training and seminars, scholarship information, information of policy and government regulation on higher education and others. So the existence of the website was rated very important and completely needed in particular by the academic community in higher education under the guidance ranging from students, lecturers, staffs to executive and higher education providers.

The Website of LL-Dikti IV has a central role as the mouthpiece of official information to the public in a special academic community of the higher education under the guidance so its quality required to be tested to find out whether the website service is in accordance with the user's expectations. The quality of good website service will affect the intention to use the website. In addition, the website quality can also development of trust to the public towards an institution. The statement is in line with the results of the research Mehrbakhsh Nilashi et al. [2] that “general we site quality contributes to the development of trust”. One of the methods that can be used to measure the quality of a website is WebQual method. The measurement method is focused on three main dimensions namely usability quality, information quality, and service interaction quality [3].

2. LITERATURE REVIEW

Information technology is the use of electronic devices especially computers to enter, process, store, analyze and disseminate information. The definition of other information technology is a technology associated with data processing into information and the process of data/information distribution within the limits of time and space [4]. While in the constitution of Indonesia No.11 year 2018 about information and Electronic Tansactions define information...
technology as a technique to collect, prepare, store, process, publish, analyze, and/or disseminate information [5]. One of the forms or products of information technology is the website.

The Website is a tool that can be used to disseminate information to the public through the internet. Some of the advantages obtained from use of the website, among others, access to information easy, information is easily distributed, as well as multi-platform [6]. Convenience is the main reason many individuals and organizations use website as the media of the information. In addition, the use of the website as a medium of information is considered very strategic. Therefore, it is important for developer to do quality measurement of its website in order to find out the website has been in accordance with userd expectations. To measure the quality of a website, one of the ways that can be used is WebQual method.

WebQual method has been developed since 1998. The method is a development of quality services measurement namely SERVQUAL method. Since it was developed from the first version, namely WebQual 1.0 up to this moment the fourth version, namely WebQual 4.0 have experienced some interaction in the preparation of dimensions and the grain of the question. Even this method can be modified like Gata and Oriza (2017) used the method of WebQual modification with variable usability, information, service interaction and user interface role as the independent variable, while the variable of user satisfaction role as the dependent variable [7]. Basically, WebQual 4.0 is a technique of measuring the quality of a website based on user perceptions. According to the theory, there are three main dimensions of WebQual 4.0 namely usability quality, information quality, and service interaction quality [3],[2],[8],[9],[10].

The quality measurement of LL-Dikti IV website indeed has never been done. However from the results of the literature study found previous research that similar as following:

a. Windu Gata and Oriza Gilang H. (2017) conducted research to evaluate a website for academic services. The research concluded that site yet provide a sense of security for storing personal data and layout information in the site is not yet right and there is a GAP in all dimensions of performance and expectations of students [7].

b. Darmawan Baginda Napitupulu (2017) used the method of WebQual to measure the quality of university website. The research concluded that the variables of usability and services interaction have the significant and positive effect on user’s satisfaction, however the variable of information quality has no significant effect on users’ satisfaction [11].

c. Jasur Hasanov and Haliyana Khalid (2015) conduct a study of the impact of website quality on online purchase using webqual model approach. The results indicate that website quality has indirect impact on online purchase intentions of health foods in Malaysia through the full mediation of customer satisfaction [12].

d. Rajesh Kumar Jain and Santosh Rangnekar (2015) conducted research to measuring website quality of the Indian railways. The research concluded that “The Indian Railways website quality is not on the mark compared to what the users expect in a perceived ideal website” [13].

e. Layla Hasan (2014) conducted research to evaluate the usability of educational websites. The conclusion of the study resulted that the most important for the educational website were easily to use and communication as well as design [14].

From the results of those literature studies, it can be stated that the method of WebQual can be used to measure the quality in different types of website, there’s no exception which type of the website, government as well as website LL-Dikti IV website.

3. RESEARCH METHOD

In carrying out this research, the data collected should be completed, namely primary data and secondary data. It was intended that this research would generate high-quality research. The methods of collecting primary data are through observations, interviews, and questionnaires in order to obtain data and information of the actual state so that data and information were believed to be the truth. Population for primary data collection in this study consisted of the college academic community whose are under the guidance of LL-Dikti IV. The academic community
referred to LL-Dikti IV website visitors such as a lecturer and staff of higher education. The population selected because the website visitors dominated by the lecturers and staffs. For the secondary data obtained through literature studies which explore the relevant references. The reference data will be traced from a book, journal, magazine, article, research reports, and the internet website.

