

ANALYSIS OF STUDENT SATISFACTION USING THE E-ASSIGNMENT APPLICATION WITH THE WEBQUAL 4.0 METHOD

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Received: 10-07-2024

Revised: 24-07-2024

Approved: 26-07-2024

ABSTRACT

The very rapid development of information technology has made websites an inseparable part of an educational institution as well as services for the academic community, lecturers, students and education staff. One of the learning applications used for continuity of learning is E-Assignment. E-Assignment is a learning media application that functions to collect and assess student assignments online. The problem that occurs is that there are still students who are not satisfied with using the E-Assignment application. The aim of this research is to analyze and measure the quality of E-Assignment in the lecture process among Metamedia University students. The method used to measure the quality of the E-Assignment website is WebQual 4.0. This research was carried out by utilizing research instruments based on three groups of WebQual 4.0 indicators and then distributing them to students of the Information Systems study program. WebQual 4.0 is an instrument that assesses the quality of a website from the end user's perspective. The tools and applications used to test the relationship between variables from WebQual 4.0 and user satisfaction are SPSS 20 and Matlab. The research results show that the overall score for the WebQual 4.0 indicator obtained is 69% in the Good category, so that users assess that the E-Assignment application is quality as a web learning medium in higher education.

Keywords: E-Assignment, WebQual 4.0, SPSS, Matlab

INTRODUCTION

Technological developments not only make it easier for users to access information, but also make it easier and helpful in the learning process (Creely & Lyons, 2022). According to Pasang & Najib, (2022) Conventional learning, which was previously carried out face-to-face, has become a benchmark for success in the teaching and learning process. However, as technology becomes more advanced, learning models also develop. E-learning is a model that was born from technological developments. The use of e-learning finally began to spread and then became a learning model that was accepted in various circles (S. Ningsih et al., 2019).

The learning model is a pattern that is always used as a guideline in classroom learning and tutorials for lecturers at universities. The learning model must refer to the approach that will be used, including learning objectives, environment and classroom management (S. R. Ningsih et al., 2021). The best quality of service for consumers is with the aim of creating consumer satisfaction (Rukmi et al., 2017). According to Fujianto, (2019) Satisfaction is an implication of efforts to fulfill something, which may be the beginning of undesirable impacts (Briliana, 2013). This definition is very simple, but when viewed from the perspective of management and consumer behavior the term becomes very complex. Satisfaction is the level of user feelings obtained after the

user does or enjoys something (Purbasari & Permatasari, 2018). Several technology-based applications that carry out the learning process online (on the network) and can be used in the learning process, one of which is the E-Assignment application. The E-Assignment application is an application that allows the creation of classrooms in cyberspace.

The E-Assignment application is a learning medium for student assignments. This application service is assumed and expected to be an alternative in answering problems and obstacles to learning in the classroom. Such as limited time available in the classroom and lack of time for discussions in reviewing lesson material. Apart from that, the E-Assignment application can be a means of distributing assignments, submitting assignments and even assessing assignments that have been submitted (Khairunnisa, 2020). Webqual 4.0 is used in this research as a method for evaluating the E-Assignment application which is used as an online learning tool. To see how the evaluation is carried out, assessment variables are needed as seen in the image below. The variables used refer to three variables from Webqual 4.0, namely Usability, Information and Service Interaction (Yasir & Rusmala, 2021).

Previous research written by Fahredi et al (Fahredy et al., 2023), with the title analysis of student satisfaction with the Academic Information System (AIS) application, also used the webqual method. The research results show that the level of student satisfaction with the SIA application is quite satisfied with an average satisfaction of 3.030. The level of student satisfaction with the usability dimension is quite satisfied with an average satisfaction of 3.160, with the information quality dimension quite satisfied with an average satisfaction of 3.124, and with the interaction quality dimension quite satisfied with an average satisfaction with an average of 2.806. The results of the Importance Performance Analysis show that the attributes that have a low level of satisfaction and a high level of importance are the timeliness of the SIA application in providing information according to user needs and the level of relevance of the SIA application to academic information based on IPA.

