
National Gallery of Indonesia's Website Evaluation Using WebQual 4.0

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ABSTRACT

Although there is a lot of research on websites, there is very little research on art gallery websites in Indonesia. As a result, this study examines the quality of the National Gallery of Indonesia's (commonly referred to as Galnas) website as a source providing information about the gallery by analyzing end-user perceptions through methods such as WebQual 4.0, importance-performance analysis, and customer satisfaction index (CSI). Fifty undergraduate and postgraduate college students in the Library and Information Science (LIS) program of the Faculty of Humanities at the University of Indonesia were selected as respondents based on convenience sampling. The study found that compared to other sources of information, the Galnas website was chosen the least, but the overall services of the website met user expectations, as evidenced by a CSI score of 83.88% for undergraduate college students and a CSI score of 74.96% for postgraduate college students. This research contributes to the enhancement of the quality and accessibility of the Galnas website.

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INTRODUCTION

A website is a symbol of trustworthiness, expertise, and proof of an organization's existence, especially for government agencies. Although social media and WhatsApp allow for more interaction, not having a website raises questions about an institution's reliability, professionalism, and legitimacy. Therefore, institutions need to continuously improve their websites. However, evaluations of the website are often neglected.

Websites have been the subject of research in many areas, especially in the field of informatics engineering and computer science. However, there is a scarcity of research on art galleries and museum websites, primarily in Indonesia. This study aims to address this gap by analyzing the website of the National Gallery of Indonesia, also known as Galnas.

Galnas is a modern and contemporary art gallery that operates under the Directorate General of

Culture, Ministry of Education, Culture, Research, and Technology of the Government of the Republic of Indonesia (Galeri Nasional Indonesia, 2019). Its main objective is to provide public education and information about modern and contemporary art. The gallery's official website, <https://gni.kemdikbud.go.id/>, has been accessible to the public since September 2022 and is still undergoing further development. The website is an extension of the Galnas artwork collection database website, which is connected to three other websites owned by Galnas. These include a primary website that offers general information about Galnas, a website for exhibition visit registration, and a website for online exhibitions.

Previous research on the Galnas website has mainly focused on improving the website's user interface/user experience (UI/UX) by using the human-centered design method (Mardatrisna, 2022) and implementing an online ticket ordering system using

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the waterfall method (Masrullih et al., 2022). However, these studies examined the different Galnas website, which is no longer in use. Although there is limited research on art gallery websites, there is an abundance of research on museum websites. Despite Galnas being classified as a gallery, it also functions as a museum, particularly for modern and contemporary art. Therefore, research on museum websites is still relevant.

Previous research on museum websites was conducted by Kabassi (2019) using the inspection evaluation method and a combination of the analytic hierarchy process and the technique for order preference by similarity to the ideal solution to evaluate and rank the websites of five well-known museums worldwide: the Louvre Museum in Paris, France; the British Museum in London, England; the Rijksmuseum in Amsterdam, the Netherlands; the Acropolis Museum in Athens, Greece; and the Del Prado Museo in Madrid, Spain. The evaluation criteria focused on usability, functionality, and mobile interaction. The results indicated that all five websites performed well across these dimensions. The Acropolis Museum and Rijksmuseum were considered to have the best usability dimension, the Louvre Museum was deemed to have the best functionality dimension, and the Rijksmuseum and British Museum performed better on the mobile interaction dimension than the other three museums.

Rahmasari and Haryadi (2022) conducted a study on the Ranggawarsita Museum Semarang, Indonesia website. They examined the interaction design and nine criteria for a good website using content analysis and survey methods. Interaction design includes seven aspects: ergonomics, technology, sound and motion, content strategy, information architecture, providing information, and user interface. The nine criteria for a good website include usability (ease of learning, efficiency, ease of remembering, error rate, and user satisfaction), navigation system, visual design (layout, color, and font), contents (website content and completeness), compatibility, loading time, functionality, accessibility (overall, internet network, browser, and device), and interactivity (links and feedback). The study found that the Ranggawarsita Museum website met the interaction design aspects and the nine criteria for a good website, fulfilling its primary function as a source of museum information. However, the website needed improvement in aesthetic aspects. There is limited research on websites in Indonesia that specifically focuses on museums and galleries.

Most website research uses the WebQual 4.0 method and importance–performance analysis (IPA) to evaluate website quality and user satisfaction. Rahmadini et al. (2022) conducted a study on the website library of UPN “Veteran” East Java using these methods. The study found a high level of agreement between importance and performance, with service interaction quality at 104.20%, usability at 104.09%,

and information quality at 103.37%. However, the study also identified areas for improvement such as navigation, appearance (titles, images, infographics), ensuring open link access, and making information sentences easier to understand (short and clear).

