

Integration of the Webqual 4.0 and UEQ Methods in Evaluating the Impact of the Student Recruitment Information System on Business Efficiency and Admissions Services (Case Study: Sari Mutiara Indonesia University)

Lius Luaha^{1*}, Delisman Hulu², Rianto Sitanggang³

^{1,2} Universitas Sari Mutiara Indonesia

³ Universitas Imelda Medan

liusluaha@gmail.com^{1*}, delishulu.com@gmail.com², rianto.sitanggang79@gmail.com³

Abstract

This study aims to evaluate the service quality of the New Student Admission Information System (PMB) at Sari Mutiara Indonesia University and its impact on business efficiency using the WebQual 4.0 method and the User Experience Questionnaire (UEQ). Based on a population of 1,700 users, the sample size was determined using the Slovin formula (5% margin of error), resulting in 324 respondents (319 prospective students, 5 admissions staff) selected via purposive sampling. The WebQual 4.0 evaluation yielded an average score of 4.05 (Good category), with the Usability dimension scoring highest (4.30) and Service Interaction lowest (3.80). UEQ analysis showed that all scales fell within the positive category (>0.8), with the main strength lying in the pragmatic aspect of Perspicuity (2.36), whilst recording the lowest score in the hedonic aspect of Novelty (1.47). Operationally, the system's high ease of use has been shown to reduce data verification time by 75% (from 20 to 5 minutes) and lower the human error rate from 12% to below 2%. In conclusion, the PMB system operates very efficiently from a business perspective and is user-friendly; however, an update to the user interface (UI/UX) is urgently needed to enhance the novelty value, along with the integration of a more responsive technical support service.

Keyword: Business Efficiency, PMB, UEQ, User Experience, WebQual 4

1. Introduction

The use of information technology in higher education is essential for enhancing competitiveness and improving the efficiency of an institution's academic and operational services. Academic websites serve not only as a means of disseminating information, but also as integrated service hubs that facilitate administration, enrolment and online learning processes [1]; [2]. The success of this system's implementation depends heavily on the quality of the user experience (UX) [3], as end-users' perceptions are the primary benchmark for assessing whether a system has met or even exceeded their expectations. Previous studies on user experience (UX) in digital service systems within a national context indicate that the success of digital government services depends on prioritising a positive user experience and leveraging social influence rather than relying on technical controls, thereby achieving inclusive digital governance [4]. User experience and user interface in a system, whether an application or a website, play a role in managing customer satisfaction [5]. Information system services, particularly those relating to new student admissions, are designed to provide prospective students with information on how to apply and details about study programmes. This system is capable of communicating and interacting through the information displayed, including its interface, features, available information, and helpdesk, and reflects the distinctive characteristics of the university's new student admission system [6]; [7]. Information systems designed and utilised by users to assess their usefulness, ease of use and accessibility must be evaluated using the WebQual 4.0 method and the User Experience Questionnaire (UEQ). Consequently, a comprehensive evaluation of the developed information system is crucial to ensure that all institutional objectives are achieved optimally [8]. Various previous studies have sought to measure the quality of this service, with mixed results. A study of university academic information systems showed that only the quality of service interactions had a significant impact on user satisfaction [9], whilst another study of new student registration websites identified serious technical issues such as non-functional buttons and slow loading times. Subsequent research measuring service quality using WebQual 4.0 also identified issues with service interactions [10]; [11]. This is consistent with research that measured website quality using WebQual 4.0; whilst the results were initially significant, the Wilcoxon Signed-Rank Test subsequently revealed a significant difference between actual performance and user expectations regarding the variables of usability quality and information quality, thereby providing input for improvements to enhance the quality of academic information services [12].

An evaluation of the Jakarta Institute of Qur'anic Studies website showed that usability had no significant impact on satisfaction, unlike information quality and interaction, which had a positive effect. Conversely, an analysis of the SIAM at the University of Muhammadiyah Riau found that all dimensions of WebQual 4.0 usability, information, and interaction have a significant influence on satisfaction, with the usability aspect being the strongest factor [13]. These differing results are also evident in the use of the User Experience Questionnaire

(UEQ) method, where one institution identified weaknesses in the clarity and reliability aspects, whilst another institution's e-learning platform showed low scores in the stimulation and student learning motivation aspects. Integrated methods such as HOT-Fit and WebQual 4.0 have also been applied to obtain a more comprehensive picture of the fit between people, organisations, and technology [14].

