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Measuring Student Satisfaction with Academic Applications at BINUS University Through the Customer Satisfaction Score (CSAT) Framework

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Abstract *– This study examines student satisfaction with four key academic applications used at BINUS University: BinusMaya, Neksus Semester Plan, Thesis App, and the Library App which play a central role in supporting learning activities, academic administration, and access to academic resources. The study applies the Customer Satisfaction Score (CSAT) framework, a widely used approach for evaluating user satisfaction with system quality, usability, and performance. The CSAT evaluation is adapted to the functional characteristics of each application. Thesis App, BinusMaya, and Neksus Semester Plan, which directly support core academic processes, are assessed using four dimensions: fulfilment, efficiency, system availability, and accuracy. Meanwhile, the Library App, which functions as a supporting academic resource platform, is evaluated using ease of use, features and functionality, and system performance. A quantitative descriptive approach was employed, with data collected through an online survey conducted between July and September 2025. A four-point Likert scale was used to encourage clear evaluative responses, and the sample size was determined using Slovin's formula. The findings indicate that students generally report positive satisfaction across all applications. Thesis App performs strongly in terms of efficiency and accuracy, while the BinusMaya shows high satisfaction in fulfilment. Neksus Semester Plan receives favourable evaluations in efficiency but faces responsiveness challenges during peak usage periods. Library app is positively rated for its features, although improvements are needed in system performance and interface consistency. Overall, the results suggest that BINUS University's academic applications effectively support student activities, while also highlighting the importance of continuous system improvement.*

Keywords: *Customer Satisfaction Score (CSAT); Fulfilment; Efficiency; System Availability; Accuracy; Binus University*

I. INTRODUCTION

The advancement of information technology in higher education has encouraged universities to provide digital applications that support academic activities. At BINUS University, students rely on several key applications: BinusMaya App for online learning, Neksus Semester Plan App for course scheduling, Thesis App for thesis management, and the Library App for academic literature searching.

Despite their wide adoption, systematic evaluations focusing on user satisfaction remain limited. No comprehensive study has assessed how students perceive their experience using these applications in meeting academic needs. Yet, student satisfaction as primary users is a critical indicator of information system success and a foundation for continuous service improvements. This study is guided by the following research questions:

1. What is the level of student satisfaction with the use of Binus University's academic applications (BinusMaya App, Neksus Semester Plan App, Thesis App, and Library App)?
2. How do students evaluate these applications across four CSAT dimensions: fulfilment, efficiency, system availability, and accuracy?
3. Which application yields the highest satisfaction, and which aspects still require improvement?

The objectives of this study are to be as below:

1. Measure student satisfaction with the use of academic applications at BINUS University.
2. Evaluate student satisfaction based on CSAT's four dimensions (fulfillment, efficiency, system availability, and accuracy) for core applications, and ease of use, features, and system performance for the supporting application.
3. Provide empirical insights into the strengths and weaknesses of these applications as strategic input for academic information system management.

This study is highly relevant for higher education digital service development. The results provide objective insights for BINUS University to evaluate application effectiveness. Practically, the findings contribute to enhancing the quality of academic services through technology, thereby optimizing student learning experiences. Academically, this research enriches the limited literature on user satisfaction evaluation in Indonesian higher education information systems.

CSAT is particularly relevant in the context of academic information systems because it can directly capture student satisfaction with applications used in daily academic activities. The dimensions measured in this study include fulfillment (the extent to which user needs are met), efficiency (the ease and speed of use), system availability (the reliability and stability of the system), and accuracy (the precision of the information provided).

Research on user satisfaction with academic applications has been conducted in various higher education contexts. Putra and Nurcahyo (2021) examined student satisfaction with a web-based academic information system and found that system speed and reliability were the primary factors influencing satisfaction. Wahyuni (2022) evaluated satisfaction with online learning applications using the SERVQUAL model and identified information accuracy as a dominant factor in shaping user experience.