Considering that WebQual 4.0 and IPA methods have been extensively studied in various fields to analyze website quality, this research also uses WebQual 4.0 and IPA methods. WebQual 4.0, created by Stuart J. Barnes and Richard T. Vidgen, is an evaluation method that considers the end user’s perspective (Sulistiyowati & Meisiana, 2019) by applying three dimensions of quality: usability, information, and service interaction. IPA, created by John A. Martilla and John C. James (Intani et al., 2022), looks at user satisfaction based on the level of importance and performance (Intani et al., 2022; Lee, 2019), using a Cartesian diagram with four quadrants to show the scale priority. To enhance the analysis and research results, this study also incorporates a customer satisfaction index (CSI).

This study is unique in several ways. (1) It is the first to analyze the new Galnas website. (2) It uses WebQual 4.0, IPA, and CSI methods, which have not been used to evaluate the Galnas website. (3) There is a lack of research on art gallery websites using WebQual 4.0 and IPA methods, so this study will enrich this area of research. (4) It differs from previous research in that the respondents were library and information science students who were familiar with the gallery, library, archive, and museum (GLAM) concept, rather than ordinary website users, providing a distinct perspective.

This research aims to answer three questions: (1) During the five months from September 2022 to January 2023, how often was the Galnas website chosen as an information source compared to other sources? (2) What is the level of quality of the Galnas website based on WebQual 4.0, IPA, and CSI metrics? (3) What is the quality of the Galnas website from the perspective of college students at undergraduate and postgraduate education levels?

The rest of this paper is organized as follows. Section B outlines the research methods used in this study. Section C presents the results. Finally, Section D provides a discussion of the results along with conclusions, limitations, and avenues for future research.

RESEARCH METHOD

This study adopted a quantitative approach using the WebQual 4.0 questionnaire instrument, which has undergone several validity and reliability tests in prior studies, such as Rahmadini et al.’s (2022) study. The questionnaire consisted of three parts. The first part contained 22 questions about the respondents’ views on the usability, information, and service interaction of the Galnas website to assess its performance. A Likert scale with seven points, ranging from strongly disagree (1) to strongly agree (7), was

employed for measurement purposes. The seven-point scale is considered the best option among the other available scales (2–11 points), and it is deemed the most precise and easiest for respondents to use (Taherdoost, 2019). The second part contained 22 questions about respondents’ perceptions regarding usability, information, and service interaction of the Galnas website to assess its importance, and a Likert scale with seven points, ranging from very unimportant (1) to very important (7), was utilized for measurement purposes. The third part consisted of five questions regarding the respondents’ personal information.

To compare user perceptions of the Galnas website’s quality based on undergraduate and postgraduate educational levels, online questionnaires were distributed to undergraduate and postgraduate students enrolled in the Library Science Study Program, Faculty of Humanities, University of Indonesia (FIB UI) using convenience sampling. Data collection was carried out from 1 February 2023 to 9 February 2023 using the Survey Monkey platform. The study found that out of the 50 respondents who participated, 39 were undergraduate students, and 11 were postgraduate students, and all respondents completed the questionnaire in detail.

The data obtained from the questionnaires were analyzed using Statistical Product and Service Solutions (SPSS) software to determine respondents’ perceptions based on undergraduate and postgraduate education levels regarding the importance and performance of the Galnas website, focusing on usability, information, and service interaction qualities. In addition, the researchers used SPSS to analyze the validity test, reliability test, and plot the WebQual 4.0 variables on a Cartesian diagram. The researchers also present user satisfaction through CSI calculations. Apart from the questionnaire data, the researchers also obtained information from Galnas managers, who provided data on the sources of information used by Galnas visitors from the time the website became public until just before the research was conducted (September 2022–January 2023).

RESULTS AND DISCUSSION

The findings of this study are consistent with the research conducted by Rahmadini et al. (2022) and Santoso and Widodo (2022), who used WebQual 4.0 and IPA to analyze websites and found that users are satisfied with the services provided by the websites. This study’s outcome was derived from the data presented below.

1. Information Source Data Used by Galnas Visitors

Galnas managers conducted a monthly survey of Galnas visitors from September 2022 to January 2023. The results of the survey, as presented in Table 1, revealed that Galnas’ website was the least popular source of information, chosen by four people (an average of 1/month). This indicates that the website has not been successful in attracting users, and it is not as

competitive as other sources of information. As a result, it is important to conduct further research to identify the specific factors that need to be improved in order to make the Galnas website more appealing to users and increase its competitiveness.

