JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

ANALYSIS OF THE QUALITY OF THE INFINITE LEARNING TRAINING COURSE WEBSITE AT INFINITE LEARNING USING THE WEBQUAL 4.0 METHOD AND IMPORTANCE PERFORMANCE ANALYSIS (IPA)

Ginanjar Ilmi Nur Avicena*[1)], Muhammad Al Makky[2)], Ikke Dian Oktaviani[3)]
1. School of Computing, Telkom University, Indonesia
2. School of Computing, Telkom University, Indonesia
3. School of Computing, Telkom University, Indonesia

Article Info
Keywords: Training Course; Webqual 4.0; Importance Performance Analysis; Infinite Learning;Website Evaluation

Article history:
Received 5 October 2024
Revised 9 November 2024
Accepted 10 December 2024
Available online 1 March 2025

DOI :
https://doi.org/10.29100/jipi.v10i1.6067

* Corresponding author.
Ginanjar Ilmi Nur Avicena
E-mail address:
venaginanjar3@gmail.com

ABSTRACT
The training course sector in Indonesia has experienced rapid development in recent years. Many institutions offer various training courses to enhance skills and knowledge across different fields, from information technology to human resource management, with one such institution being Infinite Learning. The objective of this research is to assess the quality of the website and identify the factors that can improve its quality. Utilizing the Webqual 4.0 method as an evaluation indicator and Importance Performance Analysis to categorize the factors into quadrants based on the analysis of Importance Performance Analysis. Before data grouping, validity tests, reliability tests, and gap analysis between user expectations and perceptions need to be conducted. This step aims to strengthen the conclusions and recommendations produced after the research is completed. After conducting the research, the final results show that the Infinite Learning training course website has not met user expectations. This is evident from the gap analysis, which resulted in a score of -0.63, indicating that user expectations or importance are higher than the performance of the Infinite Learning training course website. The results of this research show that all performance values of each attribute are greater than the Importance values, indicating that users are satisfied with the services of the Infinite Learning training course website, with the highest value in the dimension of interaction quality at 0.93.

.

I. INTRODUCTION

In recent years the training course sector in Indonesia has rapidly developed. According to data from the Ministry of Manpower, the number of training providers in Indonesia significantly increased from 4,515 in 2022 to 5,390 in 2023. Many institutions now offer a wide range of training courses to enhance skills and knowledge across various fields, from information technology to human resource management, with Infinite Learning being one of the prominent providers. Infinite Learning has established itself as a leading training provider in Indonesia, committed to offering up-to-date and market-relevant courses, particularly in the field of technology. Their services include courses tailored to current job market needs, supported by experienced instructors, as well as career consulting and coaching services.

To facilitate user access to all its services, Infinite Learning launched its official website, Infinite Learning Training Course [1]. This website allows users to view a variety of available courses, making it easier for them to choose courses of interest [2]. The Infinite Learning Training Course website features a user-friendly interface and intuitive navigation, ensuring a comfortable browsing experience [3]. Besides the course catalog, the website also provides up-to-date job vacancy information offered by Infinite Learning, demonstrating its commitment to guiding course participants in their career paths after completing the training. Despite these conveniences, the website has received some user complaints about its quality [4]. According to a pre-survey conducted by the author, users reported issues such as a lack of features, difficulties in purchasing courses, and incomplete course descriptions [5]. The quality of the website is crucial for a training course platform as it impacts user experience and the platform's ability to attract participants. The identified improvement needs will be mapped and evaluated in detail using the Webqual 4.0 method and Importance Performance Analysis (IPA) [6].

To address the challenges related to website quality, the use of the Webqual 4.0 method will provide a deep understanding of website quality evaluation from the user's perspective, highlighting the dimensions of usability, information quality, and interaction quality [7]. Meanwhile, the Importance Performance Analysis (IPA) method will help identify priority improvement needs by examining aspects considered important by users but not well met by the Infinite Learning Training Course website. By employing the Webqual 4.0 and Importance Performance Analysis (IPA) methods, the author's research is expected to offer in-depth insights on how to measure and provide improvement recommendations to enhance the quality of the Infinite Learning Training Course website.

The Infinite Learning Training Course website is an online platform providing learning and skill development in the IT environment. This website offers a series of vocational training courses across various skill areas [8]. Users of the Infinite Learning Training Course website include both administrators and the general public. User functionalities include purchasing courses, where users can select the courses they wish to attend [9]. Administrator functionalities include monitoring and maintaining the website [10]. The business process of the Infinite Learning Training Course website involves users selecting and viewing details about their desired courses, followed by being directed to personal contact services from Infinite Learning. Users are then given guidelines on how to purchase courses [11]. The author is one of the course participants from the Infinite Learning Training Course website. This website aims to provide a dynamic learning experience, offering modules that can be tailored to user needs. Users can choose from various courses, including programming, cybersecurity, software development, data analysis, network technology, and receive full support from experienced instructors [12].

In this study the Webqual 4.0 and Importance Performance Analysis (IPA) methods will assist in analyzing the quality of the website. The three dimensions underlying the Webqual 4.0 framework will form the foundation and benchmark for the questionnaire questions [13]. In the first dimension, usability quality, the questions will explore key aspects that affect the visual impression, clarity of the available content, and smooth navigation of the website. In the second dimension, information quality, the questions will explore essential aspects related to the accuracy, clarity, and relevance of the information available on the website [14]. The final dimension, interaction quality, will include questions related to the comfort of users interacting with the website and the website's responsiveness. Once all the questionnaire data is collected, the next step will be to map each element's position in quadrants that reveal urgency and performance through the Importance Performance Analysis (IPA) method. This process will identify the factors that should be the main priorities in website development, the factors that need improvement, the reference factors, and the factors that are not prioritized in the website's development.

Webqual 4.0 and Importance Performance Analysis (IPA) were chosen as evaluation methods in this study because they offer a comprehensive approach to assessing website quality. Webqual 4.0 evaluates three main dimensions—usability quality, information quality, and interaction quality—to provide an in-depth understanding of the user experience. Importance Performance Analysis (IPA) complements Webqual 4.0 by prioritizing improvements based on the importance and performance levels perceived by users, mapping indicators in a Cartesian diagram to determine development priorities. The combination of these two methods allows for a structured and strategic analysis to effectively enhance website quality according to user needs and expectations.