Most previous research has focused on a single application, such as Learning Management Systems (LMS), rather than providing a comprehensive evaluation of multiple applications across the academic value chain. For instance, Andriani, Hidayat, and Sari (2021) found that student satisfaction with LMS platforms was strongly influenced by system reliability. This indicates a research gap that this study seeks to address.

This research is based on the understanding that student satisfaction with academic applications is crucial to supporting the effectiveness of higher education learning processes. Previous findings show that e-learning service quality is directly linked to student satisfaction (Prasetyo & Lestari, 2021) and that system quality is a critical factor in e-learning success (Al-Fraihat et al., 2020).

According to Widodo (2020), the Importance Performance Analysis (IPA) method can also be used to identify gaps between student expectations and the quality of academic information services.
In this research, CSAT is divided into four main dimensions:

1. Fulfilment – the extent to which applications meet students' academic needs.
2. Efficiency – how easily and quickly applications can be used.
3. System Availability – the reliability of the applications, including system stability and service uptime.
4. Accuracy – the precision of information provided by the applications.

These four dimensions were applied to evaluate three core applications in the academic value chain at Binus University:

1. BinusMaya App (course management and learning delivery).
2. Neksus Semester Plan App (academic semester planning).

3. Thesis App (thesis and final project management).

Meanwhile for the Library App, the evaluation used three adapted dimensions—ease of use, feature and functionality, and application performance—to reflect its specific role. Findings from Susanti and Rachmawati (2022) indicated that mobile-based academic applications were rated highly for accessibility and flexibility, both of which are also applicable to the Library App. User acceptance, more broadly, is influenced by perceptions of usefulness and ease of use (Lee, Kozar, & Larsen, 2021).

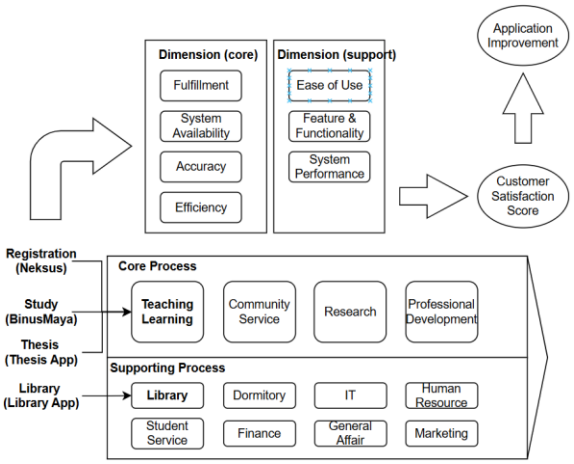

Figure 1. Relation of Value Chain with the supporting application which is measured by CSAT into application improvements

Figure 1 illustrates the relationship between academic applications at BINUS University, the dimensions used to evaluate them, and the way these evaluations contribute to continuous system improvement as part of Value Chain in higher education. The top section of the diagram shows two sets of assessment dimensions. Core academic applications —such as Neksus Semester Plan, Thesis App, and the BinusMaya App —are evaluated using four dimensions: fulfilment, system availability, accuracy, and efficiency supporting core process in value chain. Supporting applications represented here by Library App, are assessed using ease of use, features and functionality, and system performance supporting process in value chain.

Both sets of dimensions feed into the Customer Satisfaction Score (CSAT), which serves as the central metric for measuring how students perceive the performance of each application. The CSAT results then inform targeted application improvements, ensuring that findings from the evaluation process translate into practical enhancements for digital services. This mapping highlights that the evaluated applications form an integrated part of the university's broader academic and administrative ecosystem in the context of higher education value chain.

II. METHODS

This study employed a quantitative descriptive approach with the primary aim of evaluating student satisfaction with the use of major academic applications at Binus University. The targets of analysis were four applications that play a key role in the academic value chain: Neksus Semester Plan App (course scheduling), BinusMaya App (online learning), Thesis App (thesis and final project management), and the Library App (academic reference and literature search).

