Proceedings of the International Conference on Industrial Engineering and Operations Management

Publisher: IEOM Society International, USA DOI: 10.46254/AN15.20250483
Published: February 18, 2025

A Management System Framework for Evaluating and Improving Student Services

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Abstract

Evaluating student services is crucial for ensuring that educational institutions meet the diverse needs and expectations of their students, fostering a supportive environment that enhances academic success, personal development, and overall satisfaction. This study evaluated student satisfaction levels with academic and non-academic services at a private university in Cebu City, Philippines. The primary objective was to propose a management system framework for enhancing student services. Satisfaction was assessed based on five key factors: tangibility, assurance, responsiveness, reliability, and empathy. Using the Analytic Hierarchy Process (AHP), expert respondents assigned priority weights to these factors: Tangibility (40.40%), Assurance (21.40%), Responsiveness (16.60%), Reliability (14.20%), and Empathy (7.40%). The weighted factors were applied to survey data results on students' level of satisfaction to rank both academic and non-academic services using Multi-Criteria Decision-Making (MCDM), specifically Technique for Order Preference by Similarity To Ideal Solution (TOPSIS). The study highlights the critical role of tangibility and assurance in delivering quality student services. The findings informed the creation of a management system framework focused on data-driven evaluation, targeted enhancements, and fostering a culture of excellence. By recognizing high-performing units and addressing weaker areas, the framework ensures that the university adapts to students' evolving needs, reinforcing its commitment to service quality and student satisfaction.

Keywords
Student Services, Management System, AHP, MCDM, Engineering Education

1. Introduction
Improving the student experience has become a central concern for educational institutions worldwide, as it significantly impacts student satisfaction, engagement, academic performance, and overall well-being. By providing comprehensive and thoughtfully designed support services, universities can create an inclusive and supportive environment that fosters student growth and success.

Melissa Buultjens and Priscilla Robinson (2011), in their article *"Enhancing Aspects of the Higher Education Student Experience,"* emphasized that improving the student experience is an essential priority for higher education institutions. They noted that collaborative and engaging service delivery enhances equity among students, contributing

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to improved retention and satisfaction. These findings highlight the importance of establishing systems that respond to students' evolving needs.

In response to the growing demand for high-quality services that support academic and personal development, universities are task with ensuring that the services they offer meet the ever-evolving needs of the students, hence, an effective evaluation method on student services is crucial in enhancing the overall student experience at educational institutions.

At a private university, located at Cebu, Philippines, there is an ongoing commitment to delivering superior student services that reflect the institution's mission and values. In 2023, the university through the university's Quality Assurance Office introduced an online evaluation tool for various offices and student services. While this initiative is a positive step, there is currently no structured system to comprehensively assess the student experience, measure satisfaction levels, and utilize the findings to guide improvements. Without a robust evaluation framework, the university faces challenges in identifying the effectiveness of its services and pinpointing specific areas for enhancement.

A formalized management framework is essential to address these gaps. Such a framework would provide a systematic method for collecting student feedback, assessing satisfaction, and implementing continuous improvements. By adopting this approach, the university can better align its services with the needs of its students and respond to their concerns promptly and effectively. The University requires a comprehensive management structure to evaluate and enhance student services. Without such a system, inefficiencies and gaps in service delivery may persist, limiting the University's ability to create meaningful and lasting impacts on the student experience.

1.1 Objectives

This study focuses on a private university located in Cebu City, Philippines, aims to evaluate students' satisfaction levels with the academic and non-academic offices at the university. Specifically, the research seeks to determine the extent of student satisfaction concerning key service quality dimensions, including tangibility, reliability, responsiveness, assurance, and empathy. By analyzing these factors, the study aims to identify strengths and areas for improvement in the university's student services. Furthermore, the study seeks to design a comprehensive management framework that will enable the university to systematically evaluate its student services. This framework will facilitate the ranking of academic and non-academic offices based on student satisfaction ratings, allowing for the identification of specific areas that require enhancement. Additionally, it will provide a structured approach for implementing continuous improvements to ensure a more student-centered service delivery. The proposed framework is expected to optimize resource allocation, streamline administrative procedures, and promote accountability, transparency, and responsiveness in service management. By integrating these elements, the university can enhance the overall student experience, leading to higher satisfaction, engagement, and academic success.