Table 1: Survey Results of Information Sources Used by Galnas Visitors for the Period from September 2022 to January 2023

Information Source	Total (people)	Average (people)
Family/friend	109	22
Online mass media	69	14
Galnas’ social media	48	10
Electronic mass media	13	3
Others	9	2
Print mass media	8	2
Galnas’ website	4	1

Source: Galeri Nasional Indonesia (2022–2023)

2. Validity Test

Validity is an index that indicates whether a particular instrument or measuring tool is capable of accurately measuring the intended variables (Anggraini et al., 2022). When an instrument is said to be valid, it means that it can effectively reveal data from the variables being measured without deviating from the actual situation. This is essential in ensuring that the data obtained through the instrument is reliable and can be used to draw accurate conclusions (Tugiman et al., 2022). The indicators in the questionnaire are declared valid if the value of r count $>$ r table.

Table 2: WebQual 4.0 Indicators

Category	Item Code	Indicator
Usability quality	UQ1	The website is easy to learn to operate.
	UQ2	Interaction with the website is clear and understandable.
	UQ3	The website is easy to navigate/has clear instructions.
	UQ4	The website is easy to use.
	UQ5	The website has an attractive appearance.
	UQ6	The website design is appropriate to the type of website (art gallery).
	UQ7	The website conveys a sense of competency as an art gallery website.
	UQ8	The website creates a positive experience for users.
Information quality	IQ1	The website provides accurate information.
	IQ2	The website provides believable information.

Service interaction quality	IQ3	The website provides timely/updated information.
	IQ4	The website provides relevant information.
	IQ5	The website provides easy-to-understand information.
	IQ6	The website provides information at the right level of detail.
	IQ7	The website presents the information in an appropriate format.
	SIQ1	The website has a good reputation.
	SIQ2	The website provides a sense of security when completing transactions/doing activities during browsing.
	SIQ3	The website provides a sense of security for providing personal information.
	SIQ4	The website creates a sense of personalization (an experience that fits the user).
	SIQ5	The website conveys a sense of community.
	SIQ6	The website makes it easy to communicate with the organization (Galnas).
	SIQ7	The website assures users that services will be delivered as informed on the website.

Source: Questionnaire questions (Rahmadini et al., 2022) processed by researchers

In this study, a validity test was conducted on 22 statements of the WebQual 4.0 questionnaire, which was divided into importance and performance sections, as shown in Table 2. The validity test, based on the sample (n) = 50 with $df(n-2) = 48$, obtained an r table value of 0.2353. The results showed that all 22 indicators in the importance (I) and performance (P) sections had r count values that were greater than the r table value (as shown in Table 3). Therefore each indicator statement from 50 respondents was declared valid.

Table 3: Performance and Importance Validity Test Results

Item Code	R Count Value		R Table Value	Conclusion
	I	P		

UQ1	0.925	0.877	0.2353	Valid
UQ2	0.899	0.905	0.2353	Valid
UQ3	0.929	0.900	0.2353	Valid
UQ4	0.929	0.889	0.2353	Valid
UQ5	0.779	0.638	0.2353	Valid
UQ6	0.869	0.805	0.2353	Valid
UQ7	0.905	0.802	0.2353	Valid
UQ8	0.855	0.837	0.2353	Valid
IQ1	0.915	0.872	0.2353	Valid
IQ2	0.950	0.856	0.2353	Valid
IQ3	0.811	0.804	0.2353	Valid
IQ4	0.931	0.720	0.2353	Valid
IQ5	0.956	0.923	0.2353	Valid
IQ6	0.910	0.862	0.2353	Valid
IQ7	0.935	0.929	0.2353	Valid
SIQ1	0.847	0.848	0.2353	Valid
SIQ2	0.753	0.735	0.2353	Valid
SIQ3	0.735	0.667	0.2353	Valid
SIQ4	0.879	0.827	0.2353	Valid
SIQ5	0.836	0.832	0.2353	Valid
SIQ6	0.826	0.818	0.2353	Valid
SIQ7	0.926	0.875	0.2353	Valid

Source: Primary data processed by researchers in 2023

3. Reliability Test

Reliability tests can only be carried out on questionnaires that have been declared valid through validity tests (Anggraini et al., 2022). Reliability tests are important because they assess the stability and consistency of data measurements (Tugiman et al., 2022). When data measurements are reliable, it means that they can be trusted (Anggraini et al., 2022). One commonly used measure of internal consistency in reliability tests is Cronbach's Alpha coefficient, which is particularly suitable for Likert scales. Although there is no absolute rule for the minimum value of internal consistency, a value of 0.70 or higher is generally considered appropriate (Taherdoost, 2019). An instrument is declared reliable if the coefficient value of Cronbach's Alpha > 0.70 (Tugiman et al., 2022).