2.1 Population and Sample

The population of this study consisted of all active Binus University students who use the four applications in their academic activities across all campuses in Indonesia. The sample size was determined using Slovin's formula with a margin of error of 5%, expressed as follows:

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

where:

- n = sample size
- N = population size
- e = margin of error (5%)

A proportional random sampling method was applied to ensure the representation of respondents from different campuses and academic programs, including:

1. Undergraduate (S1) students from regular programs across Indonesia
2. Postgraduate (S2) students across Indonesia
3. Binus Online Learning students (S1 and S2)
4. Binus BASE (S1) students

The survey was conducted between July until September 2025 using Binus University's

internal survey platform, ISRA, which is integrated into the BinusMaya application.

Table 1. Number of Sample for each application

Application	Population	Sample
BinusMaya App	400	216
Neksus Semester Plan App	6250	1598
Thesis App	3550	906
Library App	356	213

Table 1 explains the number of populations targeted to respond to the survey during the period. According to Slovin's formula, the number of samples has been monitored to achieve the acceptable sampling number with the respected error margin. The number of populations itself has been approved by the product owner of the application to be involved in the measurement.

2.2 Research Instrument and Variables

The research instrument was a structured questionnaire employing a four-point Likert scale:

1 = Strongly Disagree
2 = Disagree
3 = Agree
4 = Strongly Agree

This scale was chosen deliberately to eliminate neutral responses, thereby encouraging students to express clearer levels of satisfaction. Recent methodological research underscores that including a neutral category does not guarantee better measurement and respondents may use it out of uncertainty, indifference, or lack of motivation which can reduce the discriminative power of the scale. (Kankaraš et al., 2024)

Prior to data analysis, the instrument was evaluated for validity and reliability to ensure the quality of measurement. Construct validity was assessed through item–total correlation analysis, with all items demonstrating acceptable correlation values, indicating that they adequately measured the intended constructs. Reliability analysis was conducted using Cronbach's Alpha coefficient, which is widely used to assess internal consistency in Likert-scale instruments. The results showed that all constructs achieved Cronbach's Alpha values exceeding the commonly accepted threshold of 0.70, indicating satisfactory internal consistency and reliability of the measurement instrument (Hair et al., 2019).

A total of four questionnaires were distributed, each tailored to the respective application being assessed. In addition, open-ended comment questions were included to capture qualitative feedback from students.

Student satisfaction was measured using the Customer Satisfaction Score (CSAT) framework, adapted into four primary dimensions:

1. Fulfilment – the extent to which applications meet students' academic needs.
2. Efficiency – the ease and speed of application use.
3. System Availability – the reliability and stability of applications in supporting academic activities.
4. Accuracy – the precision and correctness of application-generated data and information.

For the Library App, three adapted dimensions were used to reflect its functional role: Ease of Use, Features & Functionality, and Application Performance. The CSAT formula was applied using the Likert 1–4 scale, with scores calculated for each dimension and averaged to produce the final CSAT value per application as figure 2.

$$CSAT = \frac{Total\ Number\ of\ 3's\ and\ 4's}{Total\ number\ of\ Responses}$$

Figure 2. CSAT Formula

2.3 Data Collection

Primary data were collected through online questionnaires distributed to active Binus University students. Data included both structured Likert-scale responses and qualitative insights from open-ended questions.

Survey data were analyzed by calculating the Customer Satisfaction Score (CSAT) for each application dimension. CSAT values were derived by summing respondents' scores for all items within a dimension, dividing by the total number of respondents, and expressing the result as a percentage. Several recent empirical studies employing CSAT or similar satisfaction indices use comparable calculation and interpretation methods (for example, a study on a mobile-based application reported a CSAT of

82.14%, categorized as "very satisfied" under its threshold criteria (Suharyadi et al., 2025). To interpret the results, CSAT scores were classified into four satisfaction levels:

1. Not Satisfied: 0% – 40%
2. Needs Improvement: 41% – 60%
3. Fairly Satisfied: 61% – 80%
4. Satisfied: >80%

These percentage-based thresholds follow conventions in studies that convert raw scale data into satisfaction categories for practical evaluation and decision-making. (Sari et al., 2025). This analytical framework provided an objective overview of student satisfaction with each academic application while identifying areas requiring improvement in service quality.

