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Assessing Academic Website Quality Using the WebQual 4.0 Framework

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ABSTRACT

The rapid growth of digital technologies in higher education has encouraged universities to improve academic service delivery through integrated online platforms. This study aims to measure the quality of the E-PPT (Pusat Pelayanan Terpadu Berbasis Elektronik) website of the Faculty of Computer Science, Universitas Sriwijaya, using the WebQual 4.0 model. A quantitative descriptive method was adopted, involving 354 valid respondents drawn from a total faculty population of 3,058 students across four academic levels (Diploma, Undergraduate, Master's, and Doctoral). Data were collected via an online survey and analyzed using Microsoft Excel and SPSS. The website achieved an overall mean score of 3.60, indicating a good level of quality. Information Quality showed the highest performance (3.68), followed by Usability (3.58) and Service Interaction Quality (3.56). A supplementary correlation analysis also confirmed positive associations among the WebQual dimensions and overall website quality. These results suggest that the website delivers accurate information and is easy to use, although improvements are needed in responsiveness and interaction quality.

I. INTRODUCTION

The development of information technology has brought significant transformation to higher education. Digitalization has become a strategic instrument for improving the efficiency and quality of academic services [1]. A website functions not only as an information medium but also as an integrated academic service center that supports administrative and online learning activities. Therefore, the quality of a website is a key factor in ensuring the success of digital transformation within universities [2].

Digital transformation in Indonesia's higher education sector continues to evolve alongside the increasing internet penetration rate, which has reached 78.19%, dominated by users aged 19–34 years — the majority of whom are active university students [3]. Expectations for digital services that are fast, accessible, and responsive are rising accordingly. The government has also designated education as a priority sector in the national digital transformation agenda to achieve adaptive and efficient public services [4]. Higher education institutions are encouraged to continuously enhance digital service quality, ensuring that systems not only function properly but also remain reliable, secure, and user-centered. This condition urges universities to provide online service systems that are not only functional but also capable of delivering optimal user experience [5].

The The Faculty of Computer Science at Universitas Sriwijaya provides the E-PPT (Pusat Pelayanan Terpadu Berbasis Elektronik) platform as a web-based academic service system designed to facilitate administrative processes for the academic community [6]. Through this platform, students and lecturers can submit various requests, including academic certificate applications, assignment letters, and reporting of academic activities in accordance with established service procedures. In broader contexts, several studies have highlighted challenges commonly found in academic information systems, such as slow access performance and complex navigation structures that may hinder user experience [7]. Similar usability concerns, particularly related to ease of use and clarity of interface flow, have also been reported in other campus-based digital service platforms [8]. These considerations encourage further examination of whether the E-PPT website has adequately supported the academic needs of its users.

Limitations in usability and information quality can directly affect the quality of a website as an academic service platform. Non-intuitive design and layout may slow down service processes and increase the likelihood of

administrative errors[9]. Inaccurate or infrequently updated information also reduces system reliability and hinders users from obtaining the data they need [10]. Previous studies indicate that usability and service interaction are the most influential dimensions in assessing website quality, while the service interaction aspect still requires greater attention for further improvement [11]. These findings highlight the need for a structured evaluation framework that comprehensively measures the quality of digital academic services from the user's perspective.

Several evaluation methods are commonly adopted in higher education contexts. The User Experience Questionnaire (UEQ) provides useful insight into usability and emotional response, yet it does not specifically assess information accuracy or service interaction quality, which are critical for academic administrative systems [12]. Meanwhile, the SERVQUAL model focuses on the gap between expectations and perceptions of service quality within educational institutions, but it is less tailored for assessing web-based academic platforms [13]. Recent studies indicate that the TAM model is widely applied to assess user acceptance of information systems through perceived usefulness and perceived ease of use; however, this model primarily measures behavioral acceptance rather than the quality of information or service interaction, making it less suitable for evaluating the overall quality of academic administrative websites [14]. Considering these limitations, this study adopts the WebQual 4.0 model, which has been widely used to evaluate website quality from the user's perspective. This model assesses three main dimensions—usability, information quality, and service interaction quality—which comprehensively represent the quality of digital services [15]. This approach has proven useful in identifying the strengths and weaknesses of web-based systems within higher education institutions, providing a foundation for improvement that is oriented toward user experience [16]. Similar evidence indicates that WebQual 4.0 is capable of accurately assessing the gap between user perceptions and the actual performance of digital services. This model has been proven suitable in evaluating service quality based on users' expectations and experiences, making it relevant for institutions aiming to enhance digital service performance and user satisfaction [17].