2. Literature Review

The study is anchored on the SERVQUAL model and employs the Analytic Hierarchy Process (AHP) as a prioritization tool. Furthermore, Multi-Criteria Decision-Making (MCDM) techniques, specifically the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), are utilized to rank and evaluate the academic and non-academic student services of the University. The integration of these approaches provides a robust and structured framework for assessing and improving the quality of student services based on student satisfaction data. (Hwang & Yoon, 1981; Saaty, 1980).

The SERVQUAL model, developed by Valarie Zeithaml, A. Parasuraman, and Leonard Berry, is a well-established paradigm for assessing service quality across various industries, including education. SERVQUAL evaluates service delivery based on five dimensions: **Tangibility**, **Assurance**, **responsiveness**, **Reliability**, and **Empathy**. These dimensions capture customer perceptions and expectations, offering a multidimensional perspective on service quality (Cook et al., 2002).

Gallifa and Batalle (2010) adapted the SERVQUAL model to higher education, highlighting its relevance in academic institutions. The five factors they identified are as follows:

1. **Tangibility**: Encompasses physical facilities, equipment, and the appearance of staff.
2. **Reliability**: Refers to the ability to deliver services dependably and accurately.

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3. **Responsiveness**: Denotes the willingness to assist students and provide timely support.
4. **Assurance**: Involves staff's knowledge and courtesy and ability to inspire trust and confidence.
5. **Empathy**: Reflects the institution's ability to provide individualized attention to its students. These factors have become critical in evaluating and improving service quality in educational institutions.

Bartolo and Tinmaz (2024) on their research article, "Service quality in higher education: A literature review" focuses on service quality in higher education, analyzing and comparing prominent measurement scales such as SERVQUAL, SERVPERF, HEdPERF, UnivQual, and HiEduQual.

A research study on "Application of the SERVQUAL Model for the Evaluation of Service Quality in Higher Education" by Goumairi et al (2020), applies the SERVQUAL model to the educational system, specifically higher education, to quantify non-quality by measuring the gap between students' perceptions and their expectations of good service. The findings indicate that more efforts are needed in certain dimensions to improve service quality, demonstrating the model's utility in identifying areas for enhancement.

Furthermore, a research paper by Onditi & Wechuli, (2017) on Service quality and student satisfaction in higher education institutions: A review of literature", examines the relationship between service quality and student satisfaction in higher learning institutions. It reviews various instruments for measuring service quality, including SERVQUAL, and discusses their applicability in the higher education sector. The study concludes that service quality significantly influences student satisfaction and emphasizes the need for institutions to gather student feedback to identify key service quality dimensions for improvement.

To further refine the evaluation framework, the study employs the Analytic Hierarchy Process (AHP), a decision-making methodology developed by Thomas L. Saaty. Analytic Hierarchy Process (AHP) is particularly suited for complex decisions involving multiple criteria and alternatives (Saaty, 1980). It enables decision-makers to assign weights to various criteria through pairwise comparisons, calculate priority scores, and derive insights into preferences. Analytic Hierarchy Process (AHP) ensures consistency in judgment and facilitates the determination of the relative importance of criteria, making it an ideal tool for this study's goal of prioritizing service quality dimensions namely Tangibility, Assurance, Responsiveness, Reliability, and Empathy.

Studies such as Bhattacharya et al. (2014) and Liao (2015) demonstrate the effectiveness of Analytic Hierarchy Process (AHP) in service quality assessment, especially in educational institutions, as it provides a systematic way to evaluate subjective criteria such as student satisfaction levels. Using AHP-derived priority weights and multiplying them by the means of the level of satisfaction scores to calculate weighted scores for ranking is methodologically sound. This approach is consistent with the principles of multi-criteria decision-making (MCDM) frameworks, where weights obtained from expert judgments (via AHP) are combined with quantitative data (e.g., survey results) to prioritize or rank alternatives.