In this study, a reliability test was performed on the 22 statement indicators, split into the importance and performance sections as outlined in Table 2, using a sample of 50 participants. The results of the reliability test showed that the Cronbach's Alpha coefficient value for the importance section was 0.985, and for the performance section, it was 0.978 (as shown in Table 4). As all Cronbach's Alpha values were greater than 0.70, each statement indicator from the 50 respondents was deemed reliable based on the reliability test.

Table 4: Performance and Importance Reliability Test Results

Valuation Item	Results	
	I	P
Cronbach's Alpha	0.985	0.978
N of Items	22	22
R Table Value	0.2353	0.2353
Conclusion	Reliable	Reliable

Source: Primary data processed by researchers in 2023

4. Galnas Website Quality Based on GAP

In this study, the calculation of importance and performance values is based on the educational levels of undergraduate and postgraduate students. For each level of education, the total importance score is obtained by adding up the scores of each statement indicator from the 50 respondents, resulting in 22 total importance scores. The same process is repeated for the performance section, producing 22 total performance scores. These total scores are then used to calculate the mean for each indicator. The GAP value is calculated by finding the difference between the mean performance and mean importance scores for each indicator. A negative GAP value ($GAP < 0$) indicates that the website's performance falls short of user expectations, while a positive GAP value ($GAP \geq 0$) indicates that the website's performance has met user expectations (Santoso & Widodo, 2022).

After analyzing the GAP values of the 22 indicators for postgraduate students, it was found that 5 indicators showed satisfaction, while the remaining 17 indicators indicated user dissatisfaction, which differed from the undergraduate students (as outlined in Table 6). The five satisfaction indicators, ranked from highest to lowest value, were the attractiveness of the website's appearance (UQ5), appropriate design as an art gallery website (UQ6), provision of relevant information (IQ4), creation of a positive user experience (UQ8), and provision of timely/updated information (IQ3). On the other hand, the five indicators with the lowest GAP scores indicating dissatisfaction were the website's failure to convey a sense of community (SIQ5), difficulty in navigating the website/lack of clear instructions (UQ3), lack of a good reputation (SIQ1), inappropriate presentation of information (IQ7), and difficulty in communicating with the organization/Galnas (SIQ6).

The data analysis reveals that the GAP values for the usability and information dimensions are positive, while the usability dimension has GAPs with significantly higher negative values. This implies that undergraduate students pay more attention to the quality of the usability dimension compared to postgraduate students.

Table 5: Calculation Results of Importance and Performance GAP Values for Undergraduate College Students Sorted by Highest to Lowest GAP Values

No.	Item Code	Total Score		Mean		GAP
		I	P	I	P	
1.	UQ5	232	238	5.95	6.10	0.15
2.	UQ6	224	228	5.74	5.85	0.10
3.	IQ2	240	243	6.15	6.23	0.08
4.	IQ5	237	238	6.08	6.10	0.03
5.	SIQ2	220	221	5.64	5.67	0.03
6.	SIQ1	237	236	6.08	6.05	-0.03
7.	IQ7	234	233	6.00	5.97	-0.03
8.	IQ6	233	231	5.97	5.92	-0.05
9.	UQ7	231	229	5.92	5.87	-0.05
10.	SIQ7	231	228	5.92	5.85	-0.08

11.	SIQ5	234	230	6.00	5.90	-0.10
12.	IQ4	239	235	6.13	6.03	-0.10
13.	UQ1	236	230	6.05	5.90	-0.15
14.	IQ3	228	222	5.85	5.69	-0.15
15.	IQ1	240	234	6.15	6.00	-0.15
16.	SIQ4	225	218	5.77	5.59	-0.18
17.	SIQ6	235	226	6.03	5.79	-0.23
18.	SIQ3	215	206	5.51	5.28	-0.23
19.	UQ3	234	224	6.00	5.74	-0.26
20.	UQ2	241	230	6.18	5.90	-0.28
21.	UQ8	240	229	6.15	5.87	-0.28
22.	UQ4	237	225	6.08	5.77	-0.31