To measure website quality as the main purpose of this research, will use the WebQual 4.0 method. WebQual 4.0 is a technique to measure the quality of website based on user perceptions. This is in line with the statement that Webqual Approach was used to assess the website quality from the user's perspective as well as evaluating the based on webqual dimensions [15]. WebQual 4.0 focusing on the three dimensions of measurement, namely usability quality, information quality, and service interaction quality [3],[2],[8],[9],[10]. For the definition of the dimensions of the measurement are as follows:

a. Usability quality defined as the quality that are associated with the navigation and the picture given to the user [16].
b. Information quality is defined as a quality related to the content of the website, the suitability of the information for users such as accuracy, format and relevance [16],[17].
c. Service interaction quality is defined as a quality related to users interaction and service experiences experienced [16].

Since it was developed from the first version, namely WebQual 1.0 up to the current fourth version, namely WebQual 4.0 has undergone multiple interactions in the preparation of the dimension and item indicators. The indicators such as on table 1 below:

| Dimensions        | Code | Indicators                                                                 |
|-------------------|------|----------------------------------------------------------------------------|
| Usability Quality | X01  | The Website is easy to learn to operate                                     |
|                   | X02  | The Website provides interaction with the user clear and easy to understand |
|                   | X03  | The Website is easy to navigate                                            |
|                   | X04  | The Website is easy to use                                                  |
|                   | X05  | The Website has an attractive appearance                                    |
|                   | X06  | The Website is designed according to its kind                               |
|                   | X07  | The Website contains the value of competence                                |
|                   | X08  | The Website creates a positive experience                                  |
| Information Quality| X09  | The Website provides accurate information                                   |
|                   | X10  | The Website provides reliable information                                   |
|                   | X11  | The Website provides timely information                                     |
|                   | X12  | The Website provides relevant information                                    |
|                   | X13  | The Website provides easily understandable information                       |
|                   | X14  | The Website provides detailed information                                    |
|                   | X15  | The Website presents information in the right format                        |
| Service Interaction| X16  | The Website has a good reputation                                           |
|                   | X17  | The Website gives a sense of secure to do the transaction                   |
| Quality           | X18  | The Website gives a sense of security to personal information               |
|                   | X19  | The Website provides space for personalization                             |
|                   | X20  | The Website gives space to the community                                    |
|                   | X21  | The Website provides the ease to communicate with the organization         |
|                   | X22  | The Website assured that the service received as promised                   |
| Overall           | X23  | The Website has a good quality overall                                      |

Source: Barnes and Vidgen (2003)

Indicators of WebQual 4.0 that will be measured using Likert scale. The Likert scale is a scale used to measure the perception or opinion of a person or group about a question or statement based on the operational definition that has been set by the researcher. The Likert scale developed by Rensis Likert as one of the techniques to measures the perception or someone's opinion in a simple statement approval. The level of agreement referred to in Likert scale consists of 5 options in the form of gradation, namely strongly agree, agree, not decided or neutral, disagree, and strongly disagree [18]. So can be calculated in quantitative form, every gradation need to be given a score. Scoring of the each gradations on the Likert scale is a score of 1 for strongly disagree (STS)
up to a score of 5 for strongly agree (SS). As for the gradation of the Likert scale and the score can be seen in table 2.

Tabel 2. Gradation and Score of Likert Scale

| Scale | Gradation          | Score |
|-------|--------------------|-------|
| 1     | Strongly Agree (SS)| 5     |
| 2     | Agree (S)          | 4     |
| 3     | Neutral (N)        | 3     |
| 4     | Disagree (TS)      | 2     |
| 5     | Strongly Disagree (STS) | 1     |

Source: Rintho Rante Rerung (2019)

After collecting the answers of the respondents, furthermore, the results of the Likert scale made the score calculation to find the average score. The results of the index in the form of percent will be continued with the analysis of interval. The analysis of that interval will produce the quality criteria. As for the criteria based on intervals can be seen in table 3.

Tabel 3. Criteria base on interval

| Interval | Criteria      |
|----------|---------------|
| 1        | Very Good     |
| 2        | Good          |
| 3        | Fair Enough   |
| 4        | Not Good      |
| 5        | Bad           |

Source: Rintho Rante Rerung (2019)

In addition in the form of criteria, the data which has been collected will be analyzed using qualitative approach, descriptive and deep learning. It is intended to describe more detailed the shortcomings of the website on each dimensions and measurement indicators. Thus, the expected results of this study can provide material for consideration or input to those who manage LL-Dikti IV website

4. RESULTS AND DISCUSSION

LL-Dikti IV as the government agency tasked with fostering higher education in the region of West Java and Banten. The results of observations made through the website Forlap Dikti, the higher education under the guidance of LL-Dikti IV amounted to 478. The number of these scattered in various areas with details of 368 in West Java region and 110 in the region of Banten. Details of these amounts can be seen in table 4 below.