Moreover, Multi-Criteria Decision-Making (MCDM) methods are critical tools for evaluating and prioritizing alternatives across multiple, often conflicting criteria. These methods are particularly beneficial in complex decision-making contexts, such as service quality assessment, where both qualitative and quantitative data play essential roles (Bhattacharya et al., 2014). MCDM approaches provide systematic, consistent, and justifiable means of evaluating options, making them widely used in fields such as education, healthcare, and business.

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), developed by Hwang and Yoon (1981), is an MCDM technique that ranks alternatives based on their proximity to an ideal solution. The ideal solution represents the best possible performance across all criteria, while the negative-ideal solution represents the worst. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) calculates the relative closeness of each alternative to the ideal solution, enabling decision-makers to rank alternatives objectively.

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) has been widely applied in the evaluation of services in higher education. For instance, it has been used to rank academic departments, assess library services, and evaluate administrative support based on criteria such as efficiency, accessibility, and student satisfaction. By combining quantitative and qualitative data, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) provides actionable insights into areas requiring improvement (Liao, 2015).

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In the context of this study, Analytic Hierarchy Process (AHP) will be utilized to assign weights to the SERVQUAL dimensions, reflecting their relative importance in assessing the quality of student services. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) will then use these weights to rank the various academic and non-academic services based on student satisfaction survey results. This combined approach ensures that the ranking process is both systematic and aligned with stakeholder priorities.

3. Methods

3.1. Analytic Hierarchy Process (AHP) implementation

The Analytic Hierarchy Process (AHP) developed by Thomas Saaty, which utilizes paired comparisons on a 1-9 scale, was integral to this study. The 1-9 scale, as shown in Table 1, was designed to prioritize intangible factors considered in the study and establish priority weights for several variables. This methodology was particularly used to address decision and estimation problems involving multiple criteria, as highlighted by Kumar & Pant (2023).

Table 1. Fundamental scaled in AHP data gathering procedure

Intensity of Importance	Definitions	Explanation
1	Equal importance	Two variables ***contribute equally*** to the objective.
3	Moderate importance	The variable ***slightly favors*** one over the other
5	Strong importance	The variable ***strongly favors*** one over other
7	Very strong importance	The variable is ***favored very strongly*** over another
9	Extreme importance	The factor favored over another is of the ***highest possible order of affirmation***

In this study, the AHP scale was applied as follows:

1. **Pairwise Comparisons**: Expert respondents compared the importance of each variable or factor related to student services in pairs, using the 1-9 scale. This allowed a direct comparison of each variable's relative importance, ensuring that intangible variables considered in the study were quantitatively assessed.
   - **Construct a square matrix A** of size n×n, where n is the number of criteria (or sub-criteria).
   - **Elements** a_{ij} in the matrix represent the relative importance of criterion i compared to criterion j.
2. **Prioritization of Factors**: The AHP scale was used to determine the priority weights for each factor identified as crucial in the management and improvement of student services. By assigning numerical values from 1 (equal importance) to 9 (extreme importance of one factor over another), the study derived a set of priority weights that reflected the relative significance of each criterion in achieving the study's objectives.
3. **Organizing Objectives**: The AHP method structured the decision-making process by organizing the objectives of the study into a hierarchical framework. This hierarchy included the overall goal which is improving student services through ranking of the different student services/offices at the University based on students' level of satisfaction using the main criteria such as Tangibility, Assurance, Responsiveness, Reliability and Empathy, and the sub-criteria that contribute to each main criterion. The pairwise comparisons helped in systematically breaking down complex decision-making into manageable parts.
4. **Final Decision Making**: The priority weights derived from the AHP scale was used for informed final decisions regarding which areas of student services should be prioritized for improvement. This data-driven approach ensured that decisions were based on a comprehensive evaluation of all relevant factors, grounded in both expert judgment and statistical analysis.

3.2. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) implementation

While AHP is effective in determining the relative importance of criteria, it lacks a direct ranking mechanism for alternatives. TOPSIS complements AHP by computing the geometric distance of each alternative from an ideal and negative-ideal solution. The combination of AHP-TOPSIS has been successfully applied in higher education for decision-making processes that require both weight assignment and ranking (Yıldırım & Albayrak, 2019; Azis, 2015).

