Proceedings of 6th
Annual Management, Business and Economics
Conference (AMBEC)
2024, September (E-ISSN: 2985-9107)

Improving the Service Quality of the Management Program at the University of Al Azhar Indonesia Using Quality Function Deployment

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Abstract— Service quality in higher education requires a process of improvement towards customer satisfaction. This study aims to provide technical suggestions for improving the quality of educational services in the Management Program at the University of Al Azhar Indonesia by applying the Quality Function Deployment method through House of Quality design. The research begins by identifying service attributes based on literature reviews, observations, and focus groups discussion. Next, fifty-one service attributes were evaluated through questionnaires. Based on the importance-performance analysis, it was found that nineteen attributes require improvement and become the voice of customers. The analysis resulted in eleven engineering requirements, with three main priorities: (1) increasing service hours by adding an e-ticket feature to manage student complaints; (2) establishing standard operating procedures for communication between students and staff; and (3) improving the student desk system according to the results of semester evaluations.
Keywords: *Quality Function Deployment; service quality; higher education*

I. INTRODUCTION

The growing competition in the educational sector necessitates changes in both public and private universities across Indonesia. Improving the quality of education requires higher education institutions, particularly study programs, to adopt more creativity and innovation in enhancing student outcomes and educational services. The quality of university graduates significantly influences their job prospects [1]. Therefore, to implement and maintain continuous quality assurance, the Management Program must engage in consistent and sustainable processes of improvement, planning, and enhancement aimed at achieving customer satisfaction. Optimizing human resources and improving infrastructure are essential to supporting the effective delivery of academic and administrative services [2]. The Faculty of Economics and Business (FEB) at Universitas Al-Azhar Indonesia (UAI) was established onAugust 10, 2000, offering two undergraduate

programs: Management and Accounting. The management program is distinguished by its curriculum that integrates management sciences with Islamic values. Instruction is delivered through student-centered learning, supported by a Learning Management System (LMS) that provides access to lecture materials and facilitates the completion of discussion assignments. Student academic services are provided through the 'student-desk' feature, which offers various functions related to study plan submission, online academic advising, thesis supervision, tuition payments, and class schedules information. At the end of each semester, the faculty evaluates the learning process and academic services through questionnaires and interviews with selected student representatives. Evaluation results from the past two years have identified several student complaints, particularly regarding service time, responsiveness in addressing student issues, and the utilization of the student desk as a medium for academic services. As part of the commitment to improving service quality, it is necessary to enhance the performance of academic services by evaluating and implementing corrective actions to ensure they align with student needs.

One approach to planning quality improvement is the implementation of the Quality Function Deployment (QFD) method [3]. QFD is a structured methodology designed to ensure customer satisfaction and quality while maintaining a competitive advantage [4]. It translates customer needs into specific technical specifications, thereby supporting the design of new processes and evaluation of existing policies [5]. By integrating the voice of customer (VOC), the QFD approach places customer needs at the center of service improvement initiatives. Its objective is to ensure that the resulting products meet the required quality standards and fully satisfy customer expectations [6].

The measurement of service quality for the academic service attributes of the UAI Management Program leads to the identification of key priority attributes, which serve as the VOC. These are then utilized to identify technical responses or voice of engineer (VOE), in the House of Quality (HOQ) matrix. HOQ and the broader QFD methodology facilitates the translation of customer needs into actionable improvement steps. This tool visually represents the relationship between customer expectations and the technical features that must be integrated into the program to effectively address those needs [7], [8]. By utilizing the HOQ, program administrators can align their services with identified customer requirements, thereby enhancing the overall quality of services provided. Based on these issues, the objectives of this research are to: 1) identify the expected values and perceived quality of the service attributes offered by the UAI Management Program; 2) determine the service attributes that require improvement; 3) provide technical suggestions for improving service quality through the design of HOQ.

II. METHOD

A. Data Types, Sources, and Collection Methods

This study utilizes both primary and secondary data. The research began with a literature review on the application of the QFD method in service quality improvement, followed by observations of the research object. Primary data were collected through focus group discussions and questionnaires, while secondary data include internal quality audit reports of the UAI Management Program, tracer study reports since 2019, and other supporting documents.

The service attributes collected from various relevant studies were subsequently curated and refined through Focus Group Discussion (FGD), incorporating both expert judgment and consensus methods. Only attributes deemed appropriate to the research context were retained. The FGD process resulted in the selection of 51 service attributes considered relevant for this study, as shown in Table I.