Webqual 4.0 and Importance Performance Analysis (IPA) were chosen as evaluation methods in this study because their effectiveness and validity have been demonstrated in various previous case studies. Study conducted by [15] used Webqual 4.0 to assess the quality of e-commerce websites, finding that the dimensions of usability, information quality, and interaction quality significantly influenced user satisfaction. Research by [16] in the education sector utilized IPA to identify improvement priorities for a university website, significantly enhancing user experience. These studies illustrate that the combination of Webqual 4.0 and IPA is not only relevant but also effective in the context of website quality evaluation, including in the e-learning and training sectors.

This study contributes to the existing literature and theories on website quality by applying the Webqual 4.0 and IPA approaches in the context of e-learning and the training sector in Indonesia. By evaluating and enhancing the quality of the Infinite Learning website, this research provides new insights into how aspects of usability, information quality, and interaction can be optimized to improve user experience. The results of this study offer practical recommendations for training website managers and enrich the academic discussion on website quality evaluation methodologies in the e-learning field. Through comprehensive findings and analysis, this research is expected to serve as a reference for future studies aiming to improve digital service quality in the education and training sectors.

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

II. METHODOLOGY

The purpose of this study is to evaluate the quality of the Infinite Learning Training Course website using the Webqual 4.0 method. Additionally, the Importance Performance Analysis (IPA) method is used to identify components that can be improved and prioritized on the website. This research aims to provide specific recommendations for the development of the Infinite Learning Training Course website. A structured sampling technique based on numerical and statistical data will be employed to collect quantitative data, categorizing this as quantitative research. The research process involves several systematic steps, beginning with a case study observation and problem identification. As the researcher is a user of the website, they have identified several issues to be studied and understand the appropriate techniques to address these issues. The next steps include setting objectives and hypotheses based on the case study, conducting related research for reference and comparison, and designing a questionnaire based on Webqual 4.0 dimensions: usability, information, and interactivity. Ensuring data validity through testing precedes data analysis using the IPA method. This approach aims to achieve the research objectives and produce conclusions and recommendations to improve the quality of the Infinite Learning Training Course website.

A. Data Source

The data collection methods for this study include literature review and questionnaires. The literature review aims to explore existing knowledge and methods related to the research, providing a supportive reference and understanding of current developments in the field. The questionnaire, conducted using Google Forms, collects quantitative data through responses to questions about the Infinite Learning Training Course website, based on the Webqual 4.0 dimensions. A rating scale from one to five is used, where one indicates strong disagreement and five indicates strong agreement. The questionnaire includes questions based on indicators from the Webqual 4.0 dimensions. The operational variables and their indicators are detailed as follows: usability quality (ease of learning, clarity, competence, ease of use, navigation, attractive design, appropriateness for the site type, and positive impact), information quality (trustworthiness, accuracy, timeliness, completeness, comprehensibility, relevance, and proper formatting), and interaction quality (ease of communication, personalization, and reputation).

B. Population and Sample

Population encompasses all components meeting the same criteria, which can include individuals in a group or objects being studied [17]. The criteria for the population in this study are as follows: customers of Infinite Learning Training Course, employees of Infinite Learning Training Course, and individuals who have used the Infinite Learning Training Course website. That when the total population is not precisely known, the Bernoulli sampling method is applied using the formula:

$$n \geq \frac{(\frac{Z\alpha}{2}).p.q}{e^2} \quad (1)$$

Where n is the minimum sample size, Z is the standard normal distribution value, α is the level of precision, p is the probability of rejection, q is the probability of acceptance $(1-p)$, and e is the error margin. This study sets the precision level at 5% and confidence level at 95%, giving a Z value of 1.96. The probabilities of acceptance (q) and rejection (p) are both 0.5, with a 5% error margin. The calculation yields:

$$n \geq \frac{[1{,}96]^2[0{,}5][0{,}5]}{[0{,}05]^2} = 384{,}15 \quad (2)$$

Thus the required sample size for the study is approximately 384 respondents.

To test the validity and reliability of the questionnaire used in this study, several tools and statistical techniques will be applied. Validity will be tested using Construct Validity through Confirmatory Factor Analysis (CFA) to ensure that the items accurately measure the intended constructs. The Pearson correlation will be utilized for item validity testing, while the reliability of the questionnaire will be evaluated using Cronbach's Alpha coefficient, with values above 0.70 indicating acceptable reliability. Additionally, test-retest reliability will be conducted to check the temporal consistency of the questionnaire by administering it to the same respondents at different times and comparing the results.

The data collected from the questionnaire will be analyzed using the Importance Performance Analysis (IPA) method. This process includes calculating the mean scores for each importance and performance indicator and plotting these scores on an IPA Cartesian diagram divided into four quadrants: Concentrate Here, Keep Up the

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

Good Work, Low Priority, and Possible Overkill. These quadrants help identify areas requiring immediate improvement, those meeting user expectations, less important areas, and areas potentially receiving excessive attention. Gap analysis will also be performed to determine the differences between importance and performance scores, providing deeper insights into improvement priorities. The specific steps in the IPA analysis involve calculating the average scores for usability, information, and interaction quality dimensions, mapping these scores onto the IPA diagram, and interpreting the results to prioritize enhancements.

The results of this research will be validated through a pilot test of the questionnaire to ensure its clarity and effectiveness. This initial test will allow for adjustments based on feedback before the main data collection. Furthermore, comparative analysis with similar studies will be conducted to evaluate the consistency of the findings. Reviewing previous research that employed Webqual 4.0 and IPA in similar contexts will ensure that this study's results align with established findings, thereby reinforcing the effectiveness and relevance of the chosen methods. This approach not only validates the research outcomes but also strengthens the argument for using these methodologies in evaluating and improving the quality of e-learning and training websites.

III. Results and Discussion

The data for this study were collected using structured sampling techniques and questionnaires distributed to respondents via Google Forms. Respondents were selected based on specific criteria: they had to be employees, customers, or users of the Infinite Learning training course website. A total of 384 respondents participated, with the sample size determined using the Bernoulli formula to ensure statistical validity. While efforts were made to gather a representative sample, there is potential for selection bias, as the respondents were primarily self-selected and may have had a predisposition towards providing positive or negative feedback based on their personal experiences with the website. To mitigate this, the sample included a diverse range of users to capture a broad spectrum of perspectives.

Table 1 describes the categories perceived by the respondents, with a minimum value of 47.00 and a maximum value of 84.00. The mean value obtained is 69.9714, with a standard deviation of 4.84611 and a variance of 23.485. For the expectation category, the minimum value is 38.00, the maximum value is 70.00, the mean value is 54.5130, the standard deviation is 4.12783, and the variance is 17.039. After conducting the research and collecting all responses, a total of 384 respondents were obtained from the distributed questionnaires. In descriptive analysis, a range value is needed to determine the category results for each variable.