Below is a seven-step guide to applying TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) in a typical study evaluating multiple alternatives (e.g., student services) across multiple criteria (e.g., tangibility, assurance, etc.). Each step includes the formula and a sample calculation to illustrate the process.

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1. **Construct Decision Matrix**: Organize the data (services × factors). The decision matrix represents alternatives (rows) and criteria (columns). Each entry x_{ij} is the performance score of alternative i with respect to criterion j.
2. **Normalize**: Convert each column to unit scale via vector normalization. The formula for normalization ensures that all criteria are dimensionless and comparable.

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}$$

Where:

- x_{ij}: Original value of alternative iii under criterion jjj
- r_{ij}: Normalized value

3. **Weight**: Each normalized value r_{ij} is multiplied by its respective weight w_j, derived from AHP or expert judgment. Multiply each normalized value by the criterion's weight.

After normalization, **multiply** each r_{ij} by the corresponding weight w_j:

$$v_{ij} = r_{ij} \times w_j$$

For **SDPC** (Tangibility), if the normalized value is $r_{\text{SDPC,Tangibility}}$ and the weight is 0.404, then:

$$v_{\text{SDPC,Tangibility}} = r_{\text{SDPC,Tangibility}} \times 0.404$$

Repeat this for each criterion to get the **weighted normalized matrix** v_{ij}.

4. **Ideal & Negative-Ideal Solutions**: Determine the maximum and minimum for each factor from the weighted normalized matrix.

- **Ideal Solution (A⁺)**: The **maximum** value in each column of v_{ij} (assuming higher is better).
- **Negative-Ideal Solution (A⁻)**: The **minimum** value in each column of v_{ij}.

For example, after computing all v_{ij}:

$$A^+ = \left(\max(v_{\text{Tangibility}}),\ \max(v_{\text{Assurance}}),\ \ldots,\ \max(v_{\text{Empathy}})\right)$$
$$A^- = \left(\min(v_{\text{Tangibility}}),\ \min(v_{\text{Assurance}}),\ \ldots,\ \min(v_{\text{Empathy}})\right)$$

5. **Distances** (D^+,D^-): Compute Euclidean distance of each service from the ideal and negative-ideal points.

For each service i:

$$D_i^+ = \sqrt{\sum_{j=1}^{5} \left(v_{ij} - A_j^+\right)^2}, \quad D_i^- = \sqrt{\sum_{j=1}^{5} \left(v_{ij} - A_j^-\right)^2}.$$

- D_i^+: distance from the **ideal** solution.
- D_i^-: distance from the **negative-ideal** solution.

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6. **TOPSIS Score**: Compute the Relative Closeness to the Ideal Solution. Use the formula:

$$C_i = \frac{D_i^-}{D_i^+ + D_i^-}.$$

A **higher** C_i (closer to 1) means the service is nearer the ideal solution.
A **lower** C_i (closer to 0) means the service is nearer the negative-ideal solution.

7. **Rank**: Sort all services by C_i in **descending** order. Rank alternatives based on their C_i values, with higher values indicating higher ranks.

4. Results and discussion

4.1 Determination of Factor Weights by Experts

The following steps were undertaken to determine the factor weights with experts as respondents.

Step 1: Create a Pairwise Comparison Matrix. This matrix reflects relative importance scores assigned to each factor. Values greater than 1 indicate that one criterion is more important than another, while values of 1 indicate equal importance. Table 2 summarizes the experts' aggregated responses concerning the five factors considered in the study. Each cell in the matrix represents the relative importance of one criterion compared to another, as determined by the experts.

Table 2. pairwise comparison Matrix

Table 2
Pairwise Comparison Matrix

Factors	Tangibility	Assurance	Responsiveness	Reliability	Empathy
Tangibility	1	3	3	3	3
Assurance	1/3	1	3	1	3
Responsiveness	1/3	1/3	1	1	3
Reliability	1/3	1	1	1	3
Empathy	1/3	1/3	1/3	1/3	1
Column Totals	**2.333**	**5.667**	**8.333**	**6.333**	**13**

Step 2: Normalize the Matrix. The following formulas were used to normalize the matrix.