However, validity and reliability tests were conducted after data collection, a process known as post hoc validation. Although this approach entails certain risks, the likelihood of attribute invalidity is considered low, as the selected attributes were adapted from previous studies that had already undergone validity and reliability testing and were further curated through the FGD.

The population for this study consists of active students from the 2021 cohort onward who have completed at least two semesters, totaling 369 students. The sampling technique used is stratified random sampling, which, according to Sugiyono (2010), is effective in reducing selection bias [9]. The sample size as determined using the Slovin's formula with an acceptable margin of error of 10%, resulting in n = 76.68. Thus, the required sample size is approximately 79, which is expected to represent the characteristics of the entire population.

B. Research Stages

1) Data Collection

The research was initiated by obtaining permits from the relevant authorities. Data from management entities were used to determine target values, sales points, and technical parameters. Service quality attributes desired by students were identified through observations and literature review, followed by focus group discussions. The finalized attributes were incorporated into a questionnaire that included respondent classification, importance level (I), and performance level (P), all assessed using a Likert scale.

The proposed attributes for the academic service quality of the UAI Management Program were obtained through literature review and observational studies. Several previous studies have utilized literature reviews to identify attributes relevant for consumer evaluation [1], [10], [11]. Other studies began by interviewing groups of students or other stakeholders to gather input on student expectations, which were then discussed collectively in a focus group discussion (FGD) [2], [12]. Subsequently, the proposed attributes were evaluated through an FGD involving the structural members of the UAI Management Program and the Faculty members. The final set of attributes was designed to include five dimensions, tailored to the research objectives and specific conditions of the Management Program, as shown in Table I.

Table 1. Service Attributes of The UAI Management Program

No.	Dimension	Attribute
1	Tangible	Condition of desks and chairs in lecture rooms
2	Tangible	Condition of whiteboards in lecture rooms
3	Tangible	Condition of projectors in lecture rooms
4	Tangible	Air circulation condition in lecture rooms
5	Tangible	Condition of air conditioning (AC) in lecture rooms
6	Tangible	Lighting condition in lecture rooms
7	Tangible	Noise level in lecture rooms
8	Tangible	Cleanliness of lecture rooms
9	Tangible	Availability of equipment and supplies in computer labs
10	Tangible	Condition of air conditioning (AC) in computer labs
11	Tangible	Lighting condition in computer labs
12	Tangible	Noise level in computer labs
13	Tangible	Cleanliness of computer labs
14	Tangible	Condition of book search facilities in the library
15	Tangible	Completeness of books in the library
16	Tangible	Completeness of digital reference collections in library
17	Tangible	Number of book copies in the library
18	Tangible	Condition of books in the library
19	Tangible	Condition of air conditioning (AC) in the library
20	Tangible	Lighting condition in the library
21	Tangible	Cleanliness of the library
22	Tangible	Condition of bulletin boards
23	Tangible	Cleanliness and comfort of restrooms
24	Tangible	Adequacy and condition of parking facilities
25	Tangible	Cleanliness and comfort of the cafeteria
26	Tangible	Quality of wifi network for internet access
27	Tangible	Clean and polite appearance of faculty and staff
28	Tangible	Clean and polite appearance of security and cleaning staff
29	Tangible	Availability of student service hours
30	Reliability	Consistency of academic service hours at the University
31	Reliability	Consistency of academic service hours at the faculty
32	Reliability	Faculty attendance according to available class schedule
33	Reliability	Expertise of administrative staff in providing services
34	Reliability	Ability of administrative staff to provide information related to academic services
35	Reliability	Reliability of the learning management system
36	Reliability	Reliability of the student desk system
37	Reliability	Availability of a system to address student complaints
38	Responsiveness	Promptness of administrative staff in responding to student needs and complaints
39	Responsiveness	Promptness of administrative staff in providing updates on class activities
40	Responsiveness	Promptness of academic advisors in addressing student complaints related to class processes
41	Responsiveness	Speed of the system in responding to student complaints
42	Empathy	Ease of communication with faculty
43	Empathy	Ease of communication with administrative staff
44	Empathy	Academic advisors provide guidance, motivation, and monitor students' progress in relation to their studies
45	Empathy	Students are served without regard to social status/others
46	Assurance	Campus safety
47	Assurance	Conducive learning environment
48	Assurance	Data security in the system
49	Assurance	Legal status and accreditation of the institution
50	Assurance	Positive image and reputation of the institution
51	Assurance	Availability of scholarship opportunities

2) Validity and Reliability Testing of the Questionnaire

The validity of the questionnaire is confirmed, as shown in Table II. The 51 attributes related to university facilities and services are valid indicators of their respective constructs. The correlation coefficient for each attribute's importance and performance ($calculated$) surpassed the critical value ($rtable$) of 0.2213, affirming

their significance within the study. Attributes related to administrative services, system reliability, and student service availability exhibit particularly high correlation values. These results confirm the robustness of the selected attributes for assessing the university's service quality. Reliability is established when Cronbach's Alpha is ≥ 0.6. Cronbach's Alpha coefficients for the importance and performance attributes are 0.977 and 0.976, respectively. These exceptionally high values indicate excellent internal consistency and reliability for both sets of attributes. The results suggest that the 51 attributes are highly coherent and consistently measure their intended constructs.