The difference with the author's research is that this research also uses the IPA method in determining performance analysis. However, the author only uses the webqual 4.0 method to determine the level of student satisfaction. The problem that occurs is that there are still student complaints when using the E-Assignment application in online learning, and student dissatisfaction with using the E-Assignment application. Apart from that, there is no analysis of the obstacles and difficulties for students in using the E-Assignment Application as an online learning medium, especially for Metamedia University students. The aim of this research is to carry out an analysis to find out the level of satisfaction of Metamedia University students who use this learning application. The research only analyzes the E-Assignment application which is an alternative for online learning for students, and to find out the factors that influence student satisfaction, using the Webqual 4.0 method. From the results of this research, students can measure the level of difficulty found in the E-Assignment application.

RESEARCH METHODS

Research stages or also known as research flow are the stages carried out by a researcher in his research work and are the stages that the researcher must go through in carrying out his research plan. The following are the stages/flow of the research which can be seen in Figure 1:

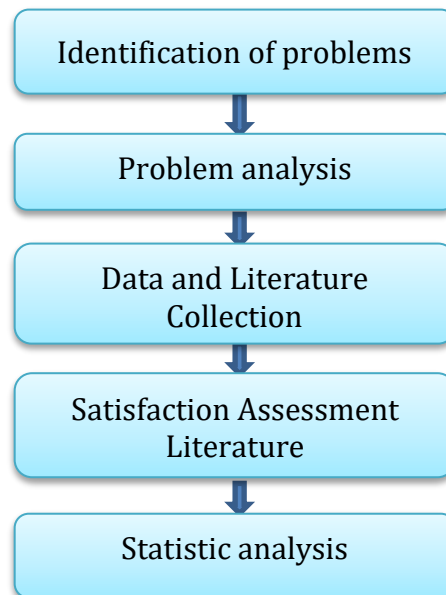


Figure 1. Research Stages

From Figure 1, the research stages can be explained as follows:

- a) Problem identification, at this stage a review is carried out on the problem to be researched and a deeper study of the existing problems. This stage is the first step to find out the problems that occur and provide solutions to these problems.
- b) Problem analysis, after knowing the existing problems, the author then carries out an analysis of the problem, so that he can find out the next stage of solving the problem.
- c) Data and Literature Collection
The data collection techniques used in the research are as follows:
 - 1) Observation, namely making direct observations to obtain learning data, the level of difficulty and obstacles experienced. Apart from that, you can also get library literature related to the problem.
 - 2) Interviews, conducted with students who have used the E-Assignment application to obtain information regarding student satisfaction with the E-Assignment application that has been implemented.
 - 3) Questionnaire, create a list of questions that have been determined based on the WebQual 4.0 method. Arrange these questions in an online questionnaire which is equipped with assessment weights and will later be filled in by students who have used E-Assignment.
- d) Satisfaction Assessment Literature, namely looking for literature on student satisfaction with the use of the E-Assignment application using the Webqual 4.0 method.
- e) Statistical Analysis, namely using the Likert Scale and the Matlab program as an application to carry out statistical analysis and obtain the results of the analysis.

The research method used in measuring the quality of the E-Assignment application is WebQual 4.0. This research was carried out using research instruments

created based on WebQual 4.0 indicators and then distributed to students of the Information Systems study program. WebQual 4.0 is an instrument that assesses the quality of a website from the end user's perspective (Liani et al., 2020) (Mude et al., 2020).

Webqual 4.0 is used in this research as a method for evaluating the E-Assignment Application which is used as an online learning tool. To see how the evaluation is carried out, assessment variables are needed as seen in the image below. The variables used refer to three variables from Webqual 4.0, namely Usability, Information and Service Interaction. This research develops the WebQual 4.0 measurement model into one construct to identify the level of user satisfaction [5]. Webqual is a development of a measurement model originally called Servqual. Webqual is a tool for assessing the usefulness (benefit) of information, quality of information, and quality of service interactions from web pages on the internet. Webqual is a method or technique for measuring website quality based on site user perceptions. WebQual 4.0 changes the site quality dimension to the Usability dimension (Padmowati & Buditama, 2019) (Mustopa et al., 2020).