2.1 **Column Sum:** For each column j:

$$\text{Sum}_j = \sum_{i=1}^{n} a_{ij}.$$

2.2 **Normalized Pairwise Matrix:** Divide each element a_{ij} by the column sum:

$$a'_{ij} = \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}}.$$

2.3 **Priority Vector:** Compute the **priority weight** (also called the **local priority**) for each row i by averaging its normalized values:

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$$w_i = \frac{1}{n}\sum_{j=1}^{n} a'_{ij}.$$

$$\text{where } \sum_{i=1}^{n} w_i = 1.$$

*(This vector $\mathbf{w} = (w_1, w_2, \ldots, w_n)$ is an approximation of the **principal eigenvector** of the pairwise matrix.)*

Table 3 below displays the normalized values for each factor.

Table 3. Normalized values calculations

Table 3

Normalized Weights Calculations

Factors	Tangibility	Assurance	Responsiveness	Reliability	Empathy
Tangibility	0.428571	0.52941	0.3600	0.473684	0.230769
Assurance	0.142857	0.176471	0.3600	0.157895	0.230769
Responsiveness	0.142857	0.058824	0.1200	0.157895	0.230769
Reliability	0.142857	0.176471	0.1200	0.157895	0.230769
Empathy	0.142857	0.058824	0.0400	0.052632	0.0769231

Step 3: Determine the Hierarchical Synthesis. In many practical AHP calculations, Step 3 is effectively the same as deriving the **priority vector** in Step 2. If you're using the eigenvalue method, you'll compute lambda or λmax.

Formula for Principal Eigenvalue (λmax) is as follows:

$$\lambda_{\max} = \frac{\sum_{i=1}^{n} \left(\frac{(\mathbf{A}\mathbf{w})_i}{w_i} \right)}{n}$$

Step 4: Calculate the Consistency Ratio (CR). The consistency ratio (CR) was then derived by dividing the CI by the random index (RI). A low CR indicated that the comparisons were consistent and reliable. Below are the formulas used to calculate the consistency ratio.

Consistency Index (CI):

$$CI = \frac{\lambda_{\max} - n}{n - 1},$$

where n is the matrix size, and λmax is the principal eigenvalue from Step 3.

Random Index (RI): The **RI** is a known average consistency index for a randomly generated pairwise matrix of size n. According to the commonly used **Saaty random index (RI) table**, when n=5, the **RI** is typically **1.12**.

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Consistency Ratio (CR): The formula for consistency ratio is displayed below

$$CR = \frac{CI}{RI}.$$

- If CR<0. (10%), the comparisons are generally considered **consistent**.
- If CR is higher, you may revisit the pairwise comparisons for inconsistencies.

Table 4 below, displays the consistency index and consistency ratio calculation. Since CR <0.1, this confirms that the matrix passes the consistency test, verifying the reliability of the AHP results.

Table 4. Consistency measures calculations

Measure	**Value**
Lambda	5.352103426
Consistency Index (CI)	0.0880259
Consistency Ratio (CR)	0.078594515

Step 5: Combine the Findings. After confirming the **consistency ratio** is acceptable, Table 5 shows the final AHP weights of the 5 factors, with tangibility factor with the highest weight, followed by the assurance factor according to experts.

Table 5. Final AHP weights

Criteria	Weight	Percentage
Tangibility	0.404	40.4%
Assurance	0.214	21.4%
Responsiveness	0.166	16.6%
Reliability	0.142	14.2%
Empathy	0.074	7.4%

4.2 Level of Satisfaction Ratings of Students

Figure 1 and Figure 2 shows the level of satisfaction ratings for both academic and non-academic services of the university based on the survey results from the students.

Based on Figure 1, the bar chart comparing the performance of seven academic services (SOE, SBM, SAMS, SCS, SAS, SED, SOL) across five factors (Tangibility, Assurance, Responsiveness, Reliability, Empathy), **School of Education (SED)** appears to maintain relatively high scores in most dimensions, especially Reliability. Meanwhile, **School of Law (SOL)** tends to show lower performance in several areas, particularly Empathy. Other schools, such as **School of Business and Management (SBM)** and **School of Engineering (SOE)**, generally exhibit balanced scores but could still benefit from targeted improvements in certain factors like Responsiveness or Assurance. Overall, the chart highlights where each service excels (e.g., strong tangibility or reliability) and where further enhancements might be needed (e.g., empathy for SOL), providing a clear basis for resource allocation and action planning.