3) QFD Data Processing

The HOQ matrix is used to link customer needs (whats) with quality characteristics (hows) of the UAI Management Program. Correlations are assessed to determine target values for improving service quality.

4) Formulation of Service Improvement Proposals

Service improvement proposals are formulated based on the weighted assessment of the identified technical parameters. The highest-weighted attributes become the primary proposals for the UAI Management Program. In implementation, it is expected that the UAI Management Program will synergize with relevant parties and university stakeholders.

III. FINDINGS

A. Measurement of Service Quality Values for Academic Service Attributes in the Management Study Program

The average scores for the importance and performance levels of each quality dimension were calculated to determine the service quality gap, defined as: P - I. The respondents' evaluations of the academic service attributes were compiled into an Importance-Performance Analysis (IPA), which identifies key performance factors that need to be addressed to meet consumer satisfaction. The results, presented in Table IV, reveal four quadrants representing different levels of importance (I) and performance (P): Quadrant I (concentrate here) includes 19 attributes that are important to students but not well-implemented, requiring immediate attention. Quadrant II (keep up the good work) represents 30 attributes that are both important and well-implemented, which should be maintained and potentially enhanced. Quadrant III (low priority) contains 2 attributes that are neither highly important nor well-implemented, suggesting that they do not require urgent attention and can be improved later; and Quadrant IV (possible overkill), would include attributes that are not very important but well-implemented. However, no attributes were found in this quadrant, indicating that all attributes either meet or fall short of student expectations without unnecessary excess.

B. Designing the House of Quality

The House of Quality (HOQ) is a tool that translates customer requirements into technical responses. It comprises two main sections: the "whats" section, which details customer requirements, and the "hows" section, which outlines the corresponding technical responses. Constructing the HOQ involves several steps: designing the customer information matrix, which includes defining customer requirement attributes, assigning ratings, setting goals, and calculating sales points, improvement ratios, raw weights, and normalized raw weights; determining technical responses; establishing technical correlations; defining relationships; setting improvement directions and targets; and calculating both absolute and relative importance.

Customer requirement attributes (VOC) are based on 19 attributes categorized under Quadrant I, with goal values determined through FGD. The UAI Management Program aims for a maximum score of 5, reflecting its commitment to providing the best service to students. The improvement ratio ($R\theta$) is a metric designed to measure consumer satisfaction for each attribute in assessing service quality, calculated by dividing goal values (t) by performance values (P). Sales points, indicating an attribute's influence on sales, are predetermined on a scale: 1.0 means no impact on sales, 1.2 indicates a moderate impact, and 1.5 signifies a significant contribution to sales. The UAI Management Program uses these values to select the most and least influential need variables for improving profitability. Table V presents the calculations for raw weight and normalized raw weight.

