

APPLICATION OF THE DELONE & MCLEAN MODEL ON THE INFLUENCE OF SYSTEM QUALITY OF THE "KAMPUS KITA MAHASISWA" APPLICATION ON USER SATISFACTION

A Study on Students of the Faculty of Vocational Studies, Airlangga University

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Abstract

Academic services at universities now rely on mobile apps, including Airlangga University's "Kampus Kita Mahasiswa." Initial observations of Google Play reviews reveal technical complaints such as login failures, QR code attendance issues, and slow app response times. This study aims to analyze the influence of system quality on user satisfaction based on DeLone and McLean's Information System Success Model. Using an explanatory quantitative approach and a cross-sectional survey design, primary data were collected from 60 active students in the Vocational Faculty using purposive sampling. Simple linear regression analysis indicates that system quality has a positive and statistically significant effect on user satisfaction. The results also show that the application's system quality explains 40.0% of the variation in user satisfaction levels ($R^2 = 0.400$). These findings can serve as diagnostic input for the Directorate of Information Systems and Digitalization (DSID) at Airlangga University to prioritize improving application reliability, server stability during traffic spikes, and interface response speed in order to effectively reduce student dissatisfaction.

Keywords: System Quality; User Satisfaction; DeLone and McLean Model; Kampus Kita Mahasiswa; Simple Linear Regression

1. INTRODUCTION

The digitization of higher education has expanded the role of information technology from online learning to the management of campus administration and academic activities (Wulansari et al., 2024). As the complexity of academic management needs increases, the development of academic information systems is focused on user satisfaction as one way to assess their success (Meilani et al., 2020). The quality of the system directly determines the

ease of access and the end-user experience. Therefore, objective measurement of technical quality is essential for the governance of academic services.

Airlangga University (UNAIR) provides integrated academic services through Kampus Kita Mahasiswa, an Android-based mobile application developed by the Directorate of Information Systems and Digitalization as the mobile version of the cybercampus. This app

facilitates self-service access to critical data such as class schedules, attendance records, academic transcripts, and tuition payment histories. The Vocational Faculty, with a population of approximately 5,000 active students, is one of the largest user bases. By accommodating students' need for flexible data access, the app's reliability serves as a vital tool for the smooth operation of daily academic activities, particularly for vocational students whose programs are practice-intensive and require high mobility.

Although it is the primary platform, an initial review of user reviews on Google Play (2022–2026) actually indicates consistent technical issues. A number of users reported failed login authentication even with a stable internet connection. Other issues include the QR code attendance feature frequently failing to scan or track locations, slow interface response times, and app errors following system updates. These various technical glitches directly impact key dimensions of system quality—such as reliability, response time, ease of access, and security—which have the potential to reduce student satisfaction when using this mandatory service.

Based on DeLone and McLean's (2003) Information System Success Model, system quality is a fundamental determinant of user satisfaction. This relationship is supported by the findings of Meilani et al. (2020) and Gurendrawati et al. (2022), which demonstrate the positive influence of system quality on satisfaction with web-based academic portals. Regarding mobile applications, Ernawati et al. (2021) and Wadi et al. (2026) also found a similar pattern of influence.

Nevertheless, most current empirical evidence focuses on information systems at other universities, while evaluations of the Kampus Kita ecosystem have so far only addressed the usability of the interface for educational staff (Zaman et al., 2024). No causal testing has yet been conducted on the specific impact of technical quality on end-user satisfaction, particularly among vocational students. Based on this research

gap, this study aims to analyze the influence of the Kampus Kita application system's quality on user satisfaction among students in the Faculty of Vocational Studies at Airlangga University.

2. THEORETICAL REVIEW

Academic information systems are part of higher education information systems that support the provision, management, and presentation of information related to academic activities. When these services are developed in mobile form, access becomes more closely integrated into students' daily activities, making technical system quality an important aspect of the user experience (Jeyaraj, 2020; Johannsen et al., 2023). In the context of Universitas Airlangga, Kampus Kita Mahasiswa was developed to support students' needs in accessing various academic information through mobile devices, such as grade point average (GPA), learning status, attendance, academic calendar, study results, academic transcripts, tuition fee payments, news, and academic notifications (UNAIR News, 2021).

The DeLone and McLean model is a widely used framework for evaluating information system success through the relationships among quality dimensions, use, user satisfaction, and the benefits generated. In the context of digital education, the meta-analysis conducted by Pour et al. (2022) also indicates that the relationships within the DeLone and McLean model generally receive empirical support, although the strength of these relationships may vary according to user types. Therefore, this study focuses on examining System Quality as the independent variable and User Satisfaction as the dependent variable to maintain a specific research focus without incorporating Information Quality or Service Quality.