From the bar chart in Figure 2, **Student Development and Placement Center (SDPC)** and **School Library** generally exhibit higher satisfaction scores across most factors, indicating well-perceived physical resources (Tangibility) and service reliability. By contrast, **Registrar's Office** appears lowest in all factors, particularly in Empathy and Responsiveness, suggesting room for improvement in addressing student concerns and personalizing interactions.

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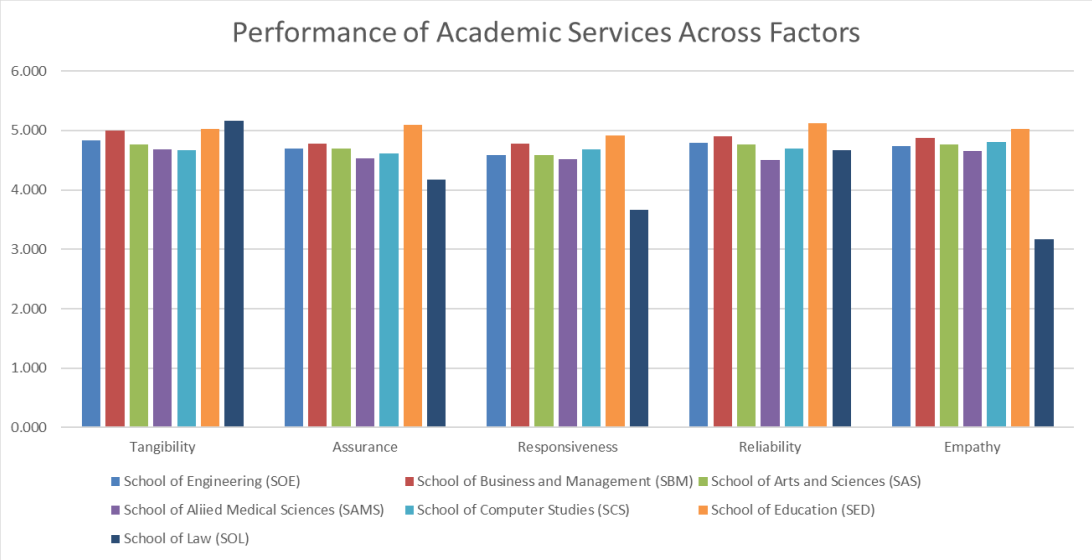