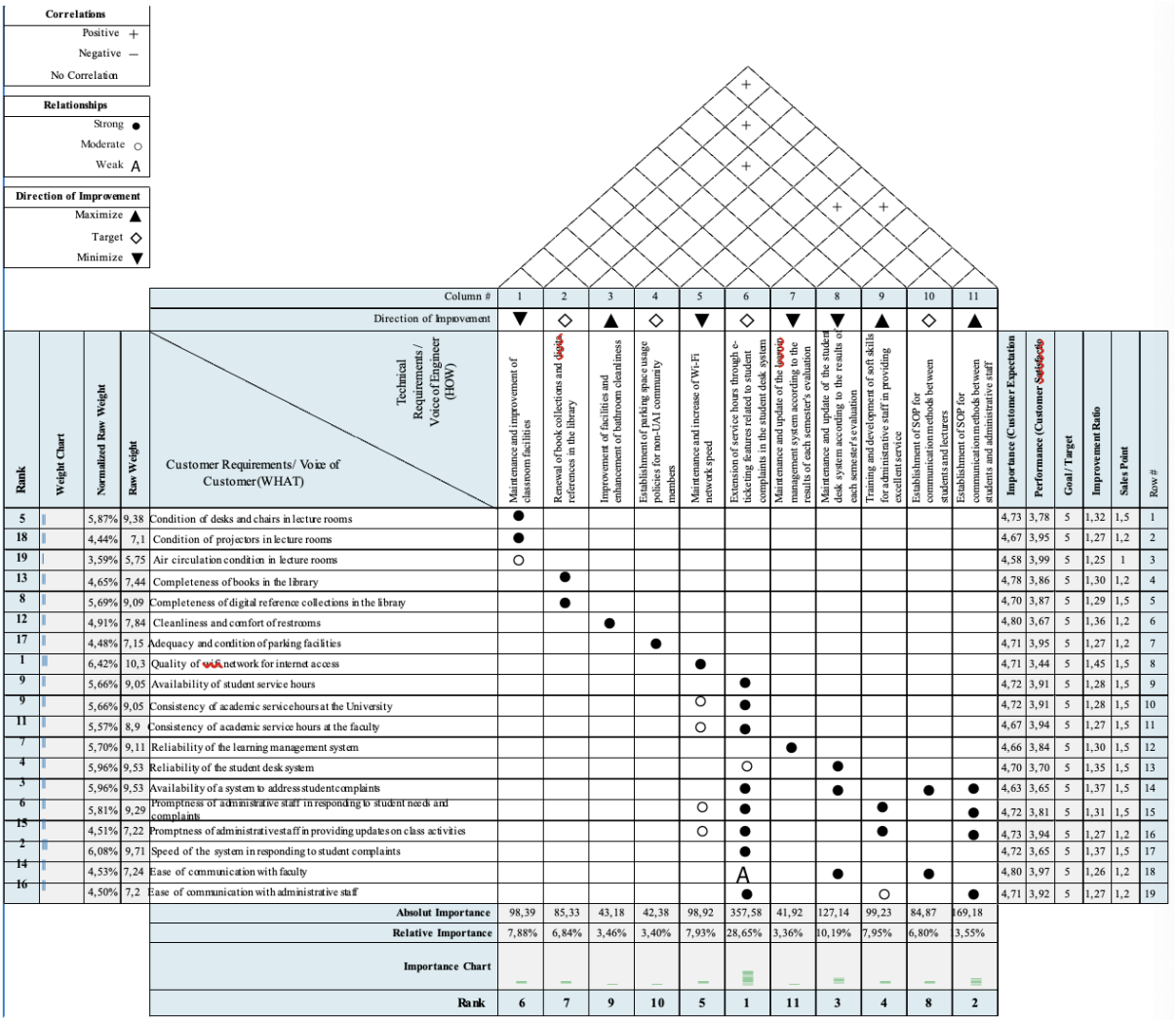
Table 2. Distribution of Service Quality Attributes Based on Quadrants

Quadrant	Dimension	Attribute's Number	*I*	*P*	Gap
I	Tangible	1	4.73	3.78	-0.95
	Tangible	3	4.67	3.95	-0.72
	Tangible	4	4.58	3.99	-0.59
	Tangible	15	4.78	3.86	-0.92
	Tangible	16	4.70	3.87	-0.82
	Tangible	23	4.80	3.67	-1.13
	Tangible	24	4.71	3.95	-0.76
	Tangible	26	4.71	3.44	-1.27
	Tangible	29	4.72	3.91	-0.81
	Reliability	30	4.72	3.91	-0.81
	Reliability	31	4.67	3.94	-0.73
	Reliability	35	4.66	3.84	-0.82
	Reliability	36	4.70	3.70	-1.00
	Reliability	37	4.63	3.65	-0.99
	Responsiveness	38	4.72	3.81	-0.91
	Responsiveness	39	4.73	3.94	-0.80
	Responsiveness	41	4.72	3.65	-1.08
	Empathy	42	4.80	3.97	-0.82
	Empathy	43	4.71	3.92	-0.78
II	Tangible	2	4.61	4.23	-0.38
	Tangible	5	4.73	4.27	-0.47
	Tangible	6	4.61	4.30	-0.30
	Tangible	7	4.54	4.06	-0.48
	Tangible	8	4.85	4.43	-0.42
	Tangible	9	4.59	4.10	-0.49
	Tangible	10	4.71	4.23	-0.48
	Tangible	11	4.54	4.15	-0.39
	Tangible	12	4.53	4.05	-0.48
	Tangible	13	4.71	4.19	-0.52
	Tangible	14	4.71	4.14	-0.57
	Tangible	18	4.61	4.14	-0.47
	Tangible	19	4.76	4.42	-0.34
	Tangible	20	4.67	4.44	-0.23
	Tangible	21	4.84	4.51	-0.33
	Tangible	25	4.75	4.20	-0.54
	Tangible	27	4.77	4.49	-0.28
	Tangible	28	4.66	4.32	-0.34
	Reliability	32	4.65	4.13	-0.52
	Reliability	33	4.68	4.11	-0.57
	Reliability	34	4.67	4.10	-0.57
	Responsiveness	40	4.76	4.10	-0.66
	Empathy	44	4.76	4.19	-0.57
	Empathy	45	4.89	4.41	-0.48
	Assurance	46	4.78	4.38	-0.41
	Assurance	47	4.82	4.42	-0.41
	Assurance	48	4.78	4.35	-0.43
	Assurance	49	4.80	4.27	-0.53
	Assurance	50	4.77	4.29	-0.48
	Assurance	51	4.68	4.04	-0.65
III	Tangible	17	4.41	3.87	-0.53
	Tangible	22	4.24	3.84	-0.41
IV	None	None	-	-	-