Although WebQual 4.0 has been widely applied in evaluating academic information systems, no prior study has examined the quality of the E-PPT website used at the Faculty of Computer Science, Universitas Sriwijaya. The novelty of this research lies in assessing a newly implemented academic service platform that has not yet undergone empirical evaluation using a standardized user-experience framework. This study contributes contextual insights by identifying dimension-level strengths and weaknesses across usability, information quality, and service interaction quality, providing practical recommendations and baseline data for future E-PPT development.

II. METHOD

This research adopted a quantitative descriptive design to assess the quality of the E-PPT website at the Faculty of Computer Science, Universitas Sriwijaya. The WebQual 4.0 model was applied as an analytical framework to measure website quality across through key dimensions: usability, information quality, and service interaction quality.

The study workflow started with problem identification and reviewing relevant literature as the theoretical foundation. It was followed by defining the population and sample, designing the research instrument based on the WebQual 4.0 dimensions, and collecting data through a structured questionnaire distributed to students. To ensure measurement accuracy, the questionnaire underwent validity and reliability testing prior to the main survey. The validated data were then analyzed quantitatively using descriptive statistics to interpret user perceptions of the website's quality.

The overall research procedure was systematically conducted in several stages, as presented in Figure 1.

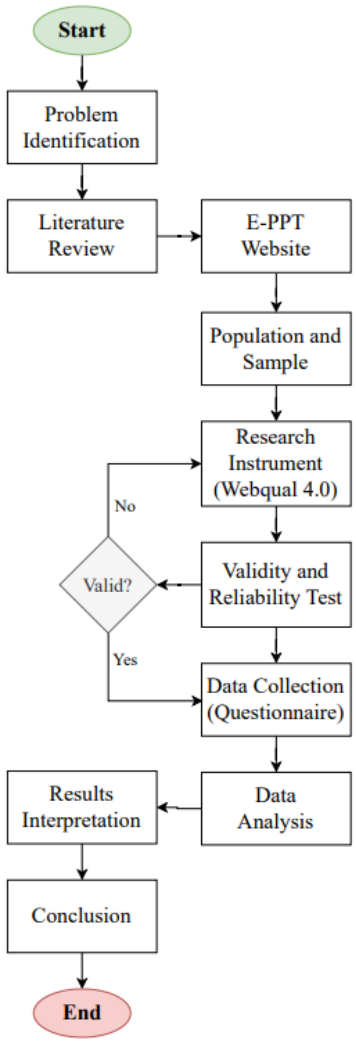

Figure 1. Research Flow Diagram

A. Population and Sample

The study population comprised 3,058 active students registered in the Faculty of Computer Science, Universitas Sriwijaya, from the academic years 2022 to 2025, as recorded in the Higher Education Database [18]. This population covered students from all academic levels, including Diploma (D3), Undergraduate (S1), Master's (S2), and Doctoral (S3) programs within the Faculty of Computer Science. The detailed distribution of students by academic level and study program is presented in Table I.