III. RESULTS AND DISCUSSION

The survey was conducted from July until September 2025, involving student respondents from multiple Binus University campuses, including Kemanggisan, Bandung, Malang, and several other locations. The sample size was determined using Slovin's formula, ensuring that the data collected proportionally represented the overall student population.

The analysis focused on four major applications that support students' academic activities: the Neksus Semester Plan App, BinusMaya App, Thesis App, and the Library App.

Table 2. CSAT for Neksus Semester Plan App

Category	Ave Score	% CSAT
Fulfillment	3.04	86.97%
Efficiency	3.08	89.20%
System Availability	2.82	73.60%
Accuracy	2.98	84.88%
Satisfaction	2.97	84.23%
Total CSAT Score	**2.98**	**85.96%**

Table 2 above explains the CSAT scores for Neksus Semester Plan. The total 85.96% indicates that 6250 targeted populations are satisfied with overall application performance in four main dimensions whereas the highest score is in the efficiency aspect of the application.

Table 3. CSAT for BinusMaya App

Category	Ave Score	% CSAT
Fulfilment	3.14	88.89%
Efficiency	3.05	84.95%
System Availability	3.04	84.49%
Accuracy	2.96	80.40%
Total CSAT	**3.046**	**84.68%**

Table 3 above explains the CSAT scores for BinusMaya App. The total 84.68% indicates that 400 targeted populations are satisfied with overall application performance in four main dimensions whereas the highest score is in the fulfilment aspect of the application.

Table 4. CSAT for Thesis App

Category	Ave Score	% CSAT
Fulfillment	3.26	94.05%
Efficiency	3.29	94.37%
System Availability	3.08	83.72%
Accuracy	3.26	94.48%
Satisfaction	3.23	94.15%
Total CSAT	**3.22**	**92.43%**

Table 4 above explains the CSAT scores for Thesis App. The total 92.43% indicates that 3550 targeted populations are satisfied with overall application performance in four main dimensions whereas the highest score is in the accuracy aspect of the application.

Table 5. CSAT for Library App

Category	Ave Score	% CSAT
Ease of Use	3.08	91.00%
Feature & Functionality	3.10	92.00%
Application Performance	2.98	84.50%
Total CSAT	**3.06**	**90.79%**

Table 5 above explains the CSAT scores for Library App. The total 90.79% indicates that 356 targeted populations are satisfied with overall application performance in four main dimensions whereas the highest score is in the feature and functionality aspect of the application.

3.1 Evaluation of Neksus Semester Plan App

The CSAT measurement for the Neksus Semester Plan produced an overall average score of 2.98 (85.96%), indicating that the system is rated within the category of "*generally satisfied"*.

Despite this positive outcome, several strategic areas for improvement were identified:

1. System stability and service availability must be enhanced to reduce errors and server disruptions.
2. User interface and user experience (UI/UX) design should be simplified and improved to make the system more intuitive.
3. Verification and validation of displayed information should be strengthened to build greater trust in data accuracy.
4. Support features, such as payment status and curriculum navigation, should be further optimized.

Incorporating these improvements will enhance the user experience and ensure smoother academic registration processes. From 1,070 open comments, students acknowledged that Neksus provides a solid foundation for academic services but highlighted considerable room for development. The main recommendations include:

1. Improving system performance and eliminating bugs.
2. Adding relevant and functional new features.
3. Redesigning the interface and navigation to be more user-friendly.
4. Providing educational guides to facilitate system usage.