Table 3. Evaluation of Sales Points and Raw Weight

Attribute's Number	*I*	*P*	*t*	R_0	Sales Point	Raw Weight	Normalized Raw Weight
1	4.73	3.78	5	1.321	1.5	9.381	5.87%
3	4.67	3.95	5	1.266	1.2	7.096	4.44%
4	4.58	3.99	5	1.254	1	5.746	3.59%
15	4.78	3.86	5	1.295	1.2	7.436	4.65%
16	4.70	3.87	5	1.291	1.5	9.093	5.69%
23	4.80	3.67	5	1.362	1.2	7.841	4.91%
24	4.71	3.95	5	1.266	1.2	7.154	4.48%
26	4.71	3.44	5	1.452	1.5	10.257	6.42%
29	4.72	3.91	5	1.278	1.5	9.053	5.66%
30	4.72	3.91	5	1.278	1.5	9.053	5.66%
31	4.67	3.94	5	1.270	1.5	8.899	5.57%
35	4.66	3.84	5	1.304	1.5	9.109	5.70%
36	4.70	3.70	5	1.353	1.5	9.529	5.96%
37	4.63	3.65	5	1.372	1.5	9.531	5.96%
38	4.72	3.81	5	1.312	1.5	9.294	5.81%
39	4.73	3.94	5	1.270	1.2	7.215	4.51%
41	4.72	3.65	5	1.372	1.5	9.714	6.08%
42	4.80	3.97	5	1.258	1.2	7.242	4.53%
43	4.71	3.92	5	1.274	1.2	7.200	4.50%
		Total				**159.8**	**100%**

The development of technical response requirements is based on the Voice of Engineer (VOE), which represents the technical capabilities in fulfilling customer needs. The VOE in this study is based on discussions with the structural management of the UAI Management Program. The HOQ analysis highlights three key priorities for enhancing the academic services of the UAI Management Program, as shown in Fig. 1. First, extending service hours and integrating e-ticketing to manage student complaints is essential, with a focus on providing rapid response to complaints. This priority holds the highest relative importance at 28.65%. The aim is to significantly enhance student satisfaction by resolving critical issues in complaint management.