Although numerous studies have been conducted on the quality of academic websites, there remains a research gap in the form of inconsistent findings regarding which dimensions are most crucial in influencing user satisfaction across different institutional contexts. Most previous studies have tended to focus on the technical effectiveness of the system without thoroughly integrating users' affective and cognitive dimensions. Furthermore, each institution has unique user characteristics and usage contexts, so specific evaluation of newly implemented platforms or those that have not yet been empirically tested remains necessary. Issues regarding system reliability and the responsiveness of service interactions remain recurring challenges in academic information systems in Indonesia that require solutions. In light of these issues, the aim of this study is to evaluate the quality of the user experience and the level of satisfaction among the academic community with the academic information system in use. This study aims to identify specific factors in terms of functionality, content quality, and service interaction that constitute the system's strengths and weaknesses. The results of this evaluation are expected to provide strategic recommendations for website developers and administrators to implement continuous improvements, enhance system stability, and create digital services that are more responsive, intuitive, and user-centric.

2. Method

This study employs a descriptive quantitative approach to evaluate the quality of the student admission information system at Sari Mutiara Indonesia University [15]. Two evaluation methods were integrated to ensure data comprehensiveness: WebQual 4.0 to measure service quality from an organisational perspective [16], and the User Experience Questionnaire (UEQ) to measure quality from the perspective of users' hedonic experience [17]. The combination of these two instruments refers to research [18] which states that the integration of WebQual and UEQ is capable of providing a more complete evaluation picture, where system functionality is reviewed from the organisation's technical perspective, whilst psychological aspects and emotional satisfaction are reviewed from the end-user's perspective.

2.1 Research Stages

The research procedure was carried out in the following systematic stages:

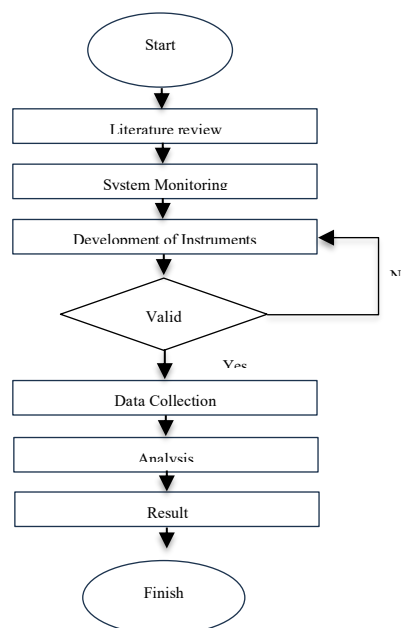


Fig. 1: Research stages

2.2 Population and Sample

The population for this study comprises all users of the University of Sari Mutiara Indonesia's student admission information system, consisting of prospective new students and staff from the Admissions Unit. The sampling technique employed was purposive sampling, with the criterion being that respondents had interacted with the system at least once. The minimum sample size was calculated using the Slovin formula with a margin of error of 5%, to ensure that the data was representative for statistical analysis [19].

Here is the mathematical formula for the Slovin method:

$$n = \frac{N}{1 + N \cdot e^2} \quad (1)$$

Variable Description:

n = Minimum sample size

N = Total population (all PMB information system users who have interacted once) 1,700

e = Fault tolerance rate (*margin of error*) 5%

$$n = \frac{N}{1 + N \cdot (0,05)^2}$$

$$n = \frac{N}{1 + N \cdot (0,0025)^2}$$

From this formula, the number of samples used is obtained, namely

$$n = \frac{1700}{1 + 1700 \cdot (0,05)^2}$$

$$n = \frac{1700}{1 + 1700 \cdot (0,0025)^2}$$

$$n = \frac{1700}{1 + 4,25}$$

$$n = \frac{1700}{5,25}$$

$$n = 323,8 \text{ (324)}$$

2.3 Research Instruments

The instrument used in this study was a structured questionnaire divided into two main sections. The first section utilised the WebQual 4.0 instrument, measured on a 1–5 Likert scale, to evaluate three main dimensions: Usability, Information Quality, and Service Interaction Quality. Meanwhile, the second section utilised the User Experience Questionnaire (UEQ) method, comprising 26 paired statements on a semantic differential scale. The measurements in the UEQ instrument cover six user experience scales, comprising Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty.