System Quality refers to the technical characteristics of a system as perceived by users when interacting with an information system. Research on digital education systems associates system quality with aspects such as

reliability, stability, ease of access, response speed, and ease of use, which can shape the user experience (Ernawati et al., 2021; Atukunda et al., 2024). Ernawati et al. (2021) serves as the primary reference for operationalizing the System Quality variable in this study. In the MyUBSI Student application, System Quality is measured using five main indicators: Reliability, Response Time, Access, Ease of Use, and Security.

User Satisfaction refers to users' evaluation of their experience after interacting with a system. In information systems research in education, user satisfaction is used to assess the extent to which a system meets users' needs and expectations after use (Ernawati et al., 2021; Widyaningrum et al., 2024). Ernawati et al. (2021) operationalized User Satisfaction through Information Satisfaction, Overall Satisfaction, Effectiveness, and System Satisfaction.

Theoretically, the relationship between System Quality and User Satisfaction can be explained through users' experiences when performing activities within a system. Good System Quality reduces technical barriers and helps users complete tasks more smoothly, whereas system disruptions, slow response times, access difficulties, and usability issues may negatively affect users' evaluations of the system (Jeyaraj, 2020; Atukunda et al., 2024). In the context of mobile applications for students, Johannsen et al. (2023) also found that System Quality is associated with User Satisfaction, indicating that technical application quality is an important aspect to consider when evaluating the success of digital systems in educational settings.

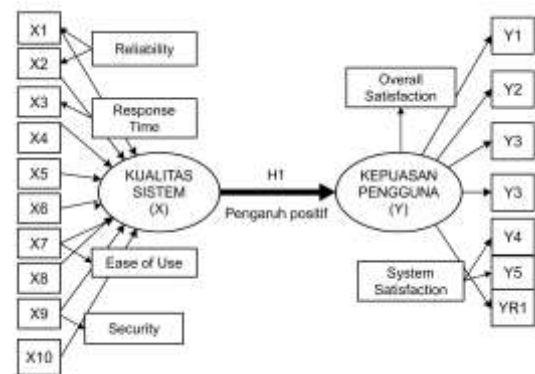
3. RESEARCH METHODOLOGY

The research process is divided into four main stages: developing a conceptual model, designing research instruments, collecting data, and conducting inferential analysis.

a. Development of the Conceptual Model

The conceptual model used in this study is adapted from DeLone & McLean's (2003)

Information Systems Success Model. Since the use of the Kampus Kita Mahasiswa application is mandatory for academic activities, the factors of intention to use and actual use were omitted from the model. Therefore, the analysis in this study focuses solely on the relationship between System Quality and User Satisfaction, as illustrated in Figure 1



System quality represents the technical performance characteristics of an application, including reliability, response time, accessibility, ease of use, and security. Good system quality reduces technical barriers, allowing students to complete their academic assignments more smoothly. Various previous studies have consistently shown that system quality has a positive influence on end-user satisfaction with academic systems. Therefore, this study proposes the following hypotheses:

H1 : The system quality of the Kampus Kita Mahasiswa application has a positive and significant effect on user satisfaction among students in the Vocational Faculty at Airlangga University.

H0 : There is no positive effect of the system quality of the Kampus Kita Mahasiswa application on user satisfaction among students in the Vocational Faculty at Airlangga University.

b. Development of Research Instruments

The questionnaire was developed to conduct quantitative measurements and tests to

test the research hypotheses. The questionnaire was derived from the operational dimensions in the literature that evaluate mobile-based academic information systems. The mapping of operational indicators and dimensions is detailed in

Table 1. Operational Dimensions of Variables

Variable	Indicator	Reference
System Quality (X)	Keandalan (Reliability)	(Ernawati et al., 2021; Atukunda et al., 2024)
	Waktu Respons (Response Time)	(Ernawati et al., 2021; Johannsen et al., 2023)
	Aksesibilitas (Access)	(Ernawati et al., 2021; Atukunda et al., 2024)
	Kemudahan Penggunaan (Ease of Use)	(Ernawati et al., 2021; Wulansari et al., 2024)
	Keamanan (Security)	(Ernawati et al., 2021)
User Satisfaction (Y)	Kepuasan Keseluruhan (Overall Satisfaction)	(Ernawati et al., 2021; Gurendrawati et al., 2022)
	Efektivitas (Effectiveness)	(Ernawati et al., 2021; Widyaningrum et al., 2024)
	Kepuasan Sistem (System Satisfaction)	(Ernawati et al., 2021)

c. Data Collection

Data collection employed an explanatory quantitative approach using a cross-sectional survey design. The study population comprised all active students at the Faculty of Vocational Studies, Airlangga University, who are users of the Kampus Kita Mahasiswa app. The sample was selected using purposive sampling with the following inclusion criteria: active student status, at least one semester of

experience using the app, and willingness to participate voluntarily.