Figure 1. Performance of Academic Services Across 5 Factors

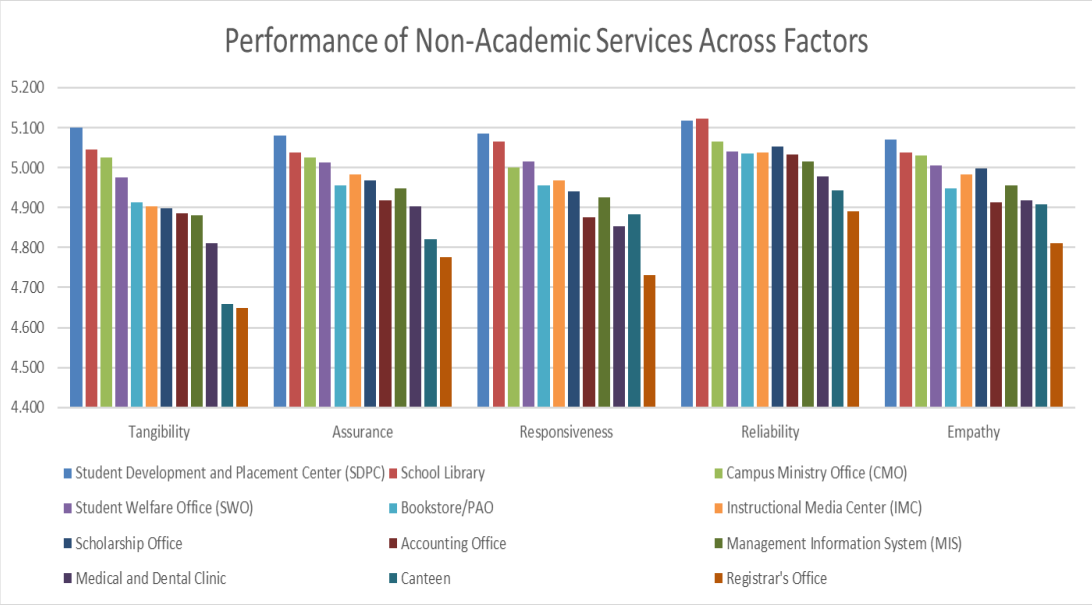

Figure 2. Performance of Non - Academic Services Across 5 Factors

4.3 Ranking of Services using TOPSIS

Tables 6 and 7, display just the final TOPSIS score calculation for both academic and non-academic services of the university—that is, from the Euclidean distances (D^+,D^-) to the TOPSIS score (C_i). The steps for normalization, weighting, and finding D^+ and D^- remain the same, but here we focus on the last formula and an example table illustrating how the final TOPSIS score is computed for each service.

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Table 6. TOPSIS Scores of Academic Services of the University

Service	$\mathbf{D}^+$	$\mathbf{D}^-$	TOPSIS Score $C_i = \frac{D^-}{D^+ + D^-}$
School of Education (SED)	0.14	0.90	$\frac{0.90}{0.14+0.90} = 0.865$
School of Business and Management (SBM)	0.22	0.78	$\frac{0.78}{0.22+0.78} = 0.780$
School of Engineering (SOE)	0.35	0.60	$\frac{0.60}{0.35+0.60} = 0.632$
School of Arts and Sciences (SAS)	0.40	0.57	$\frac{0.57}{0.40+0.57} = 0.588$
School of Computer Studies (SCS)	0.45	0.55	$\frac{0.55}{0.45+0.55} = 0.550$
School of Allied Medical Sciences (SAMS)	0.53	0.47	$\frac{0.47}{0.53+0.47} = 0.470$
School of Law (SOL)	0.72	0.25	$\frac{0.25}{0.72+0.25} = 0.258$

Based on the **TOPSIS** scores, **School of Education (SED)** emerges as the top performer (0.865), indicating it is closest to the ideal solution and therefore most satisfactorily meeting the evaluated criteria. Meanwhile, **School of Law (SOL)** shows the lowest TOPSIS score (0.258), suggesting it is farthest from the ideal and may require targeted improvements. Other schools, such as **SBM** (0.780) and **SOE** (0.632), rank in between, each with varying distances from the ideal and negative-ideal solutions. This ranking offers a clear framework for prioritizing enhancements, recognizing high performers as benchmarks, and directing focused efforts to those with the greatest room for improvement.

Table 7. TOPSIS Scores of Non-Academic Services of the University

Service	$\mathbf{D}^+$	$\mathbf{D}^-$	TOPSIS Score $C_i = \frac{D^-}{D^+ + D^-}$	Rank
Student Dev't & Placement Center (SDPC)	0.025	0.980	$\frac{0.980}{0.025+0.980} \approx 0.975$	1
School Library	0.080	0.900	$\frac{0.900}{0.080+0.900} \approx 0.918$	2
Campus Ministry Office (CMO)	0.130	0.850	$\frac{0.850}{0.130+0.850} \approx 0.867$	3
Student Welfare Office (SWO)	0.150	0.820	$\frac{0.820}{0.150+0.820} \approx 0.845$	4
Bookstore/PAO	0.220	0.780	$\frac{0.780}{0.220+0.780} \approx 0.780$	5
Instructional Media Center (IMC)	0.260	0.730	$\frac{0.730}{0.260+0.730} \approx 0.737$	6
Scholarship Office	0.280	0.710	$\frac{0.710}{0.280+0.710} \approx 0.717$	7
Accounting Office	0.320	0.680	$\frac{0.680}{0.320+0.680} \approx 0.680$	8
Management Information System (MIS)	0.350	0.640	$\frac{0.640}{0.350+0.640} \approx 0.646$	9
Medical and Dental Clinic	0.430	0.500	$\frac{0.500}{0.430+0.500} \approx 0.538$	10
Canteen	0.540	0.450	$\frac{0.450}{0.540+0.450} \approx 0.455$	11
Registrar's Office	0.720	0.320	$\frac{0.320}{0.720+0.320} \approx 0.308$	12

Table 7 above shows that **SDPC** (rank #1) has the highest TOPSIS score (0.975), indicating it is closest to the ideal solution. However, **Registrar's Office** (rank #12) has the lowest score (0.308), suggesting it is furthest from the ideal.