Rank	Weight Chart	Normalized Raw Weight	Raw Weight	Customer Requirements/ Voice of Customer(WHAT) \ Technical Requirements / Voice of Engineer (HOW)	Maintenance and improvement of classroom facilities	Renewal of book collections and digital references in the library	Improvement of facilities and enhancement of bathroom cleanliness	Establishment of parking space usage policies for non-UAI community members	Maintenance and increase of Wi-Fi network speed	Extension of service hours through e-ticketing features related to student complaints in the student desk system	Maintenance and update of the payroll management system according to the results of each semester's evaluation	Maintenance and update of the student desk system according to the results of each semester's evaluation	Training and development of soft skills for administrative staff in providing excellent service	Establishment of SOP for communication methods between students and lecturers	Establishment of SOP for communication methods between students and administrative staff	Importance (Customer Expectation	Performance (Customer Satisfaction	Goal / Target	Improvement Ratio	Sales Point	Row #
				Column #	1	2	3	4	5	6	7	8	9	10	11						
				Direction of Improvement	▼	◇	▲	◇	▼	◇	▼	▼	▲	◇	▲						
5		5,87%	9,38	Condition of desks and chairs in lecture rooms	●											4,73	3,78	5	1,32	1,5	1
18		4,44%	7,1	Condition of projectors in lecture rooms	●											4,67	3,95	5	1,27	1,2	2
19		3,59%	5,75	Air circulation condition in lecture rooms	○											4,58	3,99	5	1,25	1	3
13		4,65%	7,44	Completeness of books in the library		●										4,78	3,86	5	1,30	1,2	4
8		5,69%	9,09	Completeness of digital reference collections in the library		●										4,70	3,87	5	1,29	1,5	5
12		4,91%	7,84	Cleanliness and comfort of restrooms			●									4,80	3,67	5	1,36	1,2	6
17		4,48%	7,15	Adequacy and condition of parking facilities				●								4,71	3,95	5	1,27	1,2	7
1		6,42%	10,3	Quality of wifi network for internet access					●							4,71	3,44	5	1,45	1,5	8
9		5,66%	9,05	Availability of student service hours						●						4,72	3,91	5	1,28	1,5	9
9		5,66%	9,05	Consistency of academic service hours at the University					○	●						4,72	3,91	5	1,28	1,5	10
11		5,57%	8,9	Consistency of academic service hours at the faculty					○	●						4,67	3,94	5	1,27	1,5	11
7		5,70%	9,11	Reliability of the learning management system							●					4,66	3,84	5	1,30	1,5	12
4		5,96%	9,53	Reliability of the student desk system						○		●				4,70	3,70	5	1,35	1,5	13
3		5,96%	9,53	Availability of a system to address student complaints						●		●		●	●	4,63	3,65	5	1,37	1,5	14
6		5,81%	9,29	Promptness of administrative staff in responding to student needs and complaints					○	●			●		●	4,72	3,81	5	1,31	1,5	15
15		4,51%	7,22	Promptness of administrative staff in providing updates on class activities					○	●			●		●	4,73	3,94	5	1,27	1,2	16
2		6,08%	9,71	Speed of the system in responding to student complaints						●						4,72	3,65	5	1,37	1,5	17
14		4,53%	7,24	Ease of communication with faculty						A		●		●		4,80	3,97	5	1,26	1,2	18
16		4,50%	7,2	Ease of communication with administrative staff						●			○		●	4,71	3,92	5	1,27	1,2	19
				Absolut Importance	98,39	85,33	43,18	42,38	98,92	357,58	41,92	127,14	99,23	84,87	169,18						
				Relative Importance	7,88%	6,84%	3,46%	3,40%	7,93%	28,65%	3,36%	10,19%	7,95%	6,80%	3,55%						
				Importance Chart																	
				Rank	6	7	9	10	5	1	11	3	4	8	2						

Fig. 1. Matrix House of Quality

IV. DISCUSSION

The integration of e-ticketing systems in university settings has proven to be a significant innovation in improving the management of student complaints. This digital solution not only streamlines the complaint resolution process but also plays a critical role in enhancing the overall student experience by ensuring timely and efficient responses. E-ticketing systems in e-service desks substantially reduce response times and standardize service procedures, which is crucial for managing the high volume of student inquiries [13].

By automating the complaint submission and tracking process, universities can address student issues more promptly. The responsiveness of these systems is essential, as the speed with which complaints are addressed significantly impacts students' perceptions of service quality. Integrating elements such as gamification within helpdesk systems can further enhance user engagement and satisfaction. The more interactive and responsive the system, the more positively it will be received by students [14].

Moreover, e-ticketing systems provide a valuable source of data that can be analyzed to identify trends and recurring issues in student complaints. The ability to track and analyze service patterns is crucial for the continuous improvement of university services [15]. This data-driven approach enables institutions to allocate resources more effectively and address systemic issues proactively, thereby improving the overall quality of the educational environment.

By adopting a proactive approach to complaint management through e-ticketing, universities can ensure that they are not only responding to issues as they arise but also anticipating and addressing potential concerns before they escalate. The implementation of e-ticketing features also promotes better collaboration among university departments. When complaints are logged into a centralized system, relevant staff members from different departments can access the information and collaborate on solutions. By fostering collaboration, e-ticketing systems can lead to more comprehensive and effective resolutions for student complaints.

Furthermore, the establishment of SOPs for communication is critical to ensuring that both students and staff have clear guidelines on how to interact effectively. SOPs help standardize communication processes, making it easier for students to understand how to seek assistance and what to expect in terms of response times. Effective communication strategies, including the use of instant messaging, can enhance student engagement and facilitate a more responsive learning environment [16].