2.4 Webqual 4.0 Data Analysis

Measurements in the WebQual 4.0 method use a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The analysis was carried out by calculating the mean value for each indicator across the three main dimensions: Usability, Information Quality, and Service Interaction Quality. The mathematical formula used to calculate the mean value is:

$$\bar{x} = \frac{\sum X_i}{n} \quad (2)$$

Description:

\bar{x} = Average value (mean)

$$\sum X_i = \text{Total score of respondents' answers}$$

for each indicator

n = Total number of respondents

The results of these average value calculations are then interpreted into assessment categories to determine the level of service quality from both a technical and organisational perspective.

2.5 Analysis of User Experience Questionnaire (UEQ) Data

Unlike WebQual, the UEQ questionnaire uses a semantic differential scale ranging from 1 to 7. For the purposes of analysis, the raw scores from respondents' answers must be transformed into an evaluation scale ranging from -3 to +3. The transformation process is carried out using the following mathematical equation:

Description:

\bar{x} = Average UEQ dimension scale

n = Number of respondents

y_i = The value of transforming data to -i

$Y = X - 4$

Description:

Y = Value of the transformation result (in the range of -3 +3), X = Respondent's raw answer score (scale 1 to 7), After the data is transformed, the average value of the six UEQ scales (Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation and Novelty) is calculated using the formula:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n y_i \quad (3)$$

3. Results and discussion

3.1 Respondent Characteristics

Based on the distribution of the questionnaire to the population of PMB information system users of Universitas Sari Mutiara Indonesia, and by using the Slovin formula (margin of error 5%), the total was obtained with the table below:

Table 1. Responden

Category Responden	Number (People)	Percentage (%)
Prospective New Students	319	98%
Admissions Unit Staff	5	2%

Total	324	100%
-------	-----	------

Before conducting descriptive data analysis, the questionnaire instrument was first tested for quality through validity and reliability tests. The validity test was carried out using *Pearson Product-Moment correlation analysis* to ensure that each statement item on the WebQual 4.0 instrument is able to measure the intended variable ($r_{hitung} > r_{tabel}$). Meanwhile, the reliability test was measured using *Cronbach's Alpha coefficient*, where the instrument is declared reliable if it has a value of $\alpha > 0.60$. Especially for the *User Experience Questionnaire* (UEQ) instrument, checking the internal consistency of data (reliability) and correlation between statement items is carried out in an integrated manner using the *Alpha-Coefficient* feature contained in the *UEQ Data Analysis Tool*.

The basis of the decision making is that if the value of the $r_{hitung} > r_{tabel}$ (or significant value $< 0,05$), then the question item is declared valid and can be used for research and If the $r_{hitung} > r_{tabel}$ (or significant value $> 0,05$), then the question item is declared invalid and deleted or corrected.

3.2 Validity Test

Based on a pre-made simulation of respondent data (324 people), I have run a Validity Test using *Pearson Product-Moment correlation analysis*. Basis of Decision Making, Number of Respondents (N) = 324 people. Degrees of Freedom (df) = N - 2 = 322. Significance Rate = 5% (0.05). Based on the statistical table of the distribution of the value r, the value, obtained from the value = 0.1090. Validity Criteria, If the $>$ and $r_{hitung} > r_{tabel}$ p -value < 0.05 , then the statement item is declared Valid., If the $<$ and $r_{hitung} > r_{tabel}$ p -value > 0.05 , then the statement item is declared Invalid.