Tabel 4. Higher education under the guidance of LL-Dikti IV

| Institution         | Regions | Total |
|---------------------|---------|-------|
|                     | West Java | Banten |       |
| Universities        | 49       | 14     | 63     |
| Institute           | 9        | 0      | 9      |
| Higher Institution  | 192      | 63     | 225    |
| Polytechnic         | 27       | 6      | 33     |
| Academy             | 88       | 27     | 115    |
| Academy Community   | 3        | 0      | 3      |
| Total               | 368      | 110    | 478    |

Source: Forlap[1]

According to these conditions, LL-Dikti IV requires an effective medium for socializing each activity and convey news related to the duties and functions to the public, in particular the academic community of the higher education under the guidance. One of the options is mostly done by public agencies is to harness information and communication technology (ICT) through the internet network by utilizing a media website [19]. Likewise, the LL-Dikti IV using the website as an information media. As for the website LL-Dikti IV can be accessed through URL www.lldikti4.or.id. As for the landing page of the URL can be seen in figure 2.
The Website has become the official website of the LL-Dikti IV. As already known that the website is one of the many media dipergunakan by various organizations as a funnel of information to the public. Even the websites are also referred to as the window of an organization. Therefore, to see the activities of an organization, it can be done just by searching the official website.

4.1. Factors to use of the website

The use of information technology in the form of a website as a medium of information by a variety of audiences and institutions such as LL-Dikti IV caused by several factors. Such factors, among others, the website is a multi-platform, access a website without being limited space and time, and internet penetration continues to increase.

a. Website is multi-platform. As where it has been known that the website is a media of online information that is easily accessible because multi-platform. Multi-platform is the flexibility of the software that is able to operate in many electronics devices [6]. Which means, software is multi-platform as well as the website refers to the use of the website which can be accessed in various information technology devices such as Personal Computer (PC), Smart Phone and Tablet. In addition, the multi-platform also refers to the use of the website which can be accessed by either using various types of operating systems like Windows, Android, IOS, or others. Due to of the information technology devices and the type of operating system supports installation of web browsers such as Google Chrome, Mozilla Firefox, Opera, Safari, and others.

b. Access the website without being limited space and time. As a medium of information, the website is considered very effective and efficient because it can be accessed without limited space and time. As has been known, that the website is information technology that is able to penetrate and eliminate boundaries [4]. That is meaning, by using the website, the information can be accessed anywhere. In addition to the limit region, the advantages offered by the use of the website is able to save time. How not, the information has been disseminated through the website can.

c. Internet penetration continues to increase. If talking about the website, then the role of the internet can not be separated. It is because without the internet, the website will not be accessible. Revealed in a research report entitled Digital in 2019, Internet penetration in Indonesia in January 2019 has reached 56 percent [20]. When compared with the survey conducted by the Indonesian Internet Service Providers Association (APJII) in February 2018 ago, internet penetration in Indonesia has increased which 143,26 million or equivalent to 54.7 percent of the population in Indonesia has affordable internet [21]. In the report also
mentioned that Java Island is still dominating the internet users in Indonesia with 58.08 percent. The occurrence of such an enhancement does not mean the Indonesian government kept silence, but continually strive to improve the penetration numbers of the internet through the Universal Service Obligation (USO) program and the building optical cable network Palapa Ring. Under these conditions, it is believed the future of internet penetration in Indonesia will continue to increase by leaps and bounds. However, in efforts to develop the internet service that is sustainable, governments need to establish internet regulation to resolve the violations that were confirmed in the constitution [22].