TABLE I
POPULATION DISTRIBUTION FACULTY OF COMPUTER SCIENCE UNIVERSITAS SRIWIJAYA (2022-2025)

Level	Program	Population
D3	Informatics Management	341
	Computerized Accounting	167
	Computer Engineering	299
S1	Information Systems	713
	Computer Systems	760
	Informatics Engineering	704
S2	Computer Science	58
S3	Computer Science	16
Total		**3,058**

To determine the minimum number of respondents, the Slovin formula was applied at a 5% margin of error, which is commonly applied in quantitative research and widely recommended in methodological literature [19], as a practical approach for obtaining an adequate and statistically dependable sample size.

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

Where:
n = sample size,
N = population (3,058),
e = error tolerance (0.05).

$$n = \frac{3,058}{1+3,058(0.05)^2} \approx 354$$

This study employed accidental (convenience) sampling, a non-probability technique commonly applied in quantitative and online survey–based research because of its operational simplicity and accessibility [20]. The questionnaire link was distributed through the E-PPT platform and official academic communication channels, enabling participation from students who had actively used the system. Although convenience sampling does not ensure equal probability for each individual in the population, the approach is appropriate for studies evaluating system usability and user experience. To reduce potential sampling bias, the survey remained open to respondents across all academic levels (D3 to S3) until the minimum sample size (n = 354), as determined using the Slovin formula, was fulfilled.

B. Research Instrument

The instrument used in this study was a structured questionnaire adapted from the WebQual 4.0 framework by Barnes and Vidgen, which measures website performance from the user perspective through three dimensions: usability, information quality, and service interaction quality [21]. Each aspect was measured with five item, producing a total of 15 indicators designed to provide balanced coverage of all WebQual 4.0 components and maintain practical response time for participants. Responses were collected using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) [22].

The interpretation of the response scale used in this study is presented in Table II.

TABLE II
LICERT SCALE MEASUREMENT

Score	Category
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

To evaluate user perceptions regarding the quality of the E-PPT website, each WebQual 4.0 indicator was assessed based on its mean score. This analytical approach allows a systematic interpretation of user responses across the usability, information quality, and service interaction dimensions.

Table III presents the descriptive statistical results for all questionnaire items.

TABLE III
QUESTIONNAIRE ITEMS BASED ON WEBQUAL 4.0 DIMENSIONS

Dimension	Code Item	Indicator
Usability	U1	The E-PPT website interface is easy to understand.
	U2	The website's menu navigation is simple and user-friendly
	U3	The page layout and structure are consistent and well-organized.
	U4	I experience no significant difficulty when accessing the required features.
	U5	The website pages load quickly during access.
Information Quality	I1	The information displayed on the E-PPT website is accurate and trustworthy.
	I2	The content presented on the website is easy for users to comprehend.
	I3	The information provided on the website is regularly updated.
	I4	The information regarding service procedures and workflows is easy to locate.

	I5	The requested documents or letters submitted through E-PPT are available as needed.
Service Interaction Quality	S1	The website responds effectively to my requests.
	S2	The notification or service status information is clearly displayed.
	S3	The process of submission and service follow-up is performed promptly.
	S4	The system operates smoothly without frequent technical disruptions.
	S5	I feel comfortable interacting with the E-PPT online service system.

As shown in Table III, the WebQual 4.0 model consists of three dimensions, each represented by five measurement items. The usability dimension assesses ease of use and navigational flow, while information quality examines content accuracy, clarity, and relevance. Meanwhile, service interaction evaluates responsiveness, reliability, and user comfort when using the E-PPT system.

C. Data Collection

To collect data, the study applied a quantitative survey, where responses were recorded through an online Google Forms questionnaire, a widely adopted platform for academic data collection [23]. Respondents were required to have previously used the E-PPT website for academic administrative purposes, such as document submission, verification, or information access. A total of 356 responses were collected. After a data cleaning process to remove two duplicate entries and correct minor demographic inconsistencies based on verified academic information (e.g., study level and year inferred from student ID), 354 valid responses were retained for analysis, ensuring that only accurate and relevant user inputs were included in the final dataset.