The following is a table of validity test results for each indicator on the WebQual 4.0 dimension and the UEQ scale:

Table 2. Validity Test Results

Dimensions / Variables	Code Item	Value	Value	p-value	Conclusion
		r_{hitung}	r_{tabel}		
Usability (US)	US1	0.8176	0.1090	0.0000	Valid
	US2	0.8494	0.1090	0.0000	Valid
	US3	0.8552	0.1090	0.0000	Valid
Information Quality (IQ)	IQ1	0.8466	0.1090	0.0000	Valid
	IQ2	0.8457	0.1090	0.0000	Valid
	IQ3	0.8442	0.1090	0.0000	Valid
Service Interaction (SI)	SI1	0.8328	0.1090	0.0000	Valid
	SI2	0.8478	0.1090	0.0000	Valid
	SI3	0.8447	0.1090	0.0000	Valid
Attractiveness (ATT)	ATT1	0.7633	0.1090	0.0000	Valid
	ATT2	0.7617	0.1090	0.0000	Valid
	ATT3	0.7837	0.1090	0.0000	Valid
	ATT4	0.7835	0.1090	0.0000	Valid
	ATT5	0.7717	0.1090	0.0000	Valid
	ATT6	0.7806	0.1090	0.0000	Valid
Perspicuity (PER)	PER1	0.7980	0.1090	0.0000	Valid
	PER2	0.7864	0.1090	0.0000	Valid
	PER3	0.7895	0.1090	0.0000	Valid
	PER4	0.8086	0.1090	0.0000	Valid
Efficiency (EFF)	EFF1	0.8381	0.1090	0.0000	Valid
	EFF2	0.8384	0.1090	0.0000	Valid
	EFF3	0.8162	0.1090	0.0000	Valid
	EFF4	0.8198	0.1090	0.0000	Valid
Dependability (DEP)	DEP1	0.7592	0.1090	0.0000	Valid
	DEP2	0.7904	0.1090	0.0000	Valid
	DEP3	0.8061	0.1090	0.0000	Valid
	DEP4	0.7759	0.1090	0.0000	Valid
Stimulation (STI)	STI1	0.8062	0.1090	0.0000	Valid
	STI2	0.7952	0.1090	0.0000	Valid
	STI3	0.7800	0.1090	0.0000	Valid
	STI4	0.8068	0.1090	0.0000	Valid
Novelty (NOV)	NOV1	0.7236	0.1090	0.0000	Valid
	NOV2	0.7743	0.1090	0.0000	Valid
	NOV3	0.7422	0.1090	0.0000	Valid
	NOV4	0.7665	0.1090	0.0000	Valid

3.3 Reliability Test

In instrument testing using statistical methods, reliability tests aim to ensure that the questions in the questionnaire are consistent and stable (not random) if answered by different respondents. This test uses Cronbach's Alpha method. Based on statistical rules commonly used in Indonesia (such as from the book of Prof. Sugiyono or Prof. Imam Ghozali), a questionnaire instrument is said to be Reliable if *Cronbach's Alpha* value > 0.60 .

Table 3. Reliability

Variables/Dimensions	Quantity Item (N)	Value Cronbach's Alpha	Limits Minimal	Status
Usability (US)	3	0.7924	> 0.60	Reliabel
Information Quality (IQ)	3	0.8005	> 0.60	Reliabel

Service Interaction (SI)	3	0.7938	> 0.60	Reliabel
Attractiveness (ATT)	6	0.8662	> 0.60	Reliabel
Perspicuity (PER)	4	0.8068	> 0.60	Reliabel
Efficiency (EFF)	4	0.8471	> 0.60	Reliabel
Dependability (DEP)	4	0.7896	> 0.60	Reliabel
Stimulation (STI)	4	0.8084	> 0.60	Reliabel
Novelty (NOV)	4	0.7437	> 0.60	Reliabel

3.4 Service Quality Evaluation Results (WebQual 4.0)

WebQual 4.0 measurement uses a Likert scale of 1-5 to evaluate the system from a technical and organizational perspective. Based on data processing from 215 respondents, the mean value for each dimension was obtained. To make interpretation easier, the scale range is divided into categories: Very Poor (1.00 - 1.80), Poor (1.81 - 2.60), Adequate (2.61 - 3.40), Good (3.41 - 4.20), and Very Good (4.21 - 5.00).