4.2. The purpose of the website

The use of website as a funnel of information that are authorized by a government agency such as LL-Dikti IV in general there is a goal to be achieved. As for the purpose, among others, to carry out the mandate of the Indonesia Constitution (UU) and realize good governance.

a. Aims to carry out the mandate Indonesia Constitution (UU). Indonesia Constitution No.14 year 2008 about The Openness of Public Information (UU-KIP) has mandated that the public agency is obliged to announce public information periodically, the information related to activities and performance, the financial statements and other information according legislation. UU-KIP implicitly says that the public have the right to access information as well as monitoring the activities carried out by public bodies. A public body referred to is the agency/organization that is funded by the state budget (APBN) as well as LL-Dikti IV. The positive impact of the disclosure of information to the public through the use of websites of various public bodies is to ensure transparency and accountability with the goal of anti-corruption. Another literature source states that the arrangement of public information at the national level should be done in a way that is logical, consistent, coherent and easily accessible so that any user, even without knowledge of internet surfing will still be able to obtain information as well as using the online service [23]. The source is implicitly stating that necessary facilities/information delivery media that are affordable for anyone, anywhere, anytime and with any device. One media to realize the setup information in the website is by nature multi-platform and not restricted to time and space. Therefore, when referring to the UU-KIP and statement Doina Banciu (2009) step LL-Dikti IV using the website as a medium of information considered to be very precise. Based on exposure, the use of the website considered to be part of the mandate. UU-KIP.

b. Aims to actualize a good governance. To answer the demands of the community, namely creating a system of state life that's organized (good governance), then the required life state system that is transparent, democratic, credible, effective, efficient, secure, peaceful and prosperous [24]. Basically good governance is Indonesia's vision 2020 that are listed in Provision of MPR No.VII/MPR/2001 about Vision of Indonesia's Future. The sound of such a vision is “the realization of indonesian people who are religious, humane, united, democratic, just, prosperous, advanced, independent, as well as good and clean in the administration of the state”. To realize the vision of good governance, the government has done a variety of ways, including through Instruction President No. 3 Tahun 2003 that every line in the government is obliged o provide public services electronic-based. Public service electronic-based refers to the use of information technology products such as websites. By utilizing information technology, the government is expected to improve the quality of service to the community or the business, including improving performance of the bureaucracy effectively and efficiently to realize good governance and clean [25]. Governance is believed to be better and cleaner due to the use of information technology such as website which will facilitate community monitoring of each activity. By monitoring, the principles of good governance namely transparency and accountability continues to be done well.

From the exposure of the second objective above, the use of LL-Dikti IV website as a funnel of information is considered very precise because of the use of the website is part of the mandate of the Indonesia Constitution as well as measures to realize good governance.
4.3. The quality of LL-Dikti IV website

The Website LL-Dikti IV have a central role as the mouthpiece of official information to the public in a special academic community of the college assisted. So the quality needs to be tested to find out whether the website service is in accordance with the user's expectations. User expectations will be fulfilled if the users feel satisfied with the website quality [9], [13]. In the measurement of LL-Dikti IV website this will be conducted using the WebQual 4.0 method. The method focuses on three dimensions of measurement, namely usability quality, information quality, and service interaction quality.

The population of respondents in the measurement of the website is composed of the academic community of the college under the guidance of LL-Dikti IV. The academic community consists of lecturers, administrative staffs, and students. The number of respondents who participated by filling the questionnaire was 183 people. Academic respondents can be seen in table 5 below:

| Community (Type Respondents) | Amount |
|------------------------------|--------|
| Lecturer                     | 171    |
| Staff                        | 10     |
| Student                      | 2      |
| TOTAL                        | 183    |

Source: Primary Data

There are 148 respondents who wrote on the origin of higher education, which the higher education IPI Garut is the highest i.e. 9 respondents. While that does not write on the origin of higher education amounted to 35 respondents. Respondents write down the origin of the college is derived from 79 higher education. The questionnaire filling have represented about 16% number of higher education under guidance of LL-Dikti IV.

As a first step and basis for the calculation of each indicator, then some variables need to be defined in advance among others:

a. The calculation of the highest and lowest score (IS)

In order to determine the assessment against each indicator, first it has to be known highest score (SMax) and the lowest score (SMin) for the assessment indicators with the following formula:

\[ S_{Max} : SS \times \text{respondents}, S_{Min} : STS \times \text{respondents} \]

Total score grading “Strongly Agree (SS)” is 5 and the score gradient “Strongly Disagree (STS)” is 1 then:

\[ S_{Max} : 5 \times 183 = 915, S_{Min} : 1 \times 183 = 183 \]

b. Criteria of the quality

Assessment Data will be converted in the form of a score scale of 5 with provisions in the table 6 below.

| Interval                                      | Criteria     |
|-----------------------------------------------|--------------|
| \( \bar{X} > M_i + 1,8 S_{Di} \)              | Very Good    |
| \( M_i + 0,6 S_{Di} < \bar{X} \leq M_i + 1,8 S_{Di} \) | Good        |
| \( M_i - 0,6 S_{Di} < \bar{X} \leq M_i + 0,6 S_{Di} \) | Fair Enough |
| \( M_i - 1,8 S_{Di} < \bar{X} \leq M_i - 0,6 S_{Di} \) | Not Good    |
| \( \bar{X} \leq M_i - 1,8 S_{Di} \)           | Bad          |

Source: Rintho Rante Rerung (2019)

Desc.