D. Validity and Reliability

Before being distributed to the main respondents, the questionnaire underwent a pilot test involving 35 students to ensure the clarity, consistency, and appropriateness of each statement. Following the pilot test, to evaluate validity, the study employed the Pearson Product–Moment approach, in which items achieving r-count values above the r-table benchmark of 0.334 (df = 33) at a 0.05 significance level were classified as valid [24]. Reliability was then verified using Cronbach's Alpha, with a minimum coefficient requirement of 0.70 [25]. All constructs achieved coefficient values above the threshold, indicating strong internal consistency and confirming that the instrument was reliable for data collection.

E. Data Analysis

The responses obtained from participants were processed using descriptive statistical techniques to measure perceptions across the three WebQual 4.0 dimensions. The collected data were analyzed using Microsoft Excel and SPSS software to generate descriptive statistics, including frequencies, percentages, and mean scores for each questionnaire indicator. These statistical outputs were used to summarize user responses and evaluate perception levels across the WebQual 4.0 dimensions. The interpretation of mean scores was based on a scale derived by dividing the 1–5 Likert range into five equal intervals of 0.8 [19].

The detailed classification can be seen in Table IV.

TABLE IV
SCORE RANGE AND INTERPRETATION CATEGORIES

No	Score Range	Category
1	1.00 – 1.79	Very Poor
2	1.80 – 2.59	Poor
3	2.60 – 3.39	Fair
4	3.40 – 4.19	Good
5	4.20 – 5.00	Very Good

Table IV displays the score range classification used to interpret the Likert-scale means. The 1–5 scale is divided into five equal intervals, each representing a qualitative category from "Very Poor" to "Very Good." This categorization serves as the basis for evaluating user perceptions across the WebQual 4.0 dimensions.

In addition to descriptive analysis, an inferential test was conducted to provide supplementary statistical evidence regarding the relationships among the three WebQual 4.0 dimensions. Pearson Product–Moment correlation was employed to examine the linear associations among Usability, Information Quality, Service Interaction Quality, and overall website quality, as recommended in quantitative data analysis procedures. The analysis was performed at a 0.01 significance level. The interpretation of correlation strength in this study follows the conventional guideline in which $r \approx 0.10$ indicates a small effect, $r \approx 0.30$ a medium effect, and $r \geq 0.50$ a large effect [26].

III. RESULT AND DISCUSSION

The data analysis stage aimed to interpret the results obtained from the distribution of questionnaires based on the WebQual 4.0 dimensions. This section presents the findings derived from the descriptive statistical analysis of respondent characteristics and their perceptions of the E-PPT website's quality. The results are organized to highlight key insights regarding usability, information quality, and service interaction quality, which together provide a comprehensive understanding of the website's overall quality.

A. Respondent Profile

This study involved 354 valid respondents who were active students at the Faculty of Computer Science, Universitas Sriwijaya, encompassing various academic levels and study programs. The collected data represent a diverse set of user experiences in accessing and utilizing the E-PPT website for academic administrative activities.

Table V presents the demographic distribution of respondents by academic level, study program, and year of enrollment.

TABLE V
DISTRIBUTION OF RESPONDENTS BY STUDY LEVEL AND PROGRAM

Level	Program	n	%
D3	Informatics Management	37	10.45
	Computerized Accounting	27	7.63
	Computer Engineering	18	5.08
S1	Information Systems	126	35.60
	Computer Systems	92	25.59
	Informatics Engineering	51	14.41
S2	Computer Science	2	0.56
S3	Computer Science	1	0.28
Total		**354**	**100**

As shown in Table V, most respondents were undergraduate students, particularly from the Information Systems, Computer Systems, and Informatics Engineering programs. This indicates that the E-PPT platform is mainly accessed by students from IT-related fields who frequently engage in academic administrative activities. Meanwhile, the smaller representation from diploma and postgraduate levels suggests that their interaction with the system is relatively limited compared to undergraduate users.