Source: Primary data processed by researchers in 2023

According to Table 6, the GAP values for postgraduate college students indicate satisfaction with 5 indicators and dissatisfaction with 17 indicators. Notably, these indicators differ from those of undergraduate college students. The five indicators with the highest satisfaction values, listed in order, are the attractiveness of the website's appearance (UQ5), appropriate website design for an art gallery website (UQ6), provision of relevant information (IQ4), creation of a positive experience for users (UQ8), and provision of timely/updated information (IQ3). On the other hand, the five indicators with the lowest GAP scores, indicating the highest dissatisfaction values, are the website's failure to convey a sense of community (SIQ5), lack of clear navigation instructions (UQ3), poor reputation of the website (SIQ1), inappropriate presentation of information (IQ7), and difficulty in communicating with the organization/Galnas through the website (SIQ6).

Based on the data, it appears that postgraduate college students have given attention to all three dimensions, including usability, information, and service interaction. However, there is a higher degree of dissatisfaction in the service interaction dimension compared to the other two dimensions, as evidenced by the negative GAP values. On the other hand, the usability and information dimensions have positive GAP values, indicating that postgraduate college students are satisfied with those aspects of the website.

Table 6: Calculation Results for GAP Importance and Performance of Postgraduate College Students Ordered by Highest to Lowest GAP Value

No.	Item Code	Total Score		Mean		GAP
		I	P	I	P	
1.	UQ5	61	65	5.55	5.91	0.36
2.	UQ6	62	63	5.64	5.73	0.09
3.	IQ4	61	62	5.55	5.64	0.09
4.	UQ8	57	57	5.18	5.18	0.00
5.	IQ3	56	56	5.09	5.09	0.00
6.	UQ1	60	59	5.45	5.36	-0.09
7.	IQ2	62	61	5.64	5.55	-0.09
8.	IQ6	59	58	5.36	5.27	-0.09

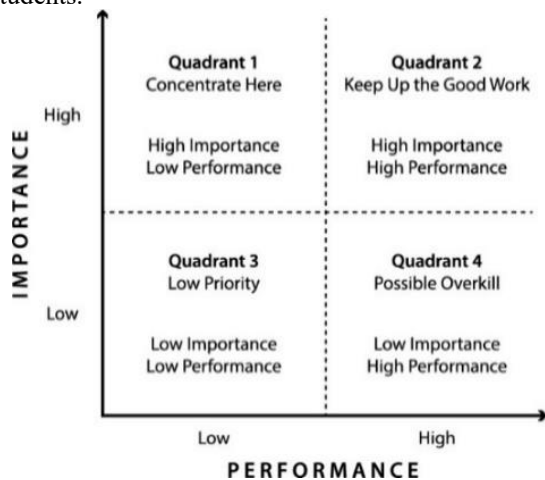
9.	IQ1	61	60	5.55	5.45	-0.09
10.	IQ5	60	58	5.45	5.27	-0.18
11.	SIQ4	58	56	5.27	5.09	-0.18
12.	SIQ7	59	57	5.36	5.18	-0.18
13.	UQ2	62	59	5.64	5.36	-0.27
14.	UQ4	62	59	5.64	5.36	-0.27
15.	SIQ3	57	53	5.18	4.82	-0.36
16.	UQ7	63	59	5.73	5.36	-0.36
17.	SIQ2	60	55	5.45	5.00	-0.45
18.	SIQ6	60	55	5.45	5.00	-0.45
19.	IQ7	62	57	5.64	5.18	-0.45
20.	SIQ1	61	54	5.55	4.91	-0.64
21.	UQ3	63	55	5.73	5.00	-0.73
22.	SIQ5	61	51	5.55	4.64	-0.91

Source: Primary data processed by researchers in 2023

Based on the analysis of the GAP scores, it can be inferred that the Galnas website's overall performance did not meet the expectations of both undergraduate and postgraduate college students. However, undergraduate students placed a higher level of importance on the website's performance than postgraduate students. Even though undergraduate students gave higher scores for website performance than postgraduate students, their positive GAP score was lower (0.15) than that of postgraduate students (0.36). On the other hand, the negative GAP score for undergraduate college students (-0.31) was higher than that for postgraduate students (-0.91).

5. Galnas Website Quality Based on IPA Matrix

An IPA matrix (Figure 1) is used to evaluate the quality of Galnas website, which is divided into four quadrants. The study found variations in the distribution of indicators for usability, information, and service interaction dimensions on the IPA matrix between undergraduate and postgraduate college students.