3.2 Evaluation of BinusMaya App

The average CSAT score for BinusMaya was 3.046 (84.68%), suggesting that students are "*generally satisfied"*, though several key issues require attention.

1. The system's primary strength lies in the Fulfilment dimension (88.89%), showing that essential features—such as access to materials, discussion forums, and assessment functions—have been helpful in supporting student learning.
2. The greatest area of concern is Accuracy (80.40%), as inconsistent or delayed updates to grades and progress tracking have eroded students' trust in the platform.
3. System Availability (84.49%) also requires improvement, with students reporting errors and slowdowns during periods of high usage.
4. Efficiency (84.95%) was rated as acceptable, but students expressed a preference for simpler menus and faster navigation.

Insights from open comments are explained as below:

1. Many students reported that BinusMaya has improved compared to earlier versions, particularly in terms of feature completeness and system integration, reflecting a broader trend in higher education institutions toward more integrated digital learning ecosystems. (Al-Fraihat et al., 2020; Turnbull, Chugh, & Luck, 2021)
2. However, recurring issues include bugs, unstable mobile performance, confusing assessment displays, and slow loading times. Similar findings have been reported in recent studies, which identify system performance, reliability, and interface clarity as critical determinants of student satisfaction with learning management systems (LMS). (Pham et al., 2021; Yakubu & Dasuki, 2022)
3. Students also expressed demand for new features, including interactive communication tools (live chat, real-time reminders), academic transparency (grade visualization, GPA analysis), and better integration with external platforms such as Google Calendar.
4. Dissatisfaction was primarily linked to technical stability, data accuracy (attendance, grades), and navigation design, rather than feature availability.

3.3 Evaluation of Thesis App

The CSAT score for Thesis App reached 3.22 (92.43%), the highest among the four applications, placing it firmly in the *"very satisfactory"* category.

Strengths included:

1. Efficiency (95.37%) – Users found the navigation and ease of use highly supportive of productivity.
2. Fulfillment (94.44%) – The features, process information, and deadlines were considered relevant and aligned with student needs.
3. Accuracy (94.48%) – Information provided was perceived as accurate and trustworthy.
4. Overall Satisfaction (94.15%) – Students reported consistently high satisfaction levels.

Weaknesses in System Availability (83.72%) remained a challenge, with students reporting server errors and functional bugs. Insights from open comments are explained as below:

1. The fundamental issues relate to system stability, access speed, and UI/UX navigation, as many students experienced slow loading, high-traffic bottlenecks, and confusing menus.
2. Academic data synchronization was inconsistent, including unclear supervisor information and mismatched deadlines between the app and departments.
3. Students requested new features, particularly automatic notifications and deadline reminders via email or WhatsApp.
4. User awareness and understanding of features were limited, with some students requiring clearer guides and previews of upcoming stages.
5. The approval process (faculty supervisors) was perceived as a bottleneck, with delays and lack of synchronization between systems.

3.4 Evaluation of Library App

The Library App achieved an average CSAT score of 3.06 (90.79%), indicating that students were generally *"very satisfied."*
Strengths are:

1. Features & Functionality (92.00%) – Core features such as borrowing, returning, accessing collections, and library announcements were considered relevant and highly useful.
2. Ease of Use (91.00%) – The app's design and navigation were straightforward, making it easy for students to locate features and information.

Weakness is Application Performance (84.50%) – Users experienced technical problems including slow response times, bugs, and errors affecting stability. Insights from open comments are explained as below:

1. The primary issues relate to system performance, interface design, and content availability, with complaints of slow loading, confusing layouts, and limited clarity of information.
2. Students expressed interest in smarter features and greater accessibility, such as AI-based recommendations, offline access to books, and more reliable reservation systems.
3. Concerns were also raised regarding the limited range of collections, with calls to expand and update books and journals to meet diverse academic needs.
4. While overall satisfaction was high, students emphasized the need for improvements in system stability and ease of use to optimize the digital library experience.