TABLE I
Descriptive Analysis

Category	*Min*	*Max*	*Mean*	St. Deviation	Variant
Feel it	47.00	84.00	69.9714	4.84611	23.485
Hope	38.00	70.00	54.5130	4.12783	17.039

In this study a scale of 1 to 5 was used. For the cumulative calculation, the largest cumulative value is obtained by multiplying the number of respondents by the highest scale value, which is 5, and the smallest cumulative value by multiplying the number of respondents by the lowest scale value, which is 1. Here is the calculation for the cumulative values:

$$Largest\ cumulative\ value = 384\ x\ 5 = 1920$$
$$Smallest\ cumulative\ value = 384\ x\ 1 = 384$$

The percentage value is the cumulative value divided by the frequency value. The frequency value is derived from the largest cumulative value, which is 1920. Therefore, the calculations are as follows:

$$Highest\ percentage = \frac{1920}{1920} \times 100\% = 100\%$$
$$\text{Lowest percentage} = \frac{384}{1920} \times 100\% = 20\%$$

After obtaining the percentage values, the range value is calculated by subtracting the smallest percentage from the largest percentage and then dividing by the number of scales, which is 5. The range value calculation is as follows:

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

$$\text{Range value} = \frac{100\% - 20\%}{5} = 16$$

The range values on a continuum line can be used to categorize data into five different categories. In this study, the categories used are "Very Not Good," "Not good," "Pretty good," "Good," and "Very Good," which describe the quality of something based on its range values. The study also uses the categories "Very unimportant," "Not important," "Quite important," "Important," and "Very Important" to assess the importance level of something. The use of this continuum line facilitates the process of grouping data based on its quality or importance, providing a systematic and structured framework for analyzing and presenting information more clearly and measurably.

A. Respondents Responses to Performance and Importance in Usability Variables

Which presents the results of a study involving 384 respondents evaluating the usability performance of the Infinite Learning Training Course website. Each statement reflects respondents' opinions on different aspects of the website, such as ease of operation, clarity, competence, navigation, and attractiveness. The scores for each statement are calculated as percentages, with overall usability performance reaching 71% of the ideal score. This indicates a generally positive response, suggesting that users find the website usable and effective for its intended purpose. Based on the data presented several conclusions can be drawn:

1. The score for statement 1 is 1488, indicating that 77% of respondents agree that the Infinite Learning training course website is easy to understand.
2. The score for statement 2 is 1517, showing that 79% of respondents agree that the Infinite Learning training course website is clear and easy to comprehend.
3. The score for statement 3 is 1483, with 77% of respondents agreeing that the Infinite Learning training course website is competent.
4. The score for statement 4 is 1464, indicating that 76% of respondents agree that the Infinite Learning training course website is easy to use.
5. The score for statement 5 is 1487, with 77% of respondents agreeing that the Infinite Learning training course website has good navigation.
6. The score for statement 6 is 1488, showing that 77% of respondents agree that the Infinite Learning training course website is visually appealing.
7. The score for statement 7 is 1511, indicating that 78% of respondents agree that the design of the Infinite Learning training course website is appropriate for a training course website.
8. The score for statement 8 is 1470, with 76% of respondents agreeing that the Infinite Learning training course website has a positive impact on users.

Based on the data, the total score for the usability performance variable is 10,908, which equals 71%. This percentage, as shown on the continuum line, suggests that the usability performance of the Infinite Learning training course website is categorized as good.

TABLE 2
USABILITY VARIABLE PERFORMANCE CONTINUUM LINE

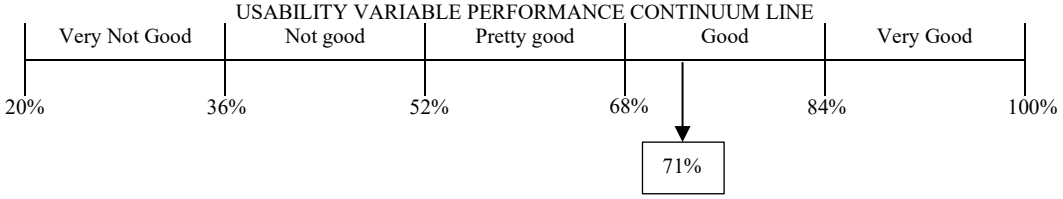


Table 2 presents the results of the study containing responses from 384 respondents regarding the importance of the Infinite Learning training course website based on the usability variable.

TABLE 3
RESPONDENTS' RESPONSES TO THE IMPORTANCE OF THE USABILITY VARIABLE

No	Statement	Usability Importance								
		Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
1	I find website operation easy to understand	12	25	291	49	7	384	1166	60%	1920
2	I feel the appearance of the website is clear and easy to understand	3	25	316	35	5	384	1166	60%	1920

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

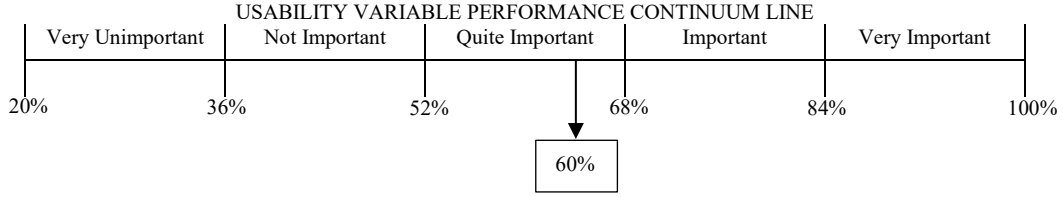
Usability Importance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
3	I feel the website has good competence	6	18	311	41	8	384	1179	61%	1920
4	I find the website easy to use	8	21	308	35	12	384	1174	61%	1920
5	I feel the website has good navigation	8	30	309	28	9	384	1152	60%	1920
6	I feel the website has an attractive appearance	7	36	299	33	9	384	1153	60%	1920
7	I feel that the appearance of the website is appropriate to the type of site (training course website)	8	31	309	31	5	384	1146	59%	1920
8	I feel the website has a positive impact on users	11	36	290	42	5	384	1146	59%	1920
		Total Score						**9282**	**60%**	**15360**

Based on the data presented in Table 3, several conclusions can be summarized as follows:

1. The score for statement 1 is 1166, indicating that the importance level of the indicator "The operation of the Infinite Learning training course website is easy to understand" reaches 60%.
2. The score for statement 2 is also 1166, suggesting that the importance level of the indicator "The appearance of the Infinite Learning training course website is clear and easy to understand" is 60%.
3. The score for statement 3 is 1179, showing that the importance level of the indicator "The Infinite Learning training course website is competent" reaches 61%.
4. The score for statement 4 is 1174, indicating that the importance level of the indicator "The Infinite Learning training course website is easy to use" is 61%.
5. The score for statement 5 is 1152, suggesting that the importance level of the indicator "The Infinite Learning training course website has good navigation" is 60%.
6. The score for statement 6 is 1153, indicating that the importance level of the indicator "The Infinite Learning training course website is visually appealing" is 60%.
7. The score for statement 7 is 1146, showing that the importance level of the indicator "The appearance of the Infinite Learning training course website is appropriate for a training course website" is 59%.
8. The score for statement 8 is 1146, suggesting that the importance level of the indicator "The Infinite Learning training course website has a positive impact on users" is 59%.

In Table 3, it can be observed that the total score for the importance of the usability variable is 9282, equivalent to 60%. According to the continuum line, this percentage score indicates that the importance level of the usability variable for the Infinite Learning training course website falls into the important category.

TABLE 4
USABILITY VARIABLE PERFORMANCE CONTINUUM LINE



B. Respondents Responses to Performance and Importance in the Quality Performance Variable

Table 5 presents the results of the study containing responses from 384 respondents regarding the performance of the Infinite Learning Training Course website based on the information quality variable.

TABLE 5
RESPONDENTS' RESPONSES TO THE IMPORTANCE OF INFORMATION QUALITY VARIABLES

Information Quality Performance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
1	I feel the website provides accurate information	11	17	39	277	53	384	1546	80%	1920
2	I feel the information on the website is trustworthy	4	12	44	280	44	384	1500	78%	1920

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

Information Quality Performance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
3	I feel that the information provided by the website is always up to date	4	15	65	261	39	384	1468	76%	1920
4	I feel the website provides relevant information	7	21	38	276	42	384	1477	76%	1920
5	I feel the website provides information in language that is easy to understand	3	23	65	259	34	384	1450	75%	1920
6	I feel the website provides complete and detailed information	5	10	32	308	29	384	1498	78%	1920
7	I feel the website provides information in an appropriate format	2	8	33	302	39	384	1520	79%	1920
	Total Score							**10448**	**77%**	**13440**

Based on the data in Table 5, several conclusions can be drawn:

1. The score for statement 1 is 1546, indicating that 80% of respondents agree that the Infinite Learning Training Course website provides accurate information.
2. The score for statement 2 is 1500, showing that 78% of respondents agree that the information on the Infinite Learning Training Course website is trustworthy.
3. The score for statement 3 is 1468, with 76% of respondents agreeing that the information provided by the Infinite Learning Training Course website is always up-to-date.
4. The score for statement 4 is 1477, indicating that 76% of respondents agree that the Infinite Learning Training Course website provides relevant information.
5. The score for statement 5 is 1450, showing that 75% of respondents agree that the Infinite Learning Training Course website provides information in easily understandable language.
6. The score for statement 6 is 1498, with 78% of respondents agreeing that the Infinite Learning Training Course website provides complete and detailed information.
7. The score for statement 7 is 1520, indicating that 79% of respondents agree that the website presents information in an appropriate format.

In Table 6, it can be observed that the total score for the performance of the information quality variable is 10,448, equating to 77%. According to the continuum line, this percentage score indicates that the performance of the information quality variable for the Infinite Learning Training Course website falls into the good category.

TABLE 6
USABILITY VARIABLE PERFORMANCE CONTINUUM LINE

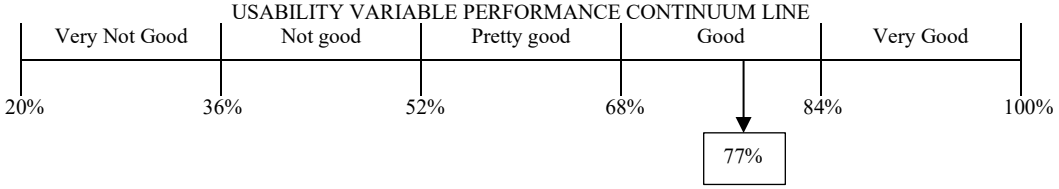


Table 7 presents the results of the study containing responses from 384 respondents regarding the importance of the Infinite Learning Training Course website based on the information quality variable.

TABLE 7
RESPONDENTS' RESPONSES TO THE IMPORTANCE OF INFORMATION QUALITY VARIABLES

Information Quality Importance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
1	I feel the website provides accurate information	11	36	290	42	13	384	1186	61%	1920
2	I feel the information on the website is trustworthy	5	36	303	36	4	384	1091	56%	1920
3	I feel that the information provided by the website is always up to date	10	29	320	20	5	384	1133	59%	1920
4	I feel the website provides relevant information	4	22	320	32	6	384	1166	60%	1920

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

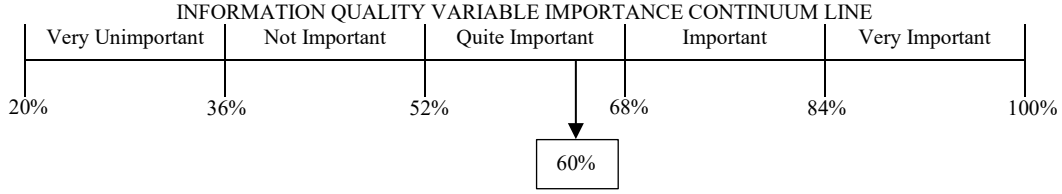
Information Quality Importance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
5	I feel the website provides information in language that is easy to understand	4	19	324	33	3	384	1161	60%	1920
6	I feel the website provides complete and detailed information	4	17	324	33	6	384	1172	61%	1920
7	I feel the website provides information in an appropriate format	2	23	315	37	7	384	1176	61%	1920
	Total Score							**8085**	**60%**	**13440**

Based on the data presented in Table 7, several conclusions can be summarized as follows:

1. The score for statement 1 is 1186, indicating that the importance level of the indicator "The operation of the Infinite Learning Training Course website provides accurate information" reaches 61%.
2. The score for statement 2 is 1091, suggesting that the importance level of the indicator "The information on the Infinite Learning Training Course website is trustworthy" reaches 56%.
3. The score for statement 3 is 1133, showing that the importance level of the indicator "The information provided by the Infinite Learning Training Course website is always up-to-date" reaches 59%.
4. The score for statement 4 is 1166, indicating that the importance level of the indicator "The Infinite Learning Training Course website provides relevant information" reaches 60%.
5. The score for statement 5 is 1161, suggesting that the importance level of the indicator "The Infinite Learning Training Course website provides information in easily understandable language" reaches 60%.
6. The score for statement 6 is 1172, showing that the importance level of the indicator "The Infinite Learning Training Course website provides complete and detailed information" reaches 61%.
7. The score for statement 7 is 1176, indicating that the importance level of the indicator "The Infinite Learning Training Course website presents information in an appropriate format" reaches 61%.