Table 4. Results of Descriptive Analysis of WebQual 4.0 Dimensions

WebQual Dimension	4.0	Average (Mean)	Category	Interpretation of Findings
Usability		4,30	Excellent	Users rated the PMB system as very easy to operate, have clear navigation, and <i>user-friendly</i> interaction design.
(Uses) Information Quality		4,05	Good	Information related to the study program, fees, and application guidelines is presented accurately, relevantly, and quite <i>up-to-date</i> .
(Quality of Service) Service Interaction		3,80	Good	It is the dimension with the lowest score. Although generally good, the feature of the help/complaint response service to the technical problems of registrants still needs to be improved in responsiveness.
(Service Interactions) Overall Average		4,05	Good	The technical quality of the PMB information system in general has been operating well.

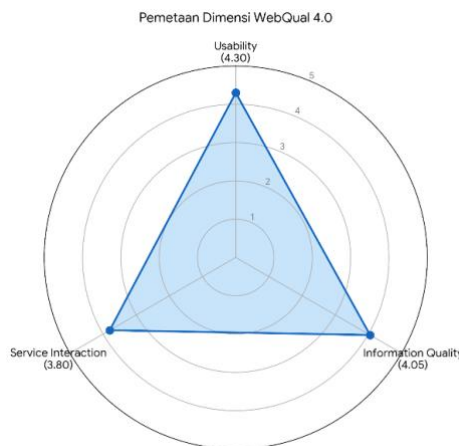


Fig. 2: Results of Descriptive Analysis of WebQual 4.0 Dimensions

Overall, the quality of PMB information system services based on WebQual 4.0 obtained an average score of 4.05 (Good Category). The Usability dimension is the main strength of the system by achieving the highest score (4.30/Excellent), which indicates that the system is easy to use by registrants. However, the Service Interaction dimension is the weakest point (3.80), so institutions are recommended to focus more on improving the interactive help service features for registrants.

3.5 User Experience Evaluation Results (UEQ)

Evaluation using the UEQ instrument aims to measure pragmatic experiences (ease, efficiency, precision) and hedonic experiences (stimulation, novelty, attractiveness). The raw score of the questionnaire (scale 1-7) has been transformed into an evaluation scale of -3 (very poor) to +3 (very good).

Based on the analysis using the *UEQ Data Analysis Tool*, an average value of > 0.8 indicates a positive evaluation, a value between -0.8 to 0.8 indicates a neutral evaluation, and a value of < -0.8 indicates a negative evaluation.

Table 5. Results of User Experience Questionnaire Scale Analysis (UEQ)

UEQ scale	Average (Mean)	Evaluation	Benchmark
Attractiveness (Attraction)	2,34	Positive	Users have an excellent initial impression and feel comfortable using the PMB system.
Perspicuity (Clarity)	2,36	Positive	The system is very easy to learn without the need for complicated manual guidance (<i>Pragmatic Aspect supreme</i>).

Dependability (Accuracy)	2,06	Positive	The system is stable, predictable, and users feel safe entering the registration personal data.
Efficiency (Efficiency)	2,03	Positive	The process of filling out the form and uploading supporting documents is fast and efficient.
Stimulation (Stimulation)	1,67	Positive	Users feel motivated enough to use the system until the registration process is complete.
Novelty (Newness)	1,47	Positive	The system's appearance is considered to be quite good, although visual interface innovation is the <i>aspect with the lowest score</i> .