Overall, the average CSAT scores across the four applications indicate that students generally fall into the "*satisfied*" category with score more than 80%. Nevertheless, variations in satisfaction levels among the applications highlight areas that require improvement.

1. Thesis App recorded the highest satisfaction level, reflecting strong performance in supporting final project management.
2. Library App was also rated as satisfactory, though students noted minor areas for enhancement.
3. Neksus Semester Plan and BinusMaya were rated between "fairly satisfied" and "satisfied," with recommendations for improving system efficiency and stability to optimize user experience.

IV. CONCLUSION

This study aimed to evaluate the level of student satisfaction at Binus University with four key academic applications—Neksus Semester Plan App, BinusMaya App, Thesis

App, and Library App—using the Customer Satisfaction Score (CSAT) framework across the dimensions of fulfilment, efficiency, system availability, and accuracy.

The findings indicate that, overall, students fall into the "*satisfied*" category regarding their use of these applications. Among the four, Thesis App recorded the highest satisfaction level, particularly in fulfilment, efficiency, and accuracy. The Library App also performed well, with notable strengths in ease of use and relevant features. Meanwhile, Neksus Semester Plan App and BinusMaya App, although positively rated, still demonstrated areas requiring improvement, particularly in system availability and accuracy.

Beyond its practical findings, this study also offers several theoretical implications. The results provide empirical support for the applicability of the CSAT model within higher education digital environments, a context where CSAT has been less frequently applied compared to commercial digital services. By tailoring CSAT dimensions to different types of academic applications, this research demonstrates that the model can be adapted to measure satisfaction across platforms with varying functions, such as thesis management, digital library access, learning management systems, and new semester planner applications. The study therefore contributes to extending the theoretical utility of CSAT by showing how its dimensions can be operationalized in academic settings and how system accuracy and stability emerge as critical satisfaction aspects for BINUS university as number one private university in Indonesia.

These results confirm that the research objective was achieved by providing an empirical overview of student satisfaction with academic applications while identifying specific areas for improvement to better support academic activities. Recommendations for Application Development are:

1. Neksus Semester Plan App: Improve system stability, simplify navigation for greater efficiency, and strengthen data validation processes.
2. BinusMaya App: Enhance data accuracy (grades and progress), improve system stability during peak usage periods, and develop more collaborative and integrative academic features.
3. Thesis App: Strengthen system availability through server optimization, streamline approval workflows involving supervisors, and introduce automated notification features for deadlines and submission statuses.
4. Library App: Enhance system performance, improve user interface design, expand literature collections, and integrate AI-based features to recommend resources.

This study acknowledges several limitations such as below to be explored more in the next evaluation research:

1. The survey was conducted within a limited timeframe (July–September 2025), and therefore does not capture longer-term dynamics of student satisfaction.
2. The research instrument employed a simplified 1–4 Likert scale, which effectively encouraged respondents to take a clear stance but did not capture deeper aspects of user experience.
3. The study focused only on four major applications, while students also engage with other platforms within BINUS University's broader digital ecosystem.

Future studies may extend the model by integrating TAM (Technology Acceptance Model) or UTAUT (Unified Theory of Acceptance and Use of Technology) variables. Other than that, the study can expand the scope of evaluation to include the entire digital academic ecosystem at Binus University and combine quantitative methods (CSAT) with qualitative approaches such as in-depth interviews or focus group discussions to gain richer insights into user experience. Last, the researcher can also conduct longitudinal studies to monitor changes in student satisfaction over time and evaluate the impact of system improvements.

AUTHOR'S CONTRIBUTION

Conceptualization, Data curation, Formal analysis, Methodology, Validation, Visualization, Writing: Authors.

AVAILABILITY DATA AND MATERIALS

The dataset used can be accessed via the link: *Dataset Research Application Evaluation by CSAT*

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