Source: Lee (2019)

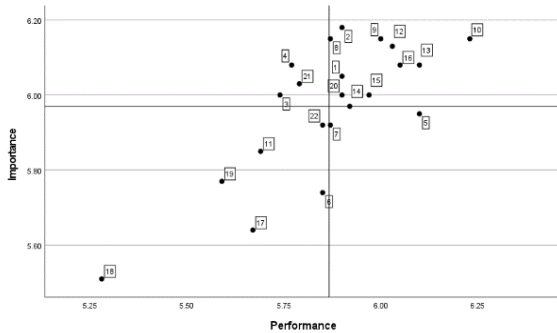
Figure 1: IPA Matrix Quadrants

The IPA matrix for undergraduate college students (Figure 2) shows that quadrant 1 represents indicators that are considered important by users but have low performance levels. The analysis indicates that the website's usability dimension is lacking in clear instructions and ease of use (UQ3 and UQ4), and the service interaction dimension does not facilitate communication with the organization/Galnas (SIQ6). These three indicators require prioritization for improvement as they have not met user expectations.

Quadrant 2 represents indicators that have both a high level of importance and performance. Based on the analysis results, the Galnas website performs well on several usability indicators such as being easy to learn (UQ1), clear interaction (UQ2), and creating a positive user experience (UQ8). In addition, on the information dimension, the website provides accurate, believable, relevant, easy-to-understand, and appropriately detailed information (IQ1, IQ2, IQ4, IQ5, and IQ6). The website also has a good reputation and conveys a sense of community (SIQ1 and SIQ5) on the service interaction dimension. These indicators are considered important by users and meet their expectations, so the website quality in these areas should be maintained.

Quadrant 3 represents indicators with a low level of both performance and importance. The analysis revealed that the website's design is inappropriate for an art gallery website (UQ6) on the usability dimension. On the information dimension, the website does not provide timely/updated information (IQ3). On the service interaction dimension, the website does not provide a sense of security while completing transactions/activities during browsing (SIQ2), while providing personal information (SIQ3), personalization experience (SIQ4), and assurance of service delivery as informed on the website (SIQ7). These six indicators' quality is low, however, users consider them unimportant. Therefore, improving the quality of these six indicators does not need to be a priority.

In Quadrant 4, the website's performance level is high, but the indicators are considered unimportant by users. The analysis shows that users perceive the website appearance as attractive (UQ5) and conveying a sense of competency as an art gallery website (UQ7). On the information dimension, the website provides information at the right level of detail (IQ6). Although the quality of these three indicators is good, users do not consider them important. Therefore, improving the website performance in these areas is unnecessary.



Source: Primary data processed by researchers in 2023

Figure 2: IPA Matrix for Undergraduate College Students

Based on the distribution of indicators in each quadrant of the IPA matrix for undergraduate students (Figure 2), it can be concluded that quadrant 2 has the highest number of indicators (11), followed by quadrant 3 with 6 indicators, and then quadrants 1 and 4 with 3 indicators each (note that indicator 14 falls between quadrants 2 and 4). Most indicators are in quadrant 2, which shows that most of the website indicators that undergraduate college students consider important have met or exceeded their expectations. Moreover, the information dimension indicators dominate the website indicators that meet user expectations. On the other hand, the usability dimension indicators dominate the important indicators that have not met user expectations (in quadrant 1).

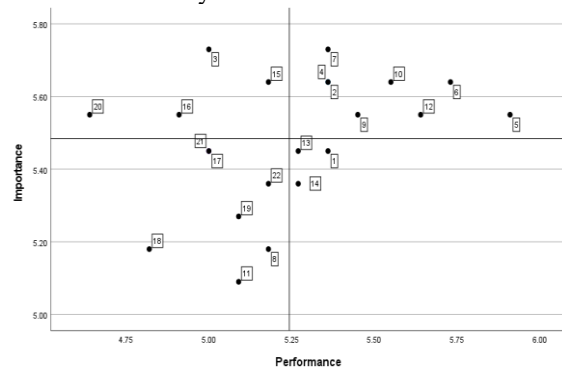
The IPA matrix for postgraduate college students (Figure 3) shows that quadrant 1 contains indicators that are important to users but are not performing well. Specifically, the usability dimension reveals that the website is difficult to navigate and lacks clear instructions (UQ3). On the information dimension, the website does not present information in an appropriate format (IQ7). On the service interaction dimension, the website does not have a good reputation (SIQ1) or create a sense of community (SIQ5). These four indicators need to be improved as they have not met user expectations.