Table 2. Respondent Selection Criteria

No.	Respondent Criteria
1	Active students of the Faculty of Vocational Studies, Universitas Airlangga
No.	Respondent Criteria
2	Have used the "Kampus Kita Mahasiswa" application for at least 1 (one) semester
3	Willing to complete the questionnaire honestly and voluntarily

Based on these criteria, the final sample size was determined to be 60 respondents. The primary instrument was distributed online via a Google Forms link. Respondents' responses to each questionnaire item were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Reversed-scored items were used sparingly to control for student response bias.

d. Inferential Analysis

Data analysis in this study was conducted using simple linear regression with the IBM SPSS statistical software. The measurement instruments were evaluated through validity tests using the Pearson product-moment correlation coefficient (validity threshold of $r = 0.30$) and internal consistency reliability tests using Cronbach's Alpha (0.60).

Before drawing conclusions from the regression model, the suitability of the data distribution was first evaluated through tests of the classical assumptions. These tests included the normality of unstandardized residuals (Kolmogorov-Smirnov and Shapiro-Wilk), linearity (Deviation from Linearity), and an evaluation of heteroscedasticity through a scatterplot (ZPRED vs. ZRESID) and the Glejser statistical test. Hypothesis testing is based on the coefficient of determination (R^2) to assess the proportion of variance explained by the model, followed by a one-tailed t-test with a significance level of 0.05 to empirically determine the magnitude and direction of the effect.

4. RESULTS

The reliability test was conducted by examining the Cronbach's Alpha value for each variable. An instrument is considered reliable if its Cronbach's Alpha value is ≥ 0.60 (Ghozali, 2018). Based on the test results, the Cronbach's Alpha value for the System Quality variable (X) was 0.776, while that for the User Satisfaction variable (Y) was 0.716.

Table 3. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Minimum Threshold	Conclusion
System Quality (X)	8	0.776	0.60	Reliable
User Satisfaction (Y)	6	0.716	0.60	Reliable

The System Quality variable, consisting of eight items, obtained a Cronbach's Alpha value of 0.776, while the User Satisfaction variable, consisting of six items, obtained a value of 0.716. Both values exceed the minimum threshold of 0.60, indicating that the instruments have adequate internal consistency. Thus, both variables are considered reliable and can be used in further analysis.

Overall, the System Quality and User Satisfaction instruments are considered reliable because each has a Cronbach's Alpha value above 0.60. Therefore, both variables meet the reliability criteria and have adequate internal consistency for use in further analysis.

Based on the regression analysis results, the constant (a) was 8.053 and the regression coefficient (b) was 0.466, yielding the following empirical regression equation:

$$Y = 8.053 + 0.446X$$

Table 4. Regression Coefficient Analysis Results

Model	Predictor	B	Beta	t	Sig.
1	(Constant)	8.053	-	3.613	0.001

1	X	0.466	0.632	6.214	0.000
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The constant value of 8.053 indicates that the user satisfaction score is predicted to be 8.053 when the system quality score is zero. This value serves as the intercept of the equation because a score of zero falls outside the range of the research data. The regression coefficient of 0.466 has a positive sign. Each one-unit increase in the system quality score is associated with an increase of 0.466 units in the user satisfaction score. The standardized coefficient (Beta) is 0.632.

The t-test was conducted to test the hypothesis that system quality has a positive effect on user satisfaction. The test was one-tailed, with a significance level of 5%. H1 is accepted if the calculated t-value is greater than the critical t-value, the one-tailed significance value is less than 0.05, and the regression coefficient is positive. The critical t-value for $df = 58$ is 1.672.