The hypothesis proposed in developing the research model above can be stated as follows: H1 = WebQual 4.0 has a significant effect on User Satisfaction (Kurniawan et al., 2022). This research method uses a quantitative approach. Data collection was carried out by distributing questionnaires to students. The data processing technique used in this research is associative quantitative using a reliable questionnaire. According to "Quantitative associative research is research by obtaining numbers which aims to determine the degree of relationship and pattern/form of influence between two or more variables, where with this research a theory will be built which functions to explain, predict and control a phenomenon.

RESULTS AND DISCUSSION

The measurement scale that researchers used in this research was the Likert scale. Using the Likert scale method, assessing the quality of the E-Assignment Application for learning media uses a questionnaire designed with a Likert scale using instruments with the dimensions of usability, information quality and interaction quality. The measurement scale for satisfaction level is 1 (Strongly Disagree), 2 (Disagree), 3 (Agree), 4 (Strongly Agree). The formula for calculating the Likert scale is: (Faqih Amirudin et al., 2022) (Nainggolan, 2022). Average assessment score $(TS*1) + (TS*2) + (S*3) + (SS*4) / \text{number of respondents}$. Matlab is a program that can be used to validate research results using various methods (Arhami, M & Desiana, A, n.d.). Apart from that, research results can also be visualized clearly. Matlab is a high-level, closed, and case sensitive programming language in the world of numerical computing developed by MathWorks.

One of its most popular advantages is the ability to create graphs with the best visualization (Khlifi, 2020). Matlab has many tools that can help various scientific disciplines. This is one of the reasons why industry uses Matlab (Jamaaluddin & Indah, 2021) (Sugandi & Halim, 2020). Apart from that, Matlab has many libraries which are very helpful for solving mathematical problems such as creating function simulations, mathematical modeling and GUI design. An overview of the questionnaire results from the dimensions of usability, information quality and interaction quality can be depicted in the following Matlab software:

Usability Dimension

In the usability dimension, the results of the Likert scale interval calculation consisting of 8 questions are input, so that a graphic description of the Matlab application is obtained as shown in Figure 2.

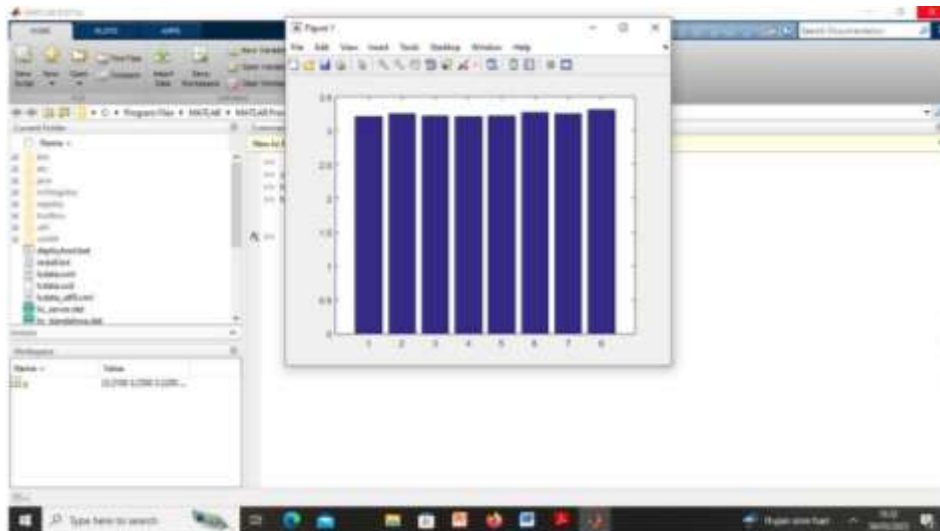


Figure 2. Matlab Results for Usability Category

From Figure 2 it can be seen that in the usability category, question number 8 has the highest level of agreement, namely with an average value of 3.31. This shows that many student respondents agree that the E-Assignment Application website can be easily accessed for novice users. The lowest value is shown in graph number 4 with an average value of 3.21 which shows that few student respondents agree that the E-Assignment Application has an attractive appearance and is easy to learn.