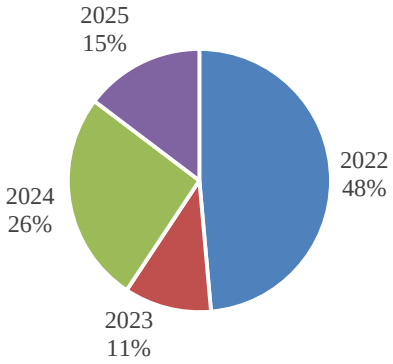

Figure 2. Distribution of Respondents by Enrollment Year

As Figure 2 presents, the distribution of respondents based on enrollment year shows that the largest group was from the 2022 cohort (n = 172; 48.59%), followed by 2024 (n = 92; 25.99%), 2025 (n = 52; 14.69%), and 2023 (n = 38; 10.73%). Although the questionnaire was distributed randomly through online channels, the resulting proportions still reflect adequate diversity across student cohorts. This distribution ensures that the collected data represent various academic levels and experiences within the Faculty of Computer Science, thereby maintaining the validity and generalizability of the subsequent analysis on website quality.

B. Validity Test and Reliability Test

Validity testing was conducted using the full dataset of 354 respondents. The Pearson Product–Moment correlation was applied by comparing each item score with the total construct score. With a significance level of 0.05 and df = 352 (n − 2), the corresponding r-table value was 0.104. Measurement items with r-count values exceeding 0.104 were classified as valid.

TABLE VI
VALIDITY TEST RESULT

Dimension	Item	r-count	Status
Usability	U1	0.734	Valid
	U2	0.726	Valid
	U3	0.721	Valid
	U4	0.765	Valid
	U5	0.576	Valid
Information Quality	I1	0.611	Valid
	I2	0.747	Valid
	I3	0.668	Valid
	I4	0.729	Valid
	I5	0.708	Valid
Service Interaction Quality	S1	0.738	Valid
	S2	0.695	Valid
	S3	0.653	Valid
	S4	0.691	Valid
	S5	0.813	Valid

As shown in Table VI, all items across the three dimensions have r-count values ranging from 0.576 to 0.813, exceeding the r-table value of 0.104 for N = 354. This result confirms that every statement item is valid and appropriately measures the intended construct. The Usability items show r-count values between 0.576 and 0.765, the Information Quality items range from 0.611 to 0.747, and the Service Interaction Quality items vary between 0.653 and 0.813. These values indicate that the questionnaire items are empirically aligned with the theoretical structure of WebQual 4.0, ensuring that the instrument is suitable for full-scale data analysis.

TABLE VII
RELIABILITY TEST RESULT

Cronbach's Alpha	Status
0.927	Excellent

Reliability assessment was conducted using the full dataset of 354 respondents, as presented in Table VII. Cronbach's Alpha was calculated for all 15 items that had previously met the validity requirements. The resulting coefficient of 0.927 exceeds the conventional minimum threshold of 0.70 and falls within the 'Excellent' reliability category. This indicates that the measurement instrument demonstrates very high internal consistency, confirming that the WebQual-based questionnaire is statistically robust and suitable for full-scale analysis.

C. Webqual 4.0 Dimension Analysis

To assess users' perceptions regarding the E-PPT system, this research adopts the WebQual 4.0 instrument encompassing three principal dimensions: Usability, Information Quality, and Service Interaction Quality. Each

dimension comprised five indicators (U1–U5, I1–I5, S1–S5) assessed on a five-point Likert scale to capture users' experience and satisfaction. Descriptive analysis was employed to calculate mean scores for each item, providing empirical evidence of how well the website supports academic digital services.

The detailed results of the analysis are presented in Table VIII, which summarizes the mean scores and categorical evaluations for each indicator, based on the categories defined in Table IV Data Analysis.