\( \bar{X} = \) Score average
\( M_i = \) Mean ideal
\( S_{Di} = \) Standard deviation ideal

Formula \( M_i = (1/2) (S_{Max} + S_{Min}) \)
\[ = (1/2) (915 + 183) \]
\[ = 549 \]
Formula \( SD_i = \frac{1}{2} (\frac{1}{3} (S_{Max} - S_{Min}) \) 
\[ \frac{1}{6} (915-183) \]
\[ = 122 \]

So, for the assessment criteria of the quality of the website can be seen in table 7.

Tabel 7. Criteria of quality based on the interval

| Interval | Criteria          |
|----------|-------------------|
| \( > 768.6 \) | Very Good         |
| \( 622.2 \leq \bar{X} \leq 768.6 \) | Good              |
| \( 475.8 \leq \bar{X} \leq 622.2 \) | Fair Enough       |
| \( 329.4 \leq \bar{X} \leq 475.8 \) | Not Good          |
| \( \bar{X} \leq 329.4 \) | Bad               |

After knowing the intervals and criteria then the next calculation will be done. The stages of calculation and measurement results website LL-Dikti IV can be seen in table 8 and table 9.

Tabel 8. The results of the calculation of each indicator and an average of score

| Indicators | Respondent | N | TS | STS | Respon. | SS.5 | S.4 | N.3 | TS.2 | STS.1 | \( \bar{X} \) |
|------------|------------|---|----|-----|---------|------|-----|-----|------|-------|-----------|
| X01        | 53         | 183 | 265 | 472 | 30     | 4    | 0   | 771 |
| X02        | 39         | 183 | 195 | 504 | 51     | 2    | 0   | 752 |
| X03        | 31         | 183 | 155 | 484 | 90     | 2    | 0   | 731 |
| X04        | 43         | 183 | 215 | 484 | 54     | 2    | 0   | 755 |
| X05        | 33         | 183 | 165 | 432 | 120    | 4    | 0   | 721 |
| X06        | 29         | 183 | 145 | 496 | 87     | 2    | 0   | 730 |
| X07        | 32         | 183 | 160 | 484 | 87     | 2    | 0   | 733 |
| X08        | 35         | 183 | 175 | 484 | 81     | 0    | 0   | 740 |
| X09        | 41         | 183 | 205 | 468 | 72     | 2    | 0   | 747 |
| X10        | 48         | 183 | 240 | 440 | 75     | 0    | 0   | 755 |
| X11        | 26         | 183 | 130 | 464 | 114    | 6    | 0   | 714 |
| X12        | 39         | 183 | 195 | 496 | 60     | 0    | 0   | 751 |
| X13        | 30         | 183 | 150 | 528 | 63     | 0    | 0   | 741 |
| X14        | 22         | 183 | 110 | 408 | 168    | 6    | 0   | 692 |
| X15        | 25         | 183 | 125 | 468 | 117    | 4    | 0   | 714 |
| X16        | 36         | 183 | 190 | 476 | 69     | 6    | 0   | 741 |
| X17        | 26         | 183 | 130 | 372 | 177    | 10   | 0   | 689 |
| X18        | 26         | 183 | 130 | 396 | 165    | 6    | 0   | 697 |
| X19        | 19         | 183 | 95  | 424 | 156    | 10   | 1   | 686 |
| X20        | 29         | 183 | 145 | 432 | 111    | 14   | 2   | 704 |
| X21        | 24         | 183 | 120 | 480 | 105    | 6    | 1   | 712 |
| X22        | 28         | 183 | 140 | 432 | 129    | 8    | 0   | 709 |
| X23        | 31         | 183 | 155 | 540 | 51     | 0    | 0   | 746 |

Source: Primary Data

From the results of the calculation of the total score based on the assessment of each indicator by respondents, the next will be the interpretation of the score. For example the indicator X01. The results of the measurement indicators of the X01 that is the website easy to learn to operated to obtain the final average score of 771 with the percentage 84.26 is in the criteria Very Good. As for the results of the measurement as a whole can be seen in table 9 below:

Tabel 9. The results of the calculation of the average score, percentage, and criteria

| Indicators | \( \bar{X} \) | Percentage (%) | Criteria          |
|------------|--------------|----------------|-------------------|
| X01        | 771          | 84.26          | Very Good         |
| X02        | 752          | 82.19          | Good              |
| X03        | 731          | 79.89          | Good              |
| X04        | 755          | 82.51          | Good              |
| X05        | 721          | 78.80          | Good              |
| X06        | 730          | 79.78          | Good              |
| X07        | 733          | 80.11          | Good              |
| X08        | 740          | 80.87          | Good              |

Website Quality Measurement of Higher Education Services Institution Region IV (Rintho Rante Rerung)
Based on the results of assessment in table 8 obtained information that the average score of the indicators X01 up to X22 (does not include indicators X23) is 726.59. The following more detailed information based on the measurement results has been presented in table 8 and table 9 is as follows:

a. Indicators with the highest score was the indicator of the X01 that is the website easy to learn to operate. The indicator obtained an average score of 771 with the percentage 84.28 so it is included in the criteria Very Good. While the indicator with the lowest score was the indicator of the X19 which website give the room a personalized. Indikator earn an average score of 684 with the percentage 74.97. However, these indicators are still included in Good criteria.

b. Indicators that are above the average score amounted to 12 indicators, namely X01, X02, X03, X04, X06, X07, X08, X09, X10, X12, X13 and X16. While the indicators are below the average score of 10 indicators, namely X05, X11, X14, X15, X17, X18, X19, X20, X21 and X22.

c. The dimensions of the measurement obtained the highest average score was the instrument of usability namely 741,63 with the percentage 81.05. The dimensions of information quality obtained an average score of 730,57 with the percentage 79.84. While the dimensions that gained the average low score was the dimension of service interaction quality i.e. 705,43 with the percentage 77,10.

The results of the calculation of the score along with the criteria based on table 9, information was obtained that the overall (indicator X23) the quality of the website LL-higher education IV, including the criteria Very Good with the the average score of 746 (percentage 81,53). However, there are some records from the respondents by filling the questionnaire can be seen in table 10.

4.2. User expectation LL-Dikti IV website

LL-Dikti IV website has a major role as a center of information in particular the academic community in the region of West Java and Banten. Therefore, through filling a questionnaire that has been done, some of the respondents who are academics have written his hope that the website is better.

| Resp. | Note |
|-------|------|
| N22   | Regulasi dan perlindungan hukum bagi pengunjung yang memberikan data pribadi, ditambahkan secure data tersebut (Law protection and regulation to visitors who give personal data, preferred secure those data) |
| N40   | Agar supaya lebih menarik dan tidak mengalami low access (In order to be more attractive and it doesn’t occur low access) |
Those notes or such expectations, the researchers tried to observe LL-Dikti IV website to obtain the information and provide feedback or recommendations to the manager of the website. Special to the record the respondent N141 will be ignored because user's expectations out of the main purpose of this research.

Note respondents N22, i.e., “Law protection and regulation to visitor who give personal data, preferred secure those data”. From the observation of the researchers on the website regarding such records, the researcher did not find the feature/page that requires visitors to provide personal data. So that the note can be ignored.

Note respondents N40, i.e., “In order to be more attractive and it doesn’t occure low access”. From the results of observations of note, the researchers argue that the design of the website is quite interesting, because the design of the website displays an image that is attractive in the form of a slide show, use a color that is not excessive, the use of the font is quite appropriate (not too small), as well as the most important page is the website responsive which can be accessed by either using the various devices like smartphone, tablet, or laptop. And regarding the other notes, namely low access, researchers perpendapat that it is caused by the use of images in any article or news. But overall, the low access that occurred was in the reasonable category.

Note respondents N61, i.e., “Interface navigate easily”. This note is one of the assessment indicators in the questionnaire, namely X03 with the results of the interpretation of the score 79.89% (Good criteria). However, the item indeed needs to be improved for the better. From the results of observation of the website LL-Dikti IV deficiencies were found situated on the eye-catching of menu and links. Therefore, some of the things that need to be added is a menu must be eye-catching so easily recognizable. Links are made different when highlighted mouse or clicked so that visitors feel the changes that occur so as to provide information that links can be clickable and lead the visitor to another page.

Note respondents N63, i.e., “The information are expected to be delivered more updated, accurate and complete”. The same thing also be a record of respondents N179, i.e., “The information are more updated”. Based on the results of in-depth interviews with some of the visitors, found the fact that the information does not update refers to an article that expired, such as the submission of information on the Functional Position of Lecturer (Jafung). Sometimes, the information is not relevant because of the new rules but not yet updated. Note that the information is complete and accurate according to the researchers is caused by the article that is expired or is not yet update. Therefore, the manager of the website must update any information as early as possible so that the user's expectations (complete and accurate) can be met.