Based on the test results, the calculated t-value was 6.214. This value exceeds the critical t-value of 1.672. The significance value was 0.000 (two-tailed), meaning that the one-tailed significance value was below 0.001, and the regression coefficient was positive (0.466). The t-test results indicate that H0 was rejected and H1 was supported by the test results. This indicates that the quality of the Kampus Kita Mahasiswa application system has a positive and statistically significant relationship with user satisfaction among students of the Faculty of Vocational Studies, Universitas Airlangga. The data were collected at a single point in time (*cross-sectional*), so the results indicate a statistical association and do not, in themselves, establish a causal relationship.

5. DISCUSSION

a. Interpretation of Research Results

A positive regression coefficient (b = 0.466) with a high level of significance (t = 6.214; $p < 0.001$) demonstrates that the technical quality of the Kampus Kita app

directly influences user satisfaction. The coefficient of determination ($R^2 = 0.400$) confirms that system quality accounts for 40% of the variation in student satisfaction on its own.

This finding holds operational significance because vocational students have high mobility with a dense rotation of practical training schedules. They frequently request features such as QR code attendance tracking, schedule checks, and payment history that operate precisely and instantly. Applications that are slow or fail to scan locations disrupt the flow of their daily tasks. A reliable and secure system eliminates this cognitive burden and allows instructions to be executed without the need for manual corrections by users. Conversely, a system that is reliable, fast, easily accessible, and perceived as secure can help students complete academic activities without additional technical obstacles.

DeLone and McLean (2003) defined system quality as a characteristic of technical architecture that precedes user evaluation. The regression results from this sample replicate that premise within the context of mandatory college applications.

b. Comparison with Previous Literature

The positive correlation found is consistent with the findings of Ernawati et al. (2021) regarding technical quality, which has an absolute influence on user satisfaction with the MyUBSI Student mobile app ($\beta = 0.368$). Tests of web-based academic service portals by Meilani et al. (2020) and Gurendrawati et al. (2022) confirmed the same pattern of determination. Wulansari et al. (2024) noted that system quality is the single predictor variable that consistently influences satisfaction across digital services, even when the impact of information quality fluctuates between services. This study provides a specific empirical foundation for the Kampus Kita ecosystem. Previously, evaluations of this system were limited to testing the usability of the interface for educational staff, as conducted by Zaman et al. (2024). Shifting the

focus of the analysis to the student version of the application demonstrates that the successful adoption of academic digital products cannot be measured solely by the aesthetics of the user interface but rather by the reliability of the code architecture when accessed.

6. CONCLUSION

The quality of the Kampus Kita application system has a positive and significant impact on user satisfaction among students in the Vocational Faculty at Airlangga University. Students who rated the application as more reliable, responsive, accessible, easy to use, and secure tended to be more satisfied with the application. This means that the higher students rated the application's reliability, response speed, ease of access and use, and security, the higher their satisfaction levels were. System quality explains 40% of the variation in user satisfaction, making it a key determinant of satisfaction. The remaining 60% is not explained by the model in this study. These findings support the relationship between system quality and user satisfaction in the DeLone and McLean Model. However, since the study involved only 60 purposively selected respondents and data were collected only once, the results describe a statistical relationship within the study sample and cannot yet be generalized to the entire student body.

7. SUGGESTION

For the Directorate of Information Systems and Digitalization (DSID) of Universitas Airlangga, these results indicate that improvements in technical infrastructure are closely associated with student satisfaction. The presence of an extreme negative residual in the testing indicates that failures in the fundamental architecture result in dissatisfaction that develops exponentially and non-linearly. Therefore, DSID needs to prioritize improvements in critical areas, such as handling login issues, improving the attendance tracking system using QR codes,

and ensuring server stability during access surges, rather than merely adding new features to the interface. Considering the extreme dissatisfaction that is purely triggered by fundamental errors, the determination of the hierarchy of system maintenance priorities needs to be evaluated based on objective metrics derived from server log analysis and internal error tracking.

Methodologically, the findings regarding deviations from the assumptions of normality and linearity require future research to adopt more robust statistical approaches for asymmetric data, such as Partial Least Squares Structural Equation Modeling (PLS-SEM). The application of this analytical approach will facilitate the simultaneous expansion of the theoretical framework by integrating the variables of Information Quality and Service Quality to uncover the remaining 60% of satisfaction variation that has not been explained. In terms of research design, precision and generalizability need to be improved through probability sampling across faculties, as well as the use of longitudinal designs, such as measurements before and after major application updates, to confirm causal relationships absolutely. In addition, considering the large number of initial questionnaire items that were eliminated during the refinement stage, the operationalization of measurement indicators must be revised and revalidated to more accurately capture the realities of the mobile academic service context.

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