Dimensions of Information Quality

In the information quality dimension, the results of the Likert scale interval calculation consisting of 6 questions are input, so that a graphic image of the Matlab application is obtained as shown in Figure 3.

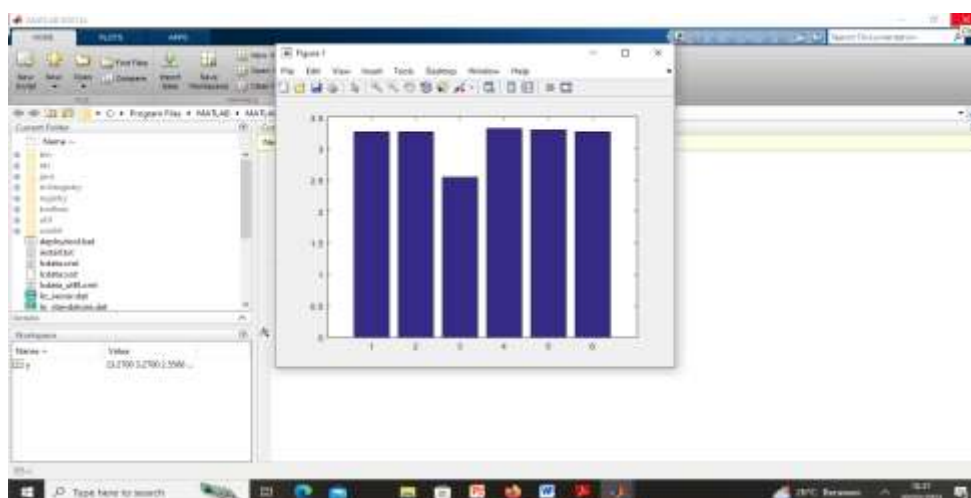


Figure 3. Matlab results for the Information Quality category

From Figure 3 above, it can be seen that in the information quality category, question number 4 has the highest level of agreement, with an average value of 3.32 and number 3 has the lowest level of agreement, with an average value of 2.55. This shows that many student respondents stated that the E-Assignment Application provided reports on time. However, very few student respondents agreed that the E-Assignment Application provided accurate reports.

Dimensions of Interaction Quality

In the information quality dimension, the results of Likert scale interval calculations consisting of 4 questions given to 60 student respondents were input, so that a graphic image of the Matlab application was obtained as shown in Figure 4.

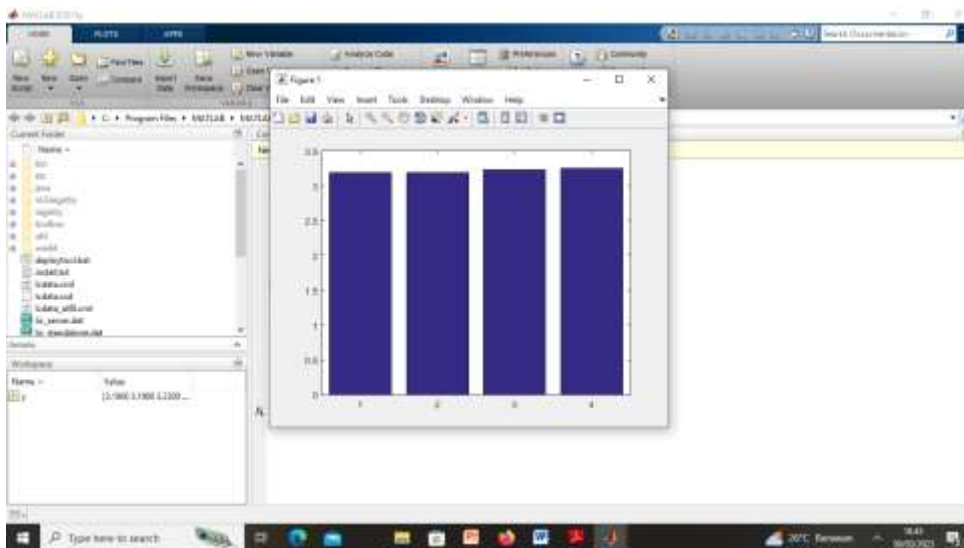


Figure 4. Matlab results for interaction quality category

From the figure 4 above, it can be seen that in the interaction quality dimension, question number 4 has the highest level of agreement and questions 1,2 and 3 on average have almost the same level of agreement, namely the highest score with an average of 3.26. This shows that student respondents agreed that the E-Assignment Application was in accordance with the expected use.