In Table 8, it can be observed that the total score for the importance of the information quality variable is 8085, equating to 60%. According to the continuum line, this percentage score indicates that the importance level of the information quality variable for the Infinite Learning Training Course website falls into the very important category.

TABLE 8
INFORMATION QUALITY VARIABLE IMPORTANCE CONTINUUM LINE



C. *Respondents Responses to Performance and Importance in the Interaction Quality Variable*

Table 9 is the result of research containing responses from 384 respondents regarding the performance of the infinite learning training course website based on the interaction quality variable.

TABLE 9
RESPONDENTS' RESPONSES TO THE PERFORMANCE VARIABLE INTERACTION QUALITY

Interaction Quality Performance										
No	Statement	Respondent's Answer					Number of Responses	Score	Percentage se Score	Ideal Score
		1	2	3	4	5				
1	I feel the website has a good reputation	2	7	35	309	31	384	1512	78%	1920
2	I feel the website provides room for personalization	0	7	26	318	33	384	1529	79%	1920
3	I feel the website makes it easy to communicate	0	7	26	318	54	384	1634	85%	1920
	Total Score							**4675**	**81%**	**5760**

Based on the data in Table 9, several conclusions can be drawn:

1. The score for statement 1 is 1512, indicating that 78% of respondents agree that the Infinite Learning

Training Course website has a good reputation.

2. The score for statement 2 is 1529, showing that 79% of respondents agree that the Infinite Learning Training Course website allows for personalization.
3. The score for statement 3 is 1634, revealing that 85% of respondents agree that the information provided by the Infinite Learning Training Course website facilitates communication.

In Table 10, it can be observed that the total score for the performance of the interaction quality variable is 4675, equating to 81%. According to the continuum line, this percentage score indicates that the performance of the interaction quality variable for the Infinite Learning Training Course website falls into the good category.

TABLE 10
INTERACTION QUALITY VARIABLE PERFORMANCE CONTINUUM LINE

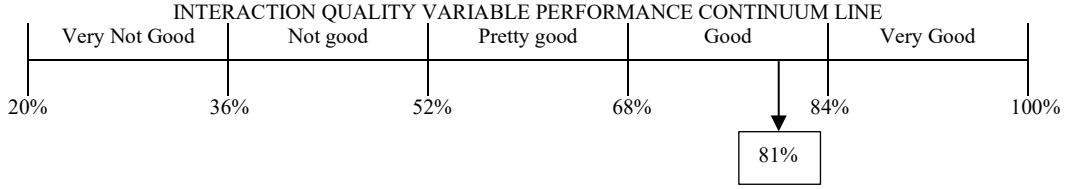


Table 11 is the result of research containing responses from 384 respondents regarding the importance of the infinite learning training course website based on the interaction quality variable.

TABLE 11
RESPONDENT RESPONSES IMPORTANCE VARIABLE INTERACTION QUALITY

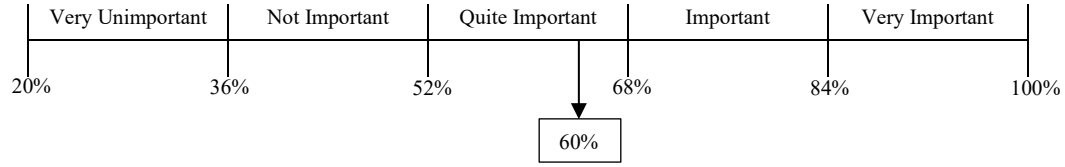
No	Statement	Interaction *Quality Importance* Respondent's Answer					Number of Responses	Score	Percentage Score	Ideal Score
		1	2	3	4	5				
1	I feel the website has a good reputation	9	13	321	34	7	384	1169	60%	1920
2	I feel the website provides room for personalization	12	8	339	19	6	384	1151	59%	1920
3	I feel the website makes it easy to communicate	12	8	339	19	5	384	1146	59%	1920
	Total Score							**3466**	**60%**	**5760**

Based on the data in Table 11, several conclusions can be summarized as follows:

1. The score for statement 1 is 1169, indicating that the importance level of the indicator "The Infinite Learning Training Course website has a good reputation" reaches 60%.
2. The score for statement 2 is 1151, showing that the importance level of the indicator "The information on the Infinite Learning Training Course website allows for personalization" reaches 59%.
3. The score for statement 3 is 1146, indicating that the importance level of the indicator "The information provided by the Infinite Learning Training Course website facilitates communication" reaches 59%.

In Table 12, it can be observed that the total score for the importance of the interaction quality variable is 3466, equating to 60%. According to the continuum line, this percentage score indicates that the importance level of the interaction quality variable for the Infinite Learning Training Course website falls into the moderately important category.

TABLE 12
CONTINUUM LINE RANGE



D. Gap Analysis

The average of the perceived perception variable indicators and the average of the expectation variable indicators can be used to determine the Gap Analysis, with the following results:

TABLE 13
GAP ANALYSIS

No	Variable	Average Test	Expected Average	Average Gap
		Usability		
1	US1	3,88	3,04	0,84
2	US2	3,95	3,04	0,91

JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika)
Journal homepage: https://jurnal.stkippgritulungagung.ac.id/index.php/jipi
ISSN: 2540-8984
Vol. 10, No. 1, Maret 2025, Pp. 749-761

No	Variable	Average Test	Expected Average	Average Gap
		Usability		
3	US3	3,86	3,07	0,79
4	US4	3,81	3,06	0,76
5	US5	3,87	3,00	0,87
6	US6	3,88	3,00	0,87
7	US7	3,93	2,98	0,95
8	US8	3,83	2,98	0,84
		Average		0,85
		Information Quality		
1	IQ1	3,90	3,10	0,80
2	IQ2	3,91	2,99	0,91
3	IQ3	3,82	2,95	0,87
4	IQ4	3,85	3,04	0,81
5	IQ5	3,78	3,08	0,70
6	IQ6	3,90	3,05	0,85
7	IQ7	3,96	3,06	0,90
		Average		0,83
		Interaction Quality		
1	InQ1	3,94	3,04	0,89
2	InQ2	3,98	3,00	0,98
3	InQ3	3,93	3,02	0,91
		Average		0,93

Table 13 describes the results, showing the average score for the Usability variable at 0.85, the Information Quality variable at 0.83, and the Interaction Quality variable at 0.93. Overall, the gap values shown in Table 13 are > 0, indicating that the performance level of the case study is higher than the importance level of the Infinite Learning Training Course website. However, these indicators can still be improved for each attribute. Therefore, the Importance Performance Analysis (IPA) method is needed to enhance each variable. This method will divide the variables into four quadrants, which will be placed into a Cartesian diagram.