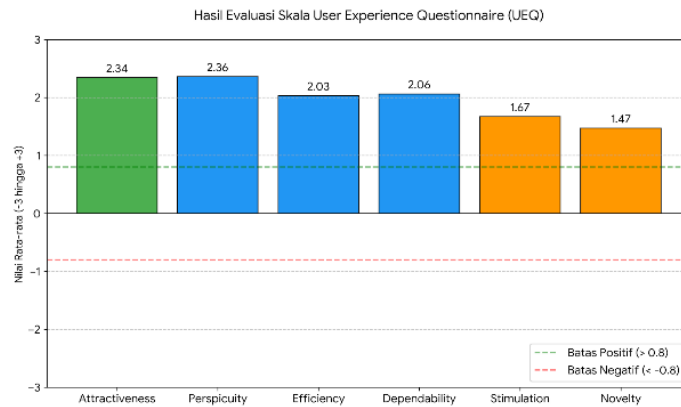


Fig. 3. Results of User Experience Questionnaire Scale Analysis (UEQ)

Overall, the quality of the system's pragmatic experience (*Perspicuity*, *Dependability*, *Efficiency*) received a very positive rating, in line with the high *Usability score* on WebQual 4.0. Meanwhile, in the quality of the hedonic experience, the system has also been in the positive category, although the *Novelty* scale still recorded the lowest score (1.47). This indicates that even though the functionality of the system is running well, developers are still recommended to refresh the visual interface to make the UI/UX look more innovative in the eyes of the Generation Z demographic.

3.6 Impact Analysis on Business Efficiency

In addition to measuring the perspective of registrants, this study also evaluates the operational impact of the system based on observations of 5 (five) Admission Unit staff as *key informants*. The high *Usability score* (4.30) on WebQual and the *Efficiency aspect* (2.03) on UEQ are proven to be directly proportional to the increase in business efficiency, which is measured through two key indicators: Reduction in Verification Time (75% Efficiency): Prior to system optimization, staff needed an average of 20 minutes per registrant to manually validate data and files. Through a more ergonomic centralized dashboard interface, the processing time was significantly reduced to an average of 5 minutes per registrant (75% time efficiency). Reduced Human Error (<2%): In conventional procedures, the rate of data *input* errors (such as typos or file mismatches) reaches 12%. With the automatic validation feature, upload format restrictions, and server stability (in line with the UEQ *Dependability* score of 2.06), the *human error rate* has been drastically reduced to below 2%. The dimension of interaction quality is significantly influenced by aspects of the credibility of the site, protection of personal information, and security guarantees when transacting or interacting [20].

The results of the evaluation show that the *Usability dimension* in WebQual 4.0 is the main advantage of the system with the highest score (4.30). The ease of navigation and filling out this form is in line with the findings of Arsyad et al.[13], which states *usability* as the main determinant of user satisfaction. However, these findings are contrary to the study of Zukanah et al.. [8] who found that the quality of information interaction was more dominant than the usefulness of system evaluation at the Institute of Qur'an Sciences Jakarta. This difference confirms that in the context of a crowded new student admission (PMB), speed and technical ease are much more crucial for users. On the other hand, *Service Interaction* was the weakest point (3.80) due to the lack of integration of *real-time assistance features* (such as *live chat*) to handle technical problems for registrants. From the perspective of the *User Experience Questionnaire* (UEQ), the high *usability* is confirmed by positive evaluations on pragmatic aspects, namely *Perspicuity* (2.36) and *Efficiency* (2.03). However, the hedonic quality on the *Novelty* (novelty) scale recorded the lowest score (1.47). As noted by Pratama et al [18], The low value of novelty in the academic system is generally due to the use of rigid and monotonous designs. Given that PMB registrants are dominated by Generation Z, more visual and modern interface (UI/UX) updates are urgently needed. The novelty of this study lies in empirical proof that the quality of user experience (*front-end*) has a direct impact on operational efficiency (*back-end*). The high quality of the system's pragmatism has been proven to facilitate the Admissions Unit in cutting file verification time by up to 75% and minimizing *human error* to below 2%. This confirms that investment in UI/UX improvement in the academic system is not just an aesthetic improvement, but a fundamental strategy to optimize the institution's business efficiency.