Discussion of Questionnaire Results

After collecting data from the questionnaire results from respondents based on 3 question criteria including usability quality, information quality and interaction quality services. From the results of calculating Likert scale intervals, a table can be created to calculate the level of respondent satisfaction with the quality of the E-Assignment application service using a Likert scale. Score: The total number of each variable. Average: Assessment score $(STS*1) + (TS*2) + (S*3) + (SS*4) /$ number of respondents. The results of calculating Likert scale intervals for the three dimensions of usability quality, information quality and interaction quality services can be seen in Table 1.

Table 1.
Likert Scale Interval Calculation Results

Webqual Dimensions	Measured variables	Average	Information
Usability	E-Assignment Application operation is easy	3,22	Setuju
	The E-Assignment application is able to encourage student enthusiasm for learning	3,26	Setuju
	The E-Assignment application is useful as an online learning medium	3,23	Setuju
	The E-Assignment application has an attractive appearance and is easy to learn	3,22	Setuju
	The E-Assignment Application Website page has a clear appearance and is easy to understand	3,23	Setuju
	The E-Assignment Application Website is capable of storing various types of files	3,25	Setuju
	E-Assignment Application Website can save time and costs	3,26	Setuju
	The E-Assignment Application Website is easy to access for novice users	3,30	Setuju
Information Quality	The E-Assignment application provides reports that are easy to understand	3,28	Setuju
	The E-Assignment application provides the most complete and detailed reports	3,26	Setuju
	The E-Assignment application provides accurate reports	2,54	Setuju
	The E-Assignment application provides reports according to time	3,31	Setuju
	E-Assignment application provides relevant reports	3,31	Setuju
	The E-Assignment application provides reports according to the format	3,28	Setuju
Interaction Quality	The E-Assignment application makes it easy for students to communicate with lecturers	3,18	Setuju
	The E-Assignment application provides a large class capacity as a	3,19	Agre

Webqual Dimensions	Measured variables	Average	Information
	place for lecturers and students		
	The E-Assignment application provides security for student user information	3,24	Agre
	The E-Assignment application is in accordance with the expected use	3,26	Agre

The data above is summarized and simplified according to the results of Likert scale interval calculations as shown in table 2 below:

Table 2.
Conclusion of Likert Scale Interval Calculation Results

Aspect Dimensions	Average Total	Category
Usability	3.15	Agre
Information Quality	3,22	Agre
Interaction Quality	3,21	Agre
	3,19	Agre

Based on Table 2, it can be seen that there are three aspects of the webqual 4.0 dimensions based on student responses via the questionnaire. The average value is an assessment from students which includes, among others: (1) Usability obtained 3.15 with the agree category, (2) Information Quality obtained 3.22 with the agree category, (2) Information Quality obtained 3.22 with the agree category, (3) Interaction Quality was obtained at 3.21 in the agree category and the overall average was 3.19 in the agree category. These results indicate that the quality of the website in the E-Assignment Application is stated to be satisfactory for student use in online learning. The results of the total Likert scale can be depicted on the graph in Figure 5.