TABLE VIII
MEAN SCORES OF WEBQUAL 4.0 ITEMS

Dimension	Item	Mean	Category
Usability	U1	3.64	Good
	U2	3.65	Good
	U3	3.51	Good
	U4	3.56	Good
	U5	3.52	Good
Information Quality	I1	3.84	Good
	I2	3.79	Good
	I3	3.49	Good
	I4	3.53	Good
	I5	3.76	Good
Service Interaction Quality	S1	3.70	Good
	S2	3.56	Good
	S3	3.36	Fair
	S4	3.45	Good
	S5	3.61	Good

Based on Table VIII, all indicators within the three WebQual 4.0 dimensions obtained mean values ranging between 3.36 and 3.84, classifying them within the Good category except for one indicator (S3) that reached a Fair level.

1) *Usability*: The Usability dimension demonstrates relatively consistent performance, with mean scores ranging from 3.51 to 3.65, indicating that users generally find the E-PPT interface easy to navigate. This suggests that the website's layout, menu clarity, and interface structure function adequately. However, the absence of higher scores implies that certain usability aspects—such as the intuitiveness of menu placement or the efficiency of navigation paths—may still require refinement. Minor usability challenges such as extra clicks or unclear button placement often slow down task completion, which is consistent with usability issues commonly identified in academic service portals.

2) *Information Quality:* Information Quality recorded the highest overall mean scores (3.49–3.84), reflecting strong user perceptions regarding accuracy, relevance, and completeness of the displayed information. The highest indicator (I1 = 3.84) confirms that content accuracy is a major strength of the system. Nevertheless, slightly lower scores in indicators related to completeness and update frequency indicate that users may occasionally encounter outdated or insufficient procedural information. This pattern is common in administrative systems where rapid policy updates are not always synchronized with website content. Strengthening update consistency would further reinforce the system's content reliability.

3) *Service Interaction Quality*: Service: The Service Interaction Quality shows the widest performance variation, with scores ranging from 3.36 to 3.70. The lowest indicator (S3 = 3.36), categorized as Fair, suggests that response time and the quality of interaction between users and administrative staff remain areas of concern. This reflects potential delays in handling user inquiries or limitations in communication channels. Such issues typically occur in systems where request processing is still partially manual or dependent on staff availability. Despite this, indicators such as S1 and S5 fall within the Good category, implying that reliability and trustworthiness of the service remain acceptable. Improvements in responsiveness and feedback mechanisms would help elevate this dimension's overall performance.

TABLE IX
SUMMARY OF WEBQUAL 4.0 DIMENSION SCORES

Dimension	Mean	Category
Usability	3.58	Good
Information Quality	3.68	Good
Service Interaction Quality	3.56	Good
Overall Average	**3.60**	**Good**

As shown in Table IX, the overall mean score of 3.60 falls within the Good category, as outlined in the Tabel IV Data Analysis section. This indicates that the E-PPT website achieves a consistent level of performance across all WebQual 4.0 dimensions and is perceived as as providing adequate support for digital academic services. The Information Quality dimension achieved the highest rating (3.68), highlighting that users appreciate the platform's ability to deliver accurate, clear, and comprehensive information, which strengthens the website's role as a reliable academic information platform. The Usability dimension (3.58) also shows a positive perception, indicating that the website is generally intuitive and straightforward to navigate, although slight improvements in responsiveness and visual consistency could enhance the overall experience. Meanwhile, Service Interaction Quality obtained a slightly lower score (3.56), suggesting that while interaction and feedback mechanisms are adequate, response speed and system stability still require refinement.

Overall, the narrow range of mean values across dimensions signifies balanced performance, validating that usability, information reliability, and service interaction work cohesively in shaping user satisfaction and demonstrating the E-PPT website's quality as a digital academic service platform.

D. Correlation Analysis Among WebQual Dimensions

This subsection presents the Pearson product–moment correlation analysis to examine the statistical relationships among the three WebQual 4.0 dimensions: Usability, Information Quality, and Service Interaction. The correlation test was employed to provide additional inferential evidence that complements the descriptive findings and strengthens the interpretation of how each dimension contributes to overall website quality.