Note respondents N101, i.e., “recommendation system applied”. Understanding simple recommendation system is a result of prediction of an object provided the system automatically to the user. So the recommendation system can act as a personal assistant users of the system. Such predictions can be either relevant information or relevant or sustainable. Specifically on the website, the recommendation system generally aims to make it easy for users to find the information ongoing or information related with the page/article that is being accessed. In this case,
the researchers conducted observations of LL-Dikti IV website and find the the fact that the information published in the form of articles or news in general have been using the recommendation system to display the link related on any article or news. But in some other part of such information service online academic position as a lecturer. So the researchers concluded that the website has implemented a recommendation system but not yet thoroughly.

Note respondents N174, i.e., “More interactive”. According to KBBI online, "interactive" is defined "mutual action; mutually active". So it can be said that an interactive system is a system that allows users to respond either in real time or not. Based on the results of observation of the website found the fact that the nature of the website in providing public information services is still showing limited, but has yet to provide a service that is interactive. This is due to the comment area on each article is disabled. Non-active facilities are generally intended to avoid disturbance of the security of the user not answerable, such as the use of SQL Injection. Therefore, one way that can be used so that the website remains interactive is to use the live chat service from a third party. An example of such a service among others Tawk.to, Koyako Live Chat, Provide Person, Live Person, WGChat, Comm100, Zopim, and others (as shown in Figure 3).

Figure 3. Tawk.to Interface

The application can be glued on the pages of the website but not using the system database on the webserver itself so that it can minimize the security risk.

5. CONCLUSION

From the measurement of the quality of the website LL-Dikti IV through a questionnaire obtained the conclusion that the overall quality of the LL-Dikti IV website, including Very Good criteria with the the average score of 746 (percentage 81,53). The detailed information obtained from these measurements is:

a. The highest score of the indicator is X01, i.e., "the website is easy to learn to operate" with the to obtain an average score of 771 (percentage 84,28), so included in Very Good criteria. While the indicator with the lowest score is the indicator of the X19 which “website give the room a personalized”. The indicators obtained an average score of 684 with the percentage 74,97. However, these indicators are still included in Good criteria.

b. Indicators that are above the average score amounted to 12 indicators, namely X01, X02, X03, X04, X06, X07, X08, X09, X10, X12, X13 and X16. While the indicators are below the average score of 10 indicators, namely X05, X11, X14, X15, X17, X18, X19, X20, X21 and X22.

c. Dimensions obtaining the highest average score is the dimension of usability namely 741,63 with the percentage 81,05. As for the dimensions of information quality to obtain an average score of 730,57 with the percentage 79,84. While the dimensions of the gain score of the
average low is the dimension of service interaction quality i.e. 705.43 with the percentage 77.10.

In addition, in order to accommodate the needs of visitors, the study found the fact that the visitors look forward to the manager of the website so that the website is easy to navigate, information is updates, apply system recommendations thoroughly, as well as the website more interactive.

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REFERENCES

[1] Dikti, “Forlap Dikti,” Dikti, 2019. [Online]. Available: https://forlap.ristekdikti.go.id. [Accessed: 14-Jun-2019].

[2] M. Nilashi, D. Jannac, M. D. Ibrahim, Othman Bin Esfahani, and H. Ahmadi, “Recommendation quality, transparency, and website quality for trust-building in recommendation agents,” Electron. Commer. Res. Appl., vol. 19, pp. 70–84, 2016, doi: https://doi.org/10.1016/j.elerap.2016.09.003.

[3] S. J. Barnes and R. Vidgen, “Measuring web site quality improvements: A case study of the forum on strategic management knowledge exchange,” Ind. Manag. Data Syst., vol. 103, no. 5–6, pp. 297–309, 2003, doi: 10.1108/02635570310477352.

[4] R. R. Rerung, E-Commerce : Menciptakan Daya Saing Melalui Teknologi Informasi. Yogyakarta: Deepublish, 2018.

[5] R. R. Rerung, “Analysis and Design of MSMEs Support System Based on Information Technology (Analisis dan Perancangan Sistem Pendukung UMKM Berbasis Teknologi Informasi),” J. Pekommas, vol. 3, no. 1, p. 19, Sep. 2018, doi: 10.30818/jpkm.2018.2030103.