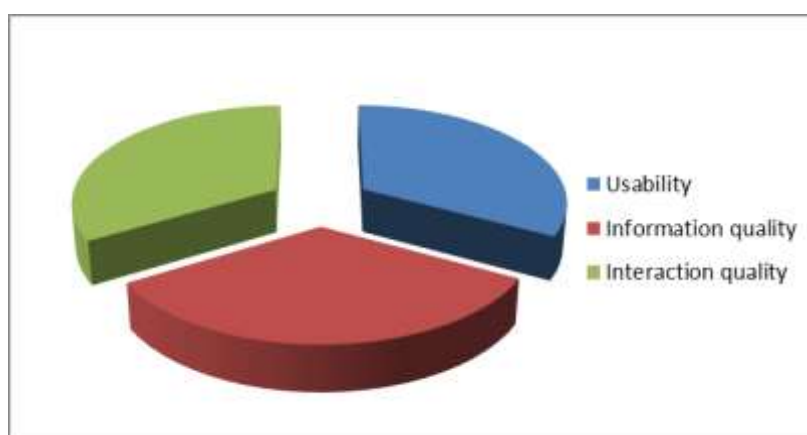


Figure 5. Graph of Likert Scale Results

Figure 5 which shows a graph of the Likert scale results shows a significant value that is almost the same as getting a total average of 3.19, which means that respondents agree with the dimensions of the questions asked using the Webqual 4.0 method.

CONCLUSION

Based on the results of research regarding the application of WebQual 4.0 which is used to measure the quality level of the E-Assignment application as a learning medium, researchers can draw conclusions from the results of the value of each WebQual 4.0 indicator that the Usability value in measuring the quality level of the E-Assignment application is 69% with the category Good. This explains that the E-Assignment application is easy to use as an online learning medium. The Information Quality value in measuring the quality level of the E-Assignment application is 64% in the Good category. This explains that the information provided by the E-Assignment application is trustworthy, relevant, easy to read, up to date, accurate and understandable. The Interaction Quality value in measuring the quality level of the E-Assignment application is 66% in the Good category. This explains that the services provided by the E-Assignment application can provide convenience for students and lecturers as a means of learning media and provide maintained security.

The overall score of the WebQual 4.0 indicator obtained was 69% in the Good category, so that users considered that the E-Assignment application was of good quality as a medium for conducting student lectures in tertiary institutions.

DAFTAR PUSTAKA

- Arhami, M & Desiana, A, 2005. (n.d.). Modul i pengenalan matlab 1. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 1–12.
- Briliana, V. (2013). Pengaruh Kepuasan , Komitmen , Manfaat Sosial Dan Special Treatment Benefits. *Jurnal Bisnis Dan Akuntansi*, 15(1), 57–64.
- Creely, E., & Lyons, D. (2022). Designing flipped learning in initial teacher education : The experiences of two teacher educators. *Australasian Journal of Educational Technology*, 38(4), 40–54.
- Fahredy, D., Isharyani, M. E., & Pawitra, T. A. (2023). Analisis Kepuasan Mahasiswa terhadap Aplikasi Sistem Informasi Akademik (SIA) dengan Metode WEBQUAL. *Jurnal Teknik Industri (JATRI)*, 1(1), 29–40. <https://doi.org/10.30872/jatri.v1i1.490>
- Faqih Amirudin, M., Listyorini, T., Supriyati, E., & Artikel, I. (2022). *JUMINTAL: Jurnal Manajemen Informatika dan Bisnis Digital Penerapan E-Commerce Pada Penjualan Gula Tumbu Berbasis Web*. 1(2), 76–86.
- Fujianto, A. (2019). Analisis Kepuasan Pengguna Akhir Aplikasi Pln Mobile Menggunakan Metode Eucs (End User Computing Satisfaction) Berdasarkan Prospektif Pelanggan Pt.Pln (Persero) Up3 Jember Skripsi. *Digital Repository Universitas Jember*.
- Jamaaluddin, & Indah, S. (2021). *Buku Ajar Kecerdasan Buatan*. 121.
- Khairunnisa. (2020). Analisis Pemanfaatan Aplikasi Google Classroom Sebagai Media Pembelajaran Dalam Meningkatkan Motivasi Belajar Siswa. *Universitas Muhammadiyah Sumatera Utara*, 2507(February), 1–9.
- Khlifi, Y. (2020). An advanced authentication scheme for E-evaluation using students behaviors over E-learning platform. *International Journal of Emerging Technologies in Learning*, 15(4), 90–111. <https://doi.org/10.3991/ijet.v15i04.11571>
- Kurniawan, E., Nofriadi, N., & Nata, A. (2022). Penerapan System Usability Scale (Sus) Dalam Pengukuran Kebergunaan Website Program Studi Di Stmik Royal. *Journal of Science and Social Research*, 5(1), 43. <https://doi.org/10.54314/jssr.v5i1.817>