Quadrant 2 represents the high level of performance and importance. On the usability dimension, the analysis results show that the interaction with the website is clear and understandable (UQ2), the website is easy to use (UQ4), the website has an attractive appearance (UQ5), the website design is appropriate to the website of an art gallery (UQ6), and the website conveys a sense of competency as an art gallery website (UQ7). The information dimension shows that the website provides accurate information (IQ1) that is believable (IQ2) and relevant (IQ4). These eight indicators of website quality have met user expectations and are considered important by users, so the quality should be maintained.

Quadrant 3 represents indicators with both a low level of performance and importance. In the usability dimension, the analysis results show that the website does not create a positive user experience

(UQ8). At the same time, the analysis results of the information dimension show that the website does not provide timely/updated information (IQ3). The service interaction dimension shows that the website does not provide a sense of security when completing transactions/doing activities during browsing (SIQ2), does not provides a sense of security for providing personal information (SIQ3), does not create a sense of personalization/an experience that fits the user (SIQ4), does not make it easy to communicate with the organization/Galnas (SIQ6), and does not assure users that services will be delivered as informed on the website (SIQ7). These seven indicators' quality is low, however, users consider them unimportant. Therefore, improving the quality of these seven indicators does not need to be prioritized.

Quadrant 4 represents indicators with a high level of performance, but a low level of importance. The analysis results on the usability dimension show that it is easy to learn how to operate the website (UQ1). At the same time, the information dimension shows that the website provides easy-to-understand information (IQ5) and information at the right level of detail (IQ6). Even though the website quality on these three indicators is good, users consider it unimportant. Therefore, improving the website performance in these areas is unnecessary.



Source: Primary data processed by researchers in 2023

Figure 3: IPA Matrix for Postgraduate College Students

The IPA matrix (Figure 3) indicates that quadrant 2 has the highest number of indicators, followed by quadrant 3, quadrant 1, and quadrant 4, with eight, seven, four, and three indicators, respectively. This means that most indicators are present in quadrant 2, and postgraduate college students generally feel satisfied with the website indicators they consider important. The findings are consistent with those of undergraduate college students. Furthermore, the usability dimension plays a dominant role in meeting user expectations. Even so, the average postgraduate college student feels that the indicators that they consider important have failed to meet their expectations (in quadrant 1); those are mostly related to the service interaction dimension.

6. CSI of Galnas Website Users

CSI calculations take into account the level of importance of each service/product attribute (Zahara et al., 2020) or the services provided (Lustyana & Salsabila, 2020). CSI is calculated using the formula $(T/7Y) \times 100\%$, as shown in Table 7.

Table 7: Calculation of Customer Satisfaction Index

No.	Attribute	Average		Score (S) = I × P
		I	P	
1.	(scale 1-7)	(scale 1-7)	
2.			
3.			
Sum		Total (I) = Y		Total (S) = T

Source: Haeradi et al. (2022)

In the formula $(T/7Y) \times 100\%$, T is the sum of the multiplication of the importance and performance of each indicator, while Y is the sum of the mean importance of all indicators. The number 7 is the maximum value on the research measurement scale.

In this study, the CSI value is reported based on the perspectives of both undergraduate and postgraduate college students. According to Table 8, the CSI score for undergraduate college students is 83.88%, which is calculated using the formula:

$$CSI = \frac{771.27}{7 \times 131.36} \times 100\% = 83.88\%$$

Table 8: Calculation of CSI Scores for Undergraduate College Students

No.	Item Code	Average		Score (S) = I × P
		I	P	
1.	UQ1	6.05	5.90	35.69
2.	UQ2	6.18	5.90	36.44
3.	UQ3	6.00	5.74	34.46
4.	UQ4	6.08	5.77	35.06
5.	UQ5	5.95	6.10	36.30
6.	UQ6	5.74	5.85	33.58
7.	UQ7	5.92	5.87	34.78
8.	UQ8	6.15	5.87	36.13
9.	IQ1	6.15	6.00	36.92
10.	IQ2	6.15	6.23	38.34
11.	IQ3	5.85	5.69	33.28
12.	IQ4	6.13	6.03	36.93
13.	IQ5	6.08	6.10	37.08
14.	IQ6	5.97	5.92	35.39
15.	IQ7	6.00	5.97	35.85
16.	SIQ1	6.08	6.05	36.77
17.	SIQ2	5.64	5.67	31.97
18.	SIQ3	5.51	5.28	29.12
19.	SIQ4	5.77	5.59	32.25
20.	SIQ5	6.00	5.90	35.38
21.	SIQ6	6.03	5.79	34.92
22.	SIQ7	5.92	5.85	34.63
Total		131.36	—	771.27

Source: Primary data processed by researchers in 2023

According to the interpretation of user satisfaction presented in Table 9, the CSI score of 83.88% for undergraduate college students indicates a high level of satisfaction with the overall services of the Galnas website. Therefore, it can be concluded that undergraduate college students are very satisfied with the website's services.