TABLE X
PEARSON CORRELATION AMONG WEBQUAL 4.0 DIMENSIONS

Variables	Usability	Information Quality	Service Interaction Quality
Usability	1.000	0.318**	0.346**
Information Quality	0.318**	1.000	0.389**
Service Interaction Quality	0.346**	0.389**	1.000

Notes: N = 354. ** p < 0.01 (2-tailed). Pearson correlation method.

The results of the Pearson correlation analysis provide additional inferential evidence that strengthens the descriptive findings of the WebQual 4.0 assessment. The correlation between Usability and Information Quality ($r = 0.318$, $p < 0.01$) indicates a moderate positive relationship, suggesting that improvements in interface clarity, navigation ease, and layout consistency are likely to enhance users' perception of information accuracy and relevance within the E-PPT system. This finding aligns with prior studies showing that well-designed interfaces facilitate more efficient information retrieval in academic service platforms.

A similar pattern is observed in the correlation between Usability and Service Interaction Quality ($r = 0.346$, $p < 0.01$). This relationship implies that users who find the system easy to use also tend to experience smoother interactions with system administrators and more responsive service features. The moderate strength of this correlation highlights that usability is an important driver of perceived service responsiveness, reinforcing the need for continuous optimization of menu structure, loading performance, and user flow.

Furthermore, Information Quality shows a positive correlation with Service Interaction Quality ($r = 0.389$, $p < 0.01$), the highest among the three relationships. This suggests that when users perceive the platform's information as accurate, complete, and trustworthy, they are also more likely to evaluate administrative interactions positively. This association indicates that content reliability directly contributes to overall service satisfaction, reflecting the complementary nature of information provision and service interaction in digital academic systems.

Overall, these correlation results demonstrate that the three WebQual 4.0 dimensions are interrelated and mutually reinforcing. Incorporating this inferential analysis addresses reviewer concerns by providing deeper insights into how each dimension contributes to the quality of the E-PPT website, moving beyond surface-level descriptive statistics and offering stronger empirical justification for the study's conclusions.

E. Discussion and Recommendation

The findings of this study reveal that the Information Quality dimension achieved the highest mean score, followed by Usability, while Service Interaction Quality received the lowest. This pattern implies that the e-PPT system already provides clear and relevant academic information, which is essential for administrative accuracy and user trust. However, the relatively lower score in service interaction indicates that aspects such as responsiveness and communication have not yet met user expectations. This matters because interactive responsiveness plays a crucial role in academic service systems where students often rely on timely support for urgent administrative processes. Thus, strengthening interactive service components—such as confirmation messages, faster response handling, and more transparent progress tracking—could significantly enhance user experience.

These results are consistent with findings from previous WebQual-based studies [8] and [17], which similarly reported strong performance in information delivery but identified interaction quality as the dimension requiring improvement. The similarity in outcomes across different institutional contexts suggests that interaction quality is a recurring challenge in academic digital services in Indonesia. Future research may incorporate complementary analytical methods such as Importance-Performance Analysis (IPA) to prioritize service enhancements or apply Structural Equation Modeling (SEM) to examine causal relationships between WebQual dimensions and satisfaction or intention to continue using the platform. Expanding the respondent scope—such as including staff and lecturers—may also provide broader insights into system quality.

The supplementary Pearson correlation analysis further strengthens these findings by confirming positive and significant associations among all WebQual 4.0 dimensions and overall website quality. The strongest relationships were observed between information-related and interaction-related aspects, indicating that users who perceive the platform's information as accurate and trustworthy also tend to evaluate its interactive features more positively. Meanwhile, usability showed a meaningful connection with both information quality and service interaction, suggesting that clearer interfaces and smoother navigation can indirectly enhance interaction experiences. These correlations imply that improvements in any single dimension—particularly interaction-related features—can contribute to better overall user perceptions of the E-PPT system.