4. Conclusion

Based on the results of the evaluation of the Sari Mutiara Indonesia University Student Admission Information System using the WebQual 4.0 method and the User Experience Questionnaire (UEQ) among 324 respondents, it can be concluded that Service Quality: The system's overall functionality operates well (average WebQual score of 4.05), with Usability being the most prominent strength. However, support services and interaction regarding user complaints (Service Interaction) are the dimensions where responsiveness most needs to be improved. User Experience: The system proved to be very easy to learn and efficient (high pragmatic quality). All UEQ scales recorded

positive evaluations. Nevertheless, regarding hedonic quality, the Novelty scale achieved the lowest score (1.47), indicating the need to refresh the visual interface (UI/UX) to make it more modern and innovative for the demographic of registrants. Business Efficiency: The system's high ease of use has a direct impact on the operational optimisation of the Admissions Unit. Based on evaluations by staff as key informants, the system has significantly reduced data verification time by 75% (from 20 minutes to 5 minutes) and lowered the rate of data input errors (human error) from 12% to below 2%.

Recommendations Based on these findings, the following recommendations are made for developers and institutions: Improved Customer Support: Integrate responsive support features, such as Live Chat or a WhatsApp Gateway, to address registrants' technical issues in real time. UI/UX Updates: Refresh the visual interface to make it more modern, interactive, and mobile-friendly to enhance the system's novelty. Further Research: It is hoped that the scope of evaluation can be expanded to other academic portals (such as Course Registration Systems/E-Learning) by integrating additional evaluation models such as the HOT-Fit method.