E. Quadrant Analysis Using Natural Science

The Importance-Performance Analysis technique can be used to identify variables that require improvement. The results of the Importance-Performance Analysis quadrant will indicate the indicators that need to be prioritized for improvement and the variables that have met user expectations. These results will be visualized in a four-quadrant diagram. The findings from the Importance-Performance Analysis quadrant can be examined in the Cartesian diagram shown in Figure 1, with the results as follows:

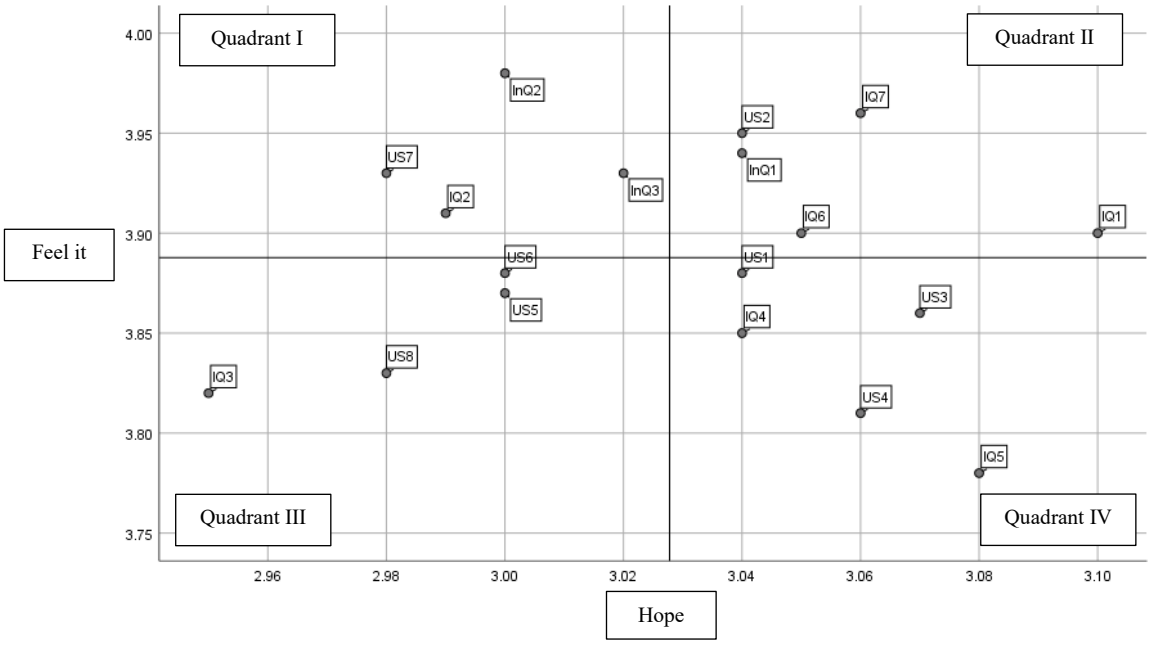


Fig. 1. Cartesian Diagram of Natural Science Analysis

Quadrant I includes indicators considered important by users but currently not meeting their expectations, making these the top priority for improvement. The four main indicators in this quadrant are US7, IQ2, InQ2, and

InQ3. Quadrant II contains indicators that have already met user expectations. There are five indicators here, which need to be maintained to continue meeting user expectations: US2, IQ1, IQ6, IQ7, and InQ1. Quadrant III shows indicators that require less attention as user expectations for these attributes are low. The four indicators in this quadrant are US5, US6, US8, and IQ3, indicating minimal user concern. Quadrant IV comprises indicators that are not highly urgent but are of good quality, suggesting that focus can be shifted to other indicators needing more attention. The five indicators in this quadrant are US1, US3, US4, IQ4, and IQ5.

F. Descriptif Analysis

The descriptive analysis results regarding user perceptions of the Infinite Learning Training Course website show a minimum score of 47.00, indicating that some respondents rated the website usage poorly. This low rating could be due to unmet needs or unsatisfactory experiences. Conversely, a maximum score of 84.00 indicates that some respondents rated the website very highly, reflecting a high level of satisfaction among these users. The mean score of 69.9714 suggests that overall, respondents tend to have a positive view of the website, indicating general user satisfaction. The standard deviation of 4.84611 shows variability in user ratings, meaning that while most users are satisfied, there is a range of satisfaction levels among them.

The variance of 23.485 indicates how spread out the respondents' ratings are from the average score. A larger variance suggests a wider spread of data from the mean value. The standard deviation of 4.84611 confirms that there is variability in how respondents perceive their experience with the website. Although the overall perception is positive, individual satisfaction levels vary. Meanwhile, the research on user expectations for the website reveals important insights. A minimum expectation score of 38.00 shows the lowest level of service quality that respondents expect from the website, while a maximum expectation score of 70.00 indicates diverse expectations for service quality. The mean expectation score of 54.5130 represents the average service quality that users hope to receive from the Infinite Learning Training Course website. The standard deviation of 4.12783 and variance of 17.039 illustrate the range and dispersion of user expectations from the average expected service quality.

G. Gap Analysis

The results from Table 6 indicate a positive perception from users regarding the Infinite Learning Training Course website. The evaluation was conducted across three main aspects: Usability, Information Quality, and Interaction Quality. Usability received an average score of 0.85, suggesting that users find the website easy to use, which is crucial for maintaining user comfort when accessing educational content. Information Quality scored an average of 0.83, indicating that the information provided on the website is considered high-quality and valuable by users. High information quality ensures that users gain maximum benefit from the offered content. Interaction Quality achieved the highest average score of 0.93, reflecting that users find it easy to interact with the website and its support tools, such as navigation, information search, and other interactive features. This score indicates high user satisfaction with the website's interactive elements.