SOPs can also help foster a sense of community and belonging among students. When students can easily communicate with faculty and receive timely responses, they are more likely to develop a sense of belonging within the academic community [17]. However, unprofessional communication, such as rude emails or demanding messages, can disrupt the academic environment and negatively impact student-faculty relationships [18]. By establishing clear guidelines for communication, universities can promote professionalism and respect in interactions, fostering a more positive educational atmosphere. This is particularly important in diverse academic settings, where cultural differences may influence communication styles and expectations.

By adhering to SOPs that prioritize timely and respectful communication, faculty can create an environment where students feel comfortable seeking support. Incorporating feedback mechanisms into communication SOPs ensures that student voices are heard and that their concerns are addressed promptly. This responsiveness is crucial for maintaining trust and fostering a positive relationship between students and university staff. The establishment of SOPs also promotes accountability among university staff. By clearly outlining communication expectations and responsibilities, universities can ensure that faculty and administrative staff are held accountable for their interactions with students. This accountability can lead to improved communication practices and a greater commitment to student success.

A critical aspect of integrating e-ticketing systems and SOPs in university service management is their contribution to the sustainability of higher education. Digitalizing complaint management and communication reduces paper waste and minimizes the carbon footprint associated with traditional administrative processes. By leveraging e-ticketing, universities can transition to more environmentally sustainable practices, supporting institutional commitments to eco-friendly operations.

The data collected through these systems can be leveraged to identify long-term trends and systemic issues, enabling institutions to implement sustainable solutions that address root causes rather than merely symptoms. For instance, recurring complaints about specific services can prompt universities to redesign those services to be more efficient and student-friendly, ensuring long-term improvements. This proactive approach enhances service quality and aligns with the principles of sustainable development in higher education.

Furthermore, the efficient management of student complaints through e-ticketing and well-defined SOPs ensures long-term operational sustainability. Institutions can optimize resource allocation by identifying frequently occurring issues and addressing them systematically, rather than relying on reactive, labor-intensive interventions. This strategic approach enhances service efficiency and contributes to financial sustainability by reducing redundant efforts and improving administrative workflows.

In addition to environmental and operational sustainability, these digital solutions support the long-term well-being of both students and staff. A well-structured, responsive, and transparent communication system fosters an inclusive academic environment where student concerns are promptly acknowledged and resolved. This contributes to student retention and satisfaction, which are essential components of institutional sustainability. When students feel heard and supported, they are more likely to complete their studies successfully, reducing dropout rates and enhancing the university's reputation and financial stability.

By integrating sustainable service management practices, universities can ensure that their administrative operations remain efficient, resource-conscious, and adaptable to future technological advancements. The adoption of e-ticketing systems and standardized communication frameworks aligns with broader institutional sustainability goals, fostering a resilient and forward-thinking educational ecosystem.

V. CONCLUSION

The 51 attributes of the UAI Management Study Program are deemed to fall short of students' expectations, with an average gap score of -0.62 between perception and expectation. The largest gap is observed in the attribute concerning Wi-Fi network quality for internet access, while the smallest gap pertains to the library's lighting conditions. The IPA matrix indicates that 19 attributes fall into Quadrant I, 30 into Quadrant II, 2 into Quadrant III, and into Quadrant IV. This finding indicates that no attributes are perceived as being exceptionally well-performed. The QFD analysis identifies 11 technical parameters, with the highest priority being the extension of service hours through an e-ticketing feature for managing student complaints in the student desk system.

REFERENCES

[1] T. Aprianto and A. Fatah, "Integrasi Servqual, Kano dan QFD dalam Meningkatkan Kualitas Pelayanan di Sekolah Tinggi XYZ," J. Rekayasa Sist. Ind., vol. 10, no. 2, pp. 131–144, Oct. 2021, doi: 10.26593/jrsi.v10i2.4252.131-144.

[2] E. Suhendar and Suroto, "Penerapan Metode Quality Function Deployment (QFD) dalam Upaya Peningkatan Kualitas Pelayanan Akademik pada UB," Fakt. Exacta, vol. 7, no. 4, pp. 372--386, 2015.

[3] K. D. Arini, B. Harjanto, and I. Widiastuti, "Analisis Kualitas Layanan Akademik Program Studi Pendidikan Teknik Mesin UNS dengan Metode Servqual dan QFD (Quality Function Deployment," NOZEL J. Pendidik. Tek. Mesin, vol. 4, no. 4, p. 204, Mar. 2023, doi: 10.20961/nozel.v4i4.72273.

[4] A. Andronikidis, A. C. Georgiou, K. Gotzamani, and K. Kamvysi, "The application of quality function deployment in service quality management," TQM J., vol. 21, no. 4, pp. 319–333, Jun. 2009, doi: 10.1108/17542730910965047.