To provide more actionable insights for system improvement, this study further examines the lowest-performing indicators within each WebQual 4.0 dimension. Identifying item-level weaknesses enables more precise

recommendations that directly correspond to user feedback, rather than relying on general suggestions. This approach ensures that the proposed improvements are firmly grounded in empirical data and address the specific aspects of the E-PPT website that users evaluated most critically.

Table XI summarizes these data-driven recommendations based on the lowest item scores in each dimension.

TABLE XI
DATA-DRIVEN RECOMMENDATIONS BASED ON ITEM-LEVEL FINDINGS

Lowest Item Score	Issue Indicated	Recommendation
Usability (U2 = 3.51)	Page layout and structure not fully intuitive, causing extra navigation effort	Refine page layout, streamline navigation paths, and restructure menu hierarchy to reduce cognitive effort.
Information Quality (I3 = 3.49)	Some content is not fully clear or comprehensive	Improve clarity of presented information, standardize instructional text, and ensure consistent content updates.
Service Interaction Quality (S3 = 3.36, *lowest of all items)*	System responsiveness and feedback indicators are insufficient	Enhance request-response mechanisms and implement automated progress/status notifications.

The item-level findings summarized in Table XI highlight the specific aspects of the E-PPT website that users evaluated most critically. These issues reflect practical pain points related to navigation clarity, information completeness, and interaction responsiveness. Addressing these areas directly can guide targeted system refinements that align with users' actual experience and expectations.

F. Limitation Research

This study acknowledges several methodological limitations that may influence the interpretation and generalizability of the findings. The sampling process employed an accidental (convenience) sampling technique, a non-probability method that may limit representativeness. First, the use of an online questionnaire as the sole data collection method introduces the potential for self-selection bias and non-response bias, as participation was voluntary and dependent on respondents' willingness to engage with the survey. Consequently, the sample may not fully represent the entire population of E-PPT users across all academic levels.

Second, the quality of the E-PPT website was assessed exclusively through user-perception data without incorporating additional evaluation approaches such as server log analysis (e.g., page load time, error rates), usability testing, or behavioral analytics. The absence of methodological triangulation means that the results reflect subjective user experiences rather than objective system performance metrics. While perception-based evaluation is common in WebQual studies, future research may integrate mixed-method approaches to obtain a more comprehensive assessment of digital academic service quality.

Finally, the study focuses on a single institutional platform within one faculty environment, which may limit the broader generalizability of the findings. Future investigations may extend the evaluation to multi-faculty or university-wide platforms to capture a more diverse range of user experiences and system characteristics.

IV. CONCLUSION

This study implemented the WebQual 4.0 model to measure the quality of the E-PPT website at the Faculty of Computer Science, Universitas Sriwijaya. Based on the results of the descriptive analysis of 354 valid respondents, the website achieved an overall mean score of 3.60, which falls within the Good category. This indicates that the E-PPT platform demonstrates good quality in supporting academic administrative services. Among the three WebQual 4.0 dimensions, Information Quality obtained the highest mean score of 3.68, highlighting the accuracy, clarity, and reliability of the information provided. Usability followed with a mean of 3.58, suggesting that users find the website easy to understand and navigate. Meanwhile, Service Interaction Quality scored 3.56, showing that while the system operates reliably, improvements in response speed and communication feedback would enhance user satisfaction. Overall, the findings confirm that the E-PPT website quality fulfills its function as a digital academic service platform. The supplementary Pearson correlation analysis further reinforces these conclusions by demonstrating positive associations among the WebQual dimensions and overall website quality. However, the slightly lower score in the Service Interaction dimension indicates the need for optimization in service responsiveness and interface communication to achieve higher efficiency and user engagement.

Enhancing system responsiveness, real-time feedback, and interface design should be key priorities to improve user experience and processing speed. Future studies may also utilize methods like Importance-Performance Analysis (IPA) or Structural Equation Modeling (SEM) to examine causal factors and refine improvement strategies.

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