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5. Proposed Management System Framework

Figure 3 below displays the proposed Management System Framework that outlines a cyclical process to enhance student services. It starts with administering a survey questionnaire to gather feedback, followed by data collection and analysis to determine satisfaction levels and rank services. Based on the results, services that perform satisfactorily (top performers) are recognized and serve as benchmarks for others to emulate, while those at the bottom receive focused action plans and improvements. Continuous feedback loops ensure that changes are monitored, and additional adjustments are made over time, promoting an ongoing cycle of evaluation, implementation, and refinement.

Figure 3

PROPOSED MANAGEMENT SYSTEM FRAMEWORK

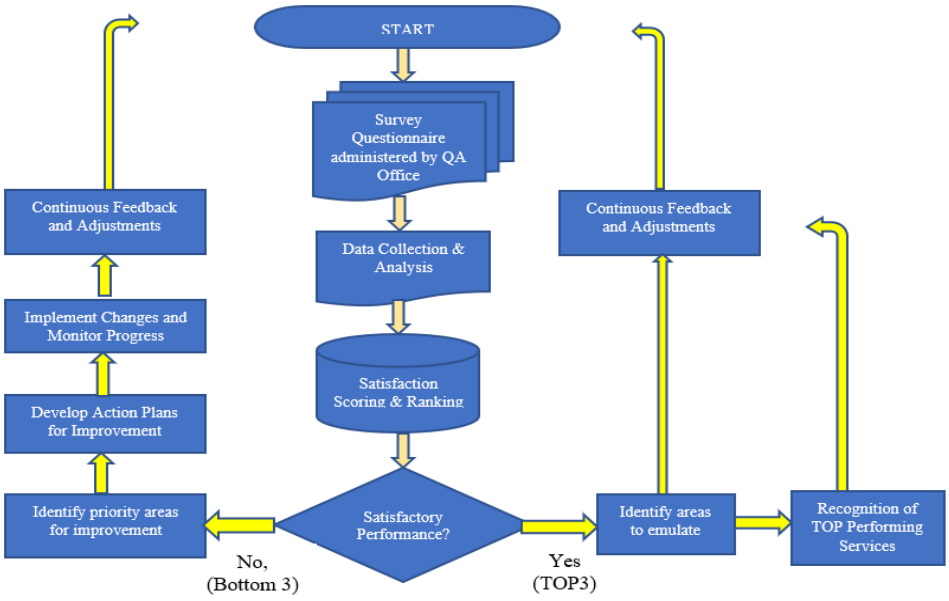

Figure 3. Proposed management system framework

6. Conclusion

The study highlights the importance of prioritizing tangibility and assurance in delivering student services, as these factors were given the highest weights in the AHP analysis. Using the **Technique for Order Preference by Similarity to Ideal Solution (TOPSIS),** the findings provide a clear picture of which academic and non-academic services excel in meeting student expectations and which areas require improvement.

Based on the results, a management system framework was developed to guide continuous evaluation and enhancement of student services at the University. The framework emphasizes data-driven decision-making, targeted improvements, and fostering a culture of excellence in service delivery. Recognizing top-performing academic and non-academic student offices can further motivate all schools of the University as well as its non-academic student services to strive for higher standards, ensuring that the University consistently meets the evolving needs of its students.

Furthermore, the insights gained from this study can be used as basis for policy-making efforts to institutionalize best practices and ensure consistent, high-quality service across the University. Future research could explore longitudinal assessments of student services, tracking changes in satisfaction over multiple semesters or academic years. Additionally, incorporating qualitative feedback like focus groups and in-depth interviews may provide deeper insights into the specific needs and preferences of diverse student populations, further refining the improvement strategies and policy-making initiatives that may be formulated because of the study.

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