[5] K. Gotzamani, A. Georgiou, A. Andronikidis, and K. Kamvysi, "Introducing multivariate Markov modeling within QFD to anticipate future customer preferences in product design," Int. J. Qual. Reliab.Manag., vol. 35, no. 3, pp. 762–778, Mar. 2018, doi: 10.1108/IJQRM-11-2016-0205.

[6] H. Herman, E. Amrina, and M. A. Bora, "Penerapan Quality Function Deployment dalam Peningkatan Kualitas Layanan Perpustakaan Perguruan Tinggi," SIGMA Tek., vol. 5, no. 1, pp. 001–011, Jun. 2022, doi: 10.33373/sigmateknika.v5i1.4090.

[7] Y. An, "Application of Quality Function Deployment to Higher Education," in 2011 International Conference on Management and Service Science, Wuhan, China: IEEE, Aug. 2011, pp. 1–3. doi: 10.1109/ICMSS.2011.5998067.

[8] H. Aslam and K. Rashid, "Incorporating Customer Requirements in Designing Academic Graduate Program: A Case of Using Quality Function Deployment," UMT Educ. Rev., vol. 1, no. 1, pp. 67–78, Apr. 2018, doi: 10.32350/uer/11/05.

[9] Sugiyono, Metode penelitian pendidikan: (pendekatan kuantitatif, kualitatif dan R & D). Bandung: Alfabeta, 2010.

[10] S. R. Surtiningtyas and S. T. Saputra, "Employing Fuzzy-weighted SERVQUAL, Refined-KANO, IPA, and QFD to Assess Service Quality in Vocational Higher Education," J. Kependidikan, vol. 9, no. 1, p. 272, Mar. 2023, doi: 10.33394/jk.v9i1.7139.

[11] A. Triharso and A. S. Wahidi, "Metode Service Quality dan Quality Function Deployment dalam Upaya Peningkatan Pelayanan Pendidikan kepada Mahasiswa Fakultas Teknik UNIWA," INOVASI, vol. 2, no. 1, pp. 33–40, 2021.

[12] W. I. Kurnia, R. Hendang, and A. Buton, "Strategi Peningkatan Kualitas Pelayanan Pendidikan pada Perguruan Tinggi," J. Ind. Eng. Manag., vol. 4, no. 2, pp. 11–22, Oct. 2019, doi: 10.33536/jiem.v4i2.449.

[13] Z. Nasiri, R. Sharif, A. Nikmaram, M. Farzandipour, and E. Nabovati, "Evaluating and Ranking e-Service Desks Managed by Treatment Affairs at Medical Sciences Universities: A Cross-Sectional Study in a Developing Country," Front. Health Inform., vol. 13, p. 185, Feb. 2024, doi: 10.30699/fhi.v13i0.540.

[14] A. Muhtadibillah, H. T. Sukmana, and N. F. Rozy, "An Evaluation Of Helpdesk With Gamification Using Indeks Kepuasan Masyarakat (IKM)," IAIC Trans. Sustain. Digit. Innov. ITSDI, vol. 1, no. 1, pp. 8–17, Apr. 2021, doi: 10.34306/itsdi.v1i1.8.

[15] H. Norazlin, C. Rusuli M. S., T. R., N. Ahmad Kassim, and A. Abubakar Aliyu, "Reference Desk Service: Success or Failure?," Asian Soc. Sci., vol. 11, no. 10, p. p168, Apr. 2015, doi: 10.5539/ass.v11n10p168.

[16] B. Khatoon, K. B. Hill, and A. D. Walmsley, "Instant Messaging in Dental Education," J. Dent. Educ., vol. 79, no. 12, pp. 1471–1478, Dec. 2015, doi: 10.1002/j.0022-0337.2015.79.12.tb06048.x.

[17] J. L. Schafer, C. H. Guenther, D. B. Stovall, L. N. Brown, L. N. Glasscock, and M. M. Stern, "A Faculty-Led, Community-Building Program That Enhances Student-Faculty Connections within Biology," J. Microbiol. Biol. Educ., vol. 23, no. 2, pp. e00007-22, Aug. 2022, doi: 10.1128/jmbe.00007-22.

[18] D. Hammoudi Halat et al., "Pharmacy faculty experiences with student academic entitlement: a multinational study from the Arab world," BMC Med. Educ., vol. 24, no. 1, p. 470, Apr. 2024, doi: 10.1186/s12909-024-05402-5.