Table 9: Customer Satisfaction Index

Index Value	Interpretation
81%–100%	Very satisfied
66%–80.99%	Satisfied
51%–65.99%	Quite satisfied
35%–50.99%	Less satisfied
0%–34.99%	Not satisfied

Source: Zahara et al. (2020)

According to Table 10, the CSI value for postgraduate college students is 74.96%, which is calculated using:

$$CSI = \frac{632.98}{7 \times 120.64} \times 100\% = 74.96\%$$

The CSI score of 74.96% for postgraduate college students indicates a moderate level of satisfaction with the overall services of the Galnas website. It is lower than the CSI score of undergraduate college students. However, both undergraduate and postgraduate college students consider that the website's services have met their expectations.

Table 10: Calculation of CSI Scores for Postgraduate College Students

No.	Item Code	Average		Score (S) = I × P
		I	P	
1.	UQ1	5.45	5.36	29.26
2.	UQ2	5.64	5.36	30.23
3.	UQ3	5.73	5.00	28.64
4.	UQ4	5.64	5.36	30.23
5.	UQ5	5.55	5.91	32.77
6.	UQ6	5.64	5.73	32.28
7.	UQ7	5.73	5.36	30.72
8.	UQ8	5.18	5.18	26.85
9.	IQ1	5.55	5.45	30.25
10.	IQ2	5.64	5.55	31.26
11.	IQ3	5.09	5.09	25.92
12.	IQ4	5.55	5.64	31.26
13.	IQ5	5.45	5.27	28.76
14.	IQ6	5.36	5.27	28.28
15.	IQ7	5.64	5.18	29.21
16.	SIQ1	5.55	4.91	27.22
17.	SIQ2	5.45	5.00	27.27
18.	SIQ3	5.18	4.82	24.97
19.	SIQ4	5.27	5.09	26.84
20.	SIQ5	5.55	4.64	25.71
21.	SIQ6	5.45	5.00	27.27
22.	SIQ7	5.36	5.18	27.79
Total		120.64	—	632.98

Source: Primary data processed by researchers in 2023

CONCLUSION

The research findings suggest that the Galnas website is not the preferred choice of users compared to other sources of information. This implies that the Galnas website needs to improve its quality to attract more users. However, based on the WebQual indicators, most indicators on IPA results for undergraduate and postgraduate college students are in quadrant 2, and CSI calculation results 83.88% (very satisfied) for undergraduate college students and 74.96% (satisfied) for postgraduate college students, the Galnas website's overall performance meets user expectations. The research results also show that users with different levels of education have different preferences and pay attention to different WebQual dimensions. Students with lower educational levels tend to focus on one or two dimensions, while students with a higher educational level focus on all dimensions. Overall, the Galnas website is of good quality; however, it needs to be more actively advertised to increase its reach and raise public awareness about its existence. This would help to increase the chances of the website being accessed by users.

This study provides a detailed mapping of the Galnas website's performance variables and user expectations based on different educational levels. It identifies the strengths and weaknesses of the website and indicates which variables have good performance or have met user satisfaction and which variables need improvement. The study highlights the indicators that have fulfilled user satisfaction (quadrant 2) and those that require more attention or improvement (quadrant 1), providing useful suggestions for the website's managers. The result of this study can help the Galnas website managers to develop strategies to improve the quality and accessibility of the website, which would provide better service to users and ensure the sustainability of the website and Galnas as an information institution. Overall, this study can make a valuable contribution to the improvement of the Galnas website and enhance its user experience.

One limitation of this study is that it only included undergraduate and postgraduate college students from a single educational environment, the FIB UI Library Science Study Program, which may limit the generalizability of the findings to other contexts. Additionally, the analysis only considered educational level as a factor, ignoring other potential variables such as age, gender, or regional differences.

Given these limitations, future research could broaden the scope of respondents by including individuals from a wider range of educational levels, spanning from junior high school to doctoral degree programs, in order to expand the findings. Additionally, similar studies could categorize respondents based on factors such as age, gender, region of origin, and interests/hobbies to provide a more diverse

perspective. Including respondents from different disciplines related to presenting digital information could offer a more comprehensive assessment of website quality.

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