The research findings show that the Infinite Learning Training Course website successfully provides an easy-to-use platform, high-quality information, and a satisfying interactive experience for its users. These results strongly suggest that the website has been designed and implemented with user needs in mind. Thus, the findings offer valuable insights for developers and website managers to continuously improve the quality and effectiveness of the Infinite Learning Training Course website.

H. Quadrant Analysis with IPA (Importance-Performance Analysis)

The Importance-Performance Analysis (IPA) technique is a highly effective method for assessing and enhancing the quality of services or products. By using IPA, one can identify which variables require improvement and which already meet user expectations. The analysis results are then displayed in a Cartesian diagram that divides the variables into four quadrants, providing clear guidance on the areas needing more attention [18].

1. Quadrant I: "Concentrate Here" Quadrant I involves indicators that are very important to users but currently underperforming. The indicators in this quadrant, such as US7, IQ2, InQ2, and InQ3, highlight critical elements that need immediate improvement due to their direct impact on user satisfaction. The primary focus in Quadrant I is to address the gap between expectations and reality.
2. Quadrant II: "Keep Up the Good Work" Indicators in Quadrant II have met user expectations and are performing well. The five indicators in this quadrant—US2, IQ1, IQ6, IQ7, and InQ1—should maintain their quality to continue satisfying users. Maintaining standards in Quadrant II is essential to ensure ongoing user satisfaction.

3. Quadrant III: "Low Priority" Quadrant III contains indicators that users consider less important. Indicators such as US5, US6, US8, and IQ3 do not have high expectations or priority from users. While not completely disregarded, they have a lower impact on the overall user experience and are not a top priority for improvement.
4. Quadrant IV: "Possible Overkill" Quadrant IV includes indicators that perform well but are not deemed very important by users. The five indicators—US1, US3, US4, IQ4, and IQ5—might not need further attention or resource investment. Resources could be better allocated to more urgent areas.

The IPA mapping is very useful for providing strategic direction for development and management. Prioritizing improvements in Quadrant I and maintaining quality in Quadrant II, while balancing resources for Quadrants III and IV, can effectively enhance user satisfaction and overall performance.

Comparatively, studies such as those conducted by [19] and [20] have shown similar findings using IPA in different contexts. Barnes and Vidgen applied IPA to e-commerce websites and found that usability and information quality were crucial for user satisfaction, aligning with the results of this study where these dimensions also appeared in Quadrants I and II. Arifin and Firdaus focused on university websites, identifying critical areas for improvement similar to those found in this research, such as navigation and information clarity. These previous studies validate the findings of this research, demonstrating that the IPA method is robust and applicable across various domains, including e-learning and training platforms.

Additionally, the consistency of findings across different studies strengthens the argument for using Webqual 4.0 and IPA methodologies. The recurring importance of usability and information quality in ensuring user satisfaction highlights the universal applicability of these dimensions. This study's results contribute to the broader literature by confirming that these key factors remain significant in the context of online training platforms. By addressing the specific indicators identified in Quadrant I and maintaining the standards of those in Quadrant II, Infinite Learning can ensure that their website meets and exceeds user expectations, much like the improvements observed in the referenced studies.

The relationship between perceived value and expectations in this study reveals significant gaps in certain areas, highlighting critical insights for stakeholders. The IPA analysis identified key indicators in Quadrant I ("Concentrate Here") where user expectations significantly exceed their current perceptions, such as US7 (ease of navigation), IQ2 (accuracy of information), InQ2 (personalization), and InQ3 (ease of communication). These gaps suggest that stakeholders, such as website developers and course administrators, need to prioritize these areas for improvement to enhance user satisfaction. By addressing these discrepancies, stakeholders can ensure that the Infinite Learning training course website better meets user needs, leading to increased user engagement and satisfaction. Practical implications include investing in user-friendly navigation tools, ensuring the accuracy and relevance of information, and enhancing interactive features to facilitate better communication and personalization.

This study has several limitations that need to be acknowledged. Firstly, the sample may have inherent biases, as respondents were primarily self-selected, potentially skewing the results towards those with strong opinions about the website. Additionally, the study focused solely on the Webqual 4.0 dimensions (usability, information quality, and interaction quality), potentially overlooking other critical factors such as website aesthetics, loading speed, or external factors like competitor websites. These unmeasured variables could influence user satisfaction and perceptions, indicating that future research should consider a broader range of variables. Moreover, the cross-sectional nature of the study captures user perceptions at a single point in time, which may not reflect long-term user experiences or changes over time. Longitudinal studies could provide more comprehensive insights into how user perceptions and expectations evolve, offering a more detailed understanding of areas needing continuous improvement.

IV. CONCLUSION

Based on the collected data and comprehensive analysis, the following conclusions present the main findings, practical implications, and recommendations for improvement and future research. These conclusions aim to provide useful insights for further development of the Infinite Learning training course website, enhancing quality and ensuring user satisfaction. The conclusions are as follows:

1. The research results with gap analysis show positive user perceptions of the Infinite Learning training course website across three main aspects: Usability Quality (ease of use) with an average score of 0.85, Information Quality with an average score of 0.83, and Interaction Quality with the highest average score

of 0.93. These results indicate that the website successfully provides an easy-to-use platform, high-quality information, and a satisfying interactive experience. This suggests that the website has been well-designed and implemented to meet user needs, providing valuable feedback for further development to improve the quality and effectiveness of the training course website.

2. The Importance Performance Analysis (IPA) technique is highly effective for assessing and improving service or product quality. IPA identifies variables needing improvement and those meeting user expectations, displaying them in a Cartesian diagram divided into four quadrants. Quadrant I, "Concentrate Here," involves indicators crucial to users but currently underperforming, such as US7, IQ2, InQ2, and InQ3, which require immediate enhancement to address the gap between expectations and reality. IPA mapping provides strategic direction for development and management, allowing developers to prioritize improvements in Quadrant I, maintain quality in Quadrant II, and balance resources for Quadrants III and IV, effectively boosting user satisfaction and overall performance.
3. Improvement recommendations for Quadrant I indicators include developing interactive features like discussion forums for US7, where users can interact, ask questions, and share information. For IQ2, there is a need for transparency and credibility, such as showcasing instructor profiles and certifications and course accreditations. InQ2 can be improved with real-time updates and notifications about relevant updates or additional materials for ongoing courses. Lastly, InQ3 can be enhanced by highlighting positive reviews, selecting outstanding learning experiences, and displaying them as featured testimonials on the main or course pages.