- Liani, D. A., Fikry, M., & J. Hutajulu, M. (2020). Analisa Metode Webqual 4.0 dan Importance-Performance Analysis (IPA) Pada Kualitas Situs Detik.com. *Jurnal Ilmiah Merpati (Menara Penelitian Akademika Teknologi Informasi)*, 8(1), 34. <https://doi.org/10.24843/jim.2020.v08.i01.p04>
- Mude, A., Sara, K., & Witi, F. L. (2020). Analisis Kepuasan Mahasiswa Terhadap Website Universitas Flores. *Jurnal Informatika*, 20(2), 107–117. <https://doi.org/10.30873/ji.v20i2.2357>
- Mustopa, A., Agustiani, S., Wildah, S. K., & Maysaroh, M. (2020). Analisa Kepuasan Pengguna Website Layanan Akademik Kemahasiswaan (LYKAN) UBSI Menggunakan Metode Webqual 4.0. *Jurnal Perspektif*, 18(1), 75–81. <https://doi.org/10.31294/jp.v18i1.7413>
- Nainggolan, L. L. (2022). *Analisis Kepuasan Pengguna Aplikasi JAKI Dengan Metode Webqual*.
- Ningsih, S., Effendi, Z., & Syah, N. (2019). Implementation of Cooperative Learning Model on E-Assignment Responsiveness at Higher Education. *International Journal of Emerging Technologies in Learning (IJET)*, 14(18), 209–219.
- Ningsih, S. R., Putri, Y. P., & Lestari, S. P. (2021). Media Pembelajaran E-Task dengan Metode Cooperative Learning Untuk Siswa SMA Negeri 3 Bukittinggi. *JOSTECH: Journal of Science and Technology*, 1(2), 175–187. <https://doi.org/10.15548/jostech.v1i2.2790>
- Padmowati, R. D. L. E., & Buditama, A. T. (2019). Aplikasi Perangkat WebQual 4 . 0 Untuk Pengukuran Kualitas Sistem Informasi Student Portal Unpar. *Sainteks*, 715–719.
- Pasang, B. S. A., & Najib, S. A. M. (2022). Implementation of education for sustainable development in geography subjects among trainee teachers. *International Journal of Evaluation and Research in Education*, 11(3), 1099–1106. <https://doi.org/10.11591/ijere.v11i3.22159>
- Purbasari, D. M., & Permatasari, D. L. (2018). Pengaruh Kualitas Pelayanan dan Kepuasan Pelanggan Terhadap Pembelian Ulang. *Jurnal Inspirasi Bisnis Dan Manajemen*, 2(1), 43. <https://doi.org/10.33603/jibm.v2i1.1056>
- Rukmi, H. S., Novirani, D., & Hada, A. (2017). Analisis Kepuasan Konsumen Terhadap Kualitas Pelayanan Toko Oleh-Oleh. *Jurnal Muara Ilmu Ekonomi Dan Bisnis*, 1(1), 115. <https://doi.org/10.24912/jmieb.v1i1.413>
- Sugandi, M. A., & Halim, R. M. N. (2020). Analisis End-User Computing Satisfaction (Eucs) Pada Aplikasi Mobile Universitas Bina Darma. *Sistemasi*, 9(1), 143. <https://doi.org/10.32520/stmsi.v9i1.625>
- Yasir, F. N., & Rusmala, R. (2021). Analisis Kepuasan Pengguna Terhadap Kualitas Google Classroom Sebagai Media E-Learning Menggunakan Webqual 4.0 (Studi Kasus: Fakultas Teknik Komputer *Proceeding KONIK (Konferensi Nasional ...)*, 0, 198–201.