References

- [1] Z. Zukanah *et al.*, "Pengukuran Kualitas Layanan Sistem Informasi Akademik Menggunakan Metode Webqual 4.0," *Emerg. Infomation Syst. Bus. Intell.*, vol. 8, no. 3, pp. 810–817, 2024.
- [2] Y. D. Prada, A. F. N. Muhammad, and L. M. Ali, "Pengembangan Model Administrasi Pembelajaran Terpadu 360 Berbasis Google Sites Yang Adaptif Dan Replikatif Untuk Guru SD/MI (Studi Pengembangan Pada Kelas III MI AL Ikhlas Parakan Kauman)," *J. Manaj. Pendidik.*, vol. 11, no. 2, pp. 2161–2180, 2026, doi: <https://doi.org/10.34125/jmp.v11i2.2019>.
- [3] A. Hinderks, M. Schrepp, M. Rauschenberger, Jörg, and Thomaschewski, "Reconstruction and Validation of the UX Factor Trust for the User Experience Questionnaire Plus (UEQ+)," *WEBIST 2023 - 19th Int. Conf. Web Inf. Syst. Technol.*, 2023, doi: <https://doi.org/10.25968/opus-3146>.
- [4] A. Abdul-Salam, I. O. Adam, and M. Preko, "User experience and control mechanisms: A PLS-SEM study of digital government services in a developing country context," *Strateg. Bus. Res.*, vol. 2, no. 1, p. 100143, Dec. 2026, doi: 10.1016/j.sbr.2026.100143.
- [5] N. R. Wiwesa, "User Interface Dan User Experience Untuk Mengelola Kepuasan Pelanggan," *J. Sos. Hum. Terap.*, vol. 3, no. 2, 2021, [Online]. Available: <https://scholarhub.ui.ac.id/jsht/vol3/iss2/2>
- [6] D. Priyono, A. Ramdhani, and R. Hardian, "Desain User Interface Informasi Prodi Desain Komunikasi Visual melalui Media Digital Website," *J. Desain*, vol. 7, no. 3, p. 223, Aug. 2020, doi: 10.30998/jd.v7i3.5877.
- [7] M. F. Huwaidy, "Pemanfaatan Uml Dalam Perancangan Website Sistem Informasi Alumni Pesantren La Tansa Angkatan Tenacious," *J. Inform. dan Tek. Elektro Terap.*, vol. 13, no. 3, Jul. 2025, doi: 10.23960/jitet.v13i3.6796.
- [8] Z. Zukanah, S. Rahmatullah Abdul, and A. Sayfullloh, "Metode WEBQUAL 4.0 untuk Analisis Evaluasi Kualitas Website Sistem Informasi Akademik Institut Ilmu Al-Qur'an Jakarta," *REMIK Ris. dan E-Jurnal Manaj. Inform. Komput.*, vol. 8, no. 3, pp. 810–817, 2024.
- [9] N. Q. Nada and S. Wibowo, "Pengukuran Kualitas Layanan Sistem Informasi Akademik Menggunakan Metode Webqual 4.0," *J. Inform. UPGRIS*, vol. 1, no. 2, pp. 112–119, 2015.
- [10] R. H. Nasution and D. Enda, "Analisis Kualitas Website Diskominfo Bengkalis Menggunakan Metode Webqual 4.0," *J. Ilm. Sist. Inf.*, vol. 4, no. 3, pp. 458–474, Aug. 2025, doi: 10.51903/x2hs4q46.
- [11] E. D. Yang, L. Y. Baisa, and M. Sanglise, "Evaluasi kualitas website e-learning UNIPA menggunakan metode Webqual 4.0," *AITI*, vol. 21, no. 2, pp. 285–297, Sep. 2024, doi: 10.24246/aiti.v21i2.285-297.
- [12] M. A. K. A. Fahreza, S. H. Wijoyo, and I. S. E. Maghfiroh, "Analisis Kualitas Website Menggunakan Metode Webqual 4.0 dan Importance Performance Analysis (IPA) (Studi Kasus Website XYZ Laboratorium Teknik Universitas Brawijaya)," *J. Pengemb. Teknol. Inf. dan Ilmu Komput.*, vol. 9, no. 10, pp. 1–9, 2025, [Online]. Available: <https://j-ptiik.ub.ac.id/index.php/j-ptiik/article/view/15404/6842>
- [13] I. Arsyad, M. Rahmawita, A. Marsal, and M. Fronita, "Analisa Kualitas Layanan Sistem Akademik Mahasiswa Terhadap Kepuasan Pengguna Menggunakan Metode Webqual 4.0," *JOISIE (Journal Inf. Syst. Informatics Eng.)*, vol. 9, no. 1, p. 228, Jul. 2025, doi: 10.35145/joisie.v9i1.5029.
- [14] R. W. A. Rohma and I. K. D. Nuryana, "Evaluasi Kualitas Layanan Sistem Informasi Menggunakan Metode Webqual 4.0 Dan Human Organization Technology (HOT) FIT," *Emerg. Infomation Syst. Bus. Intell.*, vol. 03, no. 04, pp. 29–35, 2022.
- [15] Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta, 2019.
- [16] S. J. Barnes and R. Vidgen, "Measuring Web site quality improvements: a case study of the forum on strategic management knowledge exchange," *Ind. Manag. Data Syst.*, vol. 103, no. 5, pp. 297–309, Jul. 2003, doi: 10.1108/02635570310477352.
- [17] B. Laugwitz, T. Held, and M. Schrepp, "Construction and Evaluation of a User Experience Questionnaire," in *HCI and Usability for Education and Work*, Springer, Berlin, Heidelberg, 2008, pp. 63–76. doi: 10.1007/978-3-540-89350-9_6.
- [18] A. Pratama, A. Farqi, and E. P. Mandyartha, "Evaluation of User Experience in Integrated Learning Information Systems Using User Experience Questionnaire (UEQ)," *J. Inf. Syst. Informatics*, vol. 4, no. 4, pp. 1019–1029, Nov. 2022, doi: 10.51519/journalisi.v4i4.394.
- [19] I. M. L. M. JAYA, *Metode Penelitian Kuantitatif & Kualitatif: Teori, Penerapan*. Quadrant, 2020.
- [20] E. Satria, M. R. Nashrulloh, Lindawati, A. Wandani, D. D. S. Fatimah, and I. A. Zuhaira, "User Satisfaction Analysis of Kartu Indonesia Pintar Kuliah Website Using Webqual 4.0 Method and Structural Equation Model," in *2025 International Conference on ICT for Smart Society (ICISS)*, IEEE, Sep. 2025, pp. 1–6. doi: 10.1109/ICISS66954.2025.11389539.