REFERENCES

[1] E.-S. T. Abumandour, "Public libraries' role in supporting e-learning and spreading lifelong education: a case study," *J. Res. Innov. Teach. Learn.*, vol. 14, no. 2, pp. 178–217, 2021, doi: 10.1108/jrit-06-2019-0063.

[2] T. Muthuprasad, S. Aiswarya, K. S. Aditya, and G. K. Jha, "Students' perception and preference for online education in India during COVID -19 pandemic," *Soc. Sci. Humanit. Open*, vol. 3, no. 1, p. 100101, 2021, doi: 10.1016/j.ssaho.2020.100101.

[3] M. Labib Jundillah, J. Endro Suseno, and B. Surarso, "Evaluation of E-learning Websites Using the Webqual Method and Importance Performance Analysis," *E3S Web Conf.*, vol. 01, no. 201 9, pp. 1–5, 2010, [Online]. Available: https://doi.org/10.1051/e3sconf/201

[4] J. F. Andry, K. Christianto, and F. R. Wilujeng, "Using Webqual 4.0 and Importance Performance Analysis to Evaluate E-Commerce Website," *J. Inf. Syst. Eng. Bus. Intell.*, vol. 5, no. 1, p. 23, 2019, doi: 10.20473/jisebi.5.1.23-31.

[5] J. Jiang, "A systematic review for identifying instructional design strategies A systematic review for identifying instructional design strategies and principles in extended massive open online courses and principles in extended massive open online courses (xMOOCs)," *West. Univ.*, vol. 81, no. 24, 2021, [Online]. Available: https://ir.lib.uwo.ca/etdhttps://ir.lib.uwo.ca/etd/8124

[6] I. S. Utami, Winarno, and H. Setiadi, "Analysis the Effect of Website Quality on User Satisfaction with the WebQual 4.0 Method and Importance-Performance Analysis (IPA) (Case Study: SPMB Sebelas Maret University's Website)," *J. Phys. Conf. Ser.*, vol. 1842, no. 1, pp. 0–8, 2021, doi: 10.1088/1742-6596/1842/1/012003.

[7] J. A. Martilla, And, and J. C. James, "Importance-Per Analysis," *J. Mark.*, vol. 41, no. 1, pp. 77–79, 2010.

[8] A. F. Tarasov, I. A. Getman, S. S. Turlakova, I. I. Stashkevych, and S. M. Kozmenko, "Methodical aspects of preparation of educational content on the basis of distance education platforms," *CEUR Workshop Proc.*, vol. 2643, pp. 161–173, 2020, doi: 10.55056/cte.326.

[9] J. Li and Z. Ye, "Course Recommendations in Online Education Based on Collaborative Filtering Recommendation Algorithm," *Complexity*, vol. 2020, 2020, doi: 10.1155/2020/6619249.

[10] Y.-K. Huang, W.-S. Fan, M.-C. Tsai, and Y.-H. Ho, "Using Importance-Performance Analysis in Evaluating Taiwan Blog e-Service Quality," *J. Econ. Bus. Manag.*, vol. 3, no. 3, pp. 338–345, 2015, doi: 10.7763/joebm.2015.v3.206.

[11] P. G. M. de Jong, J. D. Pickering, R. A. Hendriks, B. J. Swinnerton, F. Goshtasbpour, and M. E. J. Reinders, "Twelve tips for integrating massive open online course content into classroom teaching," *Med. Teach.*, vol. 42, no. 4, pp. 393–397, 2020, doi: 10.1080/0142159X.2019.1571569.

[12] G. Nalli, D. Amendola, A. Perali, and L. Mostarda, "Comparative analysis of clustering algorithms and moodle plugin for creation of student heterogeneous groups in online university courses," *Appl. Sci.*, vol. 11, no. 13, 2021, doi: 10.3390/app11135800.

[13] W. N. W. Ab Rahman, H. Zulzalil, I. Ishak, and A. W. Selamat, "Analysis of web content quality factors for massive open online course using the rasch model," *Int. J. Adv. Comput. Sci. Appl.*, vol. 11, no. 3, pp. 578–587, 2020, doi: 10.14569/ijacsa.2020.0110373.

[14] I. S. Utami, Winarno, and H. Setiadi, "Analysis the Effect of Website Quality on User Satisfaction with the WebQual 4.0 Method and Importance-Performance Analysis (IPA) (Case Study: SPMB Sebelas Maret University's Website)," *J. Phys. Conf. Ser.*, vol. 1842, no. 1, 2021, doi: 10.1088/1742-6596/1842/1/012003.

[15] R. A. Nugraha, D. Andriyanto, D. Riana, and S. N. Khasanah, "Analysis of Factors Affecting Quality of corona.jatengprov.go.id Website towards User Satisfaction using Webqual 4.0 Method," *J. Phys. Conf. Ser.*, vol. 1641, no. 1, pp. 0–6, 2020, doi: 10.1088/1742-6596/1641/1/012066.

[16] I. G. N. S. Wijaya, E. Triandini, E. T. G. Kabnani, and S. Arifin, "E-commerce website service quality and customer loyalty using WebQual 4.0 with importance performances analysis, and structural equation model: An empirical study in shopee," *Regist. J. Ilm. Teknol. Sist. Inf.*, vol. 7, no. 2, pp. 107–124, 2021, doi: 10.26594/register.v7i2.2266.

[17] Sugiyono, "Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta. Badan," 2019.

[18] G. D. G. E. Sidabutar, J. A. Seah, and Y. A. Singgalen, "Analysis and Design of Web-based Information System for Coffeeshop Management using Design Thinking Methodology: Case of Kopi KurangLebih," *J. Inf. Syst. Informatics*, vol. 5, no. 1, pp. 217–231, 2023, doi: 10.51519/journalisi.v5i1.455.

[19] D. Dhayita, M. Aryanti, and D. Jatnika, "User Satisfaction Analysis of the Regular Live Unpad Learning Management System Website with Webqual 4 . 0 and Importance Performance Analysis Methods," *Int. J. Soc. Heal.*, vol. 3, no. 6, pp. 341–350, 2024.

[20] M. L. Hamzah, R. F. Rahmadhani, and A. A. Purwati, "An Integration of Webqual 4.0, Importance Performance Analysis and Customer Satisfaction Index on E-Campus," *J. Syst. Manag. Sci.*, vol. 12, no. 3, pp. 25–50, 2022, doi: 10.33168/JSMS.2022.0302.