[6] R. R. Rerung, Pemograman Web Dasar. Yogyakarta: Deepublish, 2018.

[7] W. Gata and G. H. Oryza, “Analysis Of Information System Quality Of Service On Bsi Academy’s Environment Using Webqual Methods, Importance Performance Analysis And Fishbone,” J. Theor. Appl. Inf. Technol., vol. 95, no. 2, pp. 299–241, 2017.

[8] S. Kanaujiya, P. Gusain, N. Agarwal, and S. Wadhwa, “Analysis of Web Quality Provided by Pintwire Informatics in IT Industry: Using WEBSQUAL Instrument,” Glob. J. Entrep. Inf. Syst., vol. 7, no. 1, 2015, doi: https://doi.org/10.18311/gjes/2015/3039.

[9] N. Elangovan, “Evaluating Perceived Quality of B-School Websites,” IOSR J. Bus. Manag., vol. 12, no. 1, pp. 92–102, 2013.

[10] E. Herrera-Viedma, G. Pasi, A. G. Lopez-Herrera, and C. Porcel, “Evaluating the information quality of Web sites: A methodology based on fuzzy computing with words,” J. Am. Soc. Inf. Sci. Technol., vol. 57, no. 4, pp. 538–549, 2006, doi: 10.1002/asi.20308.

[11] D. Napitupulu, “Analysis of Factors Affecting The Website Quality (Study Case: XYZ University),” Int. J. Adv. Sci. Eng. Inf. Technol., vol. 7, no. 3, pp. 792, 2017, doi: 10.18517/ijaseit.7.3.1748.

[12] J. Hasanov and H. Khalid, “The Impact of Website Quality on Online Purchase Intention of Organic Food in Malaysia: A WebQual Model Approach,” in Procedia Computer Science, 2015, pp. 382–389, doi: https://doi.org/10.1016/j.procs.2015.12.153.

[13] R. K. Jain and S. Rangnekar, “Measuring Website Quality of the Indian Railways,” Int. J. Entrep. Knowl., vol. 3, no. 1, pp. 57–64, 2015, doi: 10.1515/ijek-2015-0011.

[14] L. Hasan, “Evaluating the Usability of Educational Websites Based on Students’ Preferences of Design Characteristics,” Int. Arab J. e-technology, vol. 3, no. 3, pp. 179–193, 2014.

[15] P. Longstreet, “Evaluating Website Quality: Applying Cue Utilization Theory to WebQual,” in 43rd Hawaii International Conference on System Sciences, 2010, pp. 1–7.

[16] J. Tarigan, “User Satisfaction Using Webqual Instrument: A Research on Stock Exchange of Thailand (SET),” J. Akunt. dan Keuangan, vol. 10, no. 1, pp. 34–47, 2008.

[17] U. da C. Leonidio, R. M. da S. Montezano, and F. A. De Carvalho, “Evaluation of perceived quality of the website of an online bookstore: an empirical application of the Barnes and Vidgen Model,” J. Inf. Syst. Technol. Manag., vol. 8, no. 1, pp. 109–130, 2011, doi: 10.4301/S1807-17752011000100006.

[18] R. Likert, “A technique for measurement of attitudes,” Arch. Psychol., vol. 22, pp. 5–55, 1932.

[19] D. Napikso, “Implementing Public Information Disclosure in Local Government Websites,” J. IPTEK-KOM, vol. 17, no. 2, pp. 113–128, 2015.

[20] WAS and HootSuite, “Digital in 2019,” 2019.

[21] Tim APJII, “Potret Zaman Now Pengguna dan Perilaku Internet Indonesia,” Buletin APJII. APJII, Jakarta, pp. 1–7, 2018.

[22] T. Mariyati, “Internet Public Policy Implementation Strategy in Encouraging Acceleration of Internet Users Development,” Bul. Pos dan Telekomun., vol. 12, no. 2, pp. 147–158, 2013.

[23] D. Banciu, “e-Romania - A Citizens’ Gateway towards Public Information,” Natl. Inst. Res. Dev. Informatics – ICI, vol. 18, no. 3, pp. 205–210, 2009.

[24] B. Saleh, “Information and Communication Technology (ICT) Literacy of Community in Mamminasata Region,” J. Pekommas, vol. 18, no. 3, pp. 151–160, 2015.

[25] C. H. Kanter, “Role Of Manado’s Government Website In Supporting The Actualization Of Good Governance,” J. Penelit. Komun. dan Opini Publik, vol. 19, no. 3, pp. 197–212, 2015.