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IMPLEMENTATION OF THE QUALITY FUNCTION DEPLOYMENT (QFD) METHOD FOR IMPROVING ACADEMIC SERVICE QUALITY BASED ON SERVICE QUALITY AND THE KANO MODEL

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Abstract

This study aims to apply the Quality Function Deployment (QFD) method to improve the quality of academic services based on Service Quality dimensions and the Kano Model. The research is conducted at the Faculty of Engineering, Universitas Jenderal Soedirman. The study is in the proposal phase and intends to gather primary data through questionnaires, validity and reliability testing, and prioritization via House of Quality (HOQ). The expected result is to provide recommendations for academic service improvement strategies aligned with student needs.

Keywords: Quality Function Deployment, Service Quality, Kano Model, Academic Services, Higher Education

INTRODUCTION

The quality of education is a key driver in developing human resources and supporting national development. In the era of globalization, higher education institutions are expected to not only produce competent graduates but also provide excellent academic services that fulfill student expectations. Academic service quality has become a strategic factor in determining institutional competitiveness, reputation, and student satisfaction.

At the Faculty of Engineering, Universitas Jenderal Soedirman (Unsoed), continuous improvement in academic service delivery is essential to meet its vision of becoming an internationally reputable faculty in engineering and technology based on local wisdom. Despite various improvements, several issues have been reported through student feedback forums, including delayed academic documents, uncertain service timelines, and lack of supporting facilities. These issues highlight the need for a systematic and student-centered approach to service quality enhancement.

Total Quality Management (TQM) emphasizes customer orientation, continuous improvement, and organizational commitment to quality. To operationalize these principles in higher education, especially academic services, methods such as Service Quality (Servqual) and Kano Model have been widely adopted. These frameworks help categorize service attributes based on importance and satisfaction impact. However, integrating these insights into actionable improvements requires a structured method like Quality Function Deployment (QFD).

QFD serves as a bridge between student expectations (Voice of Customer) and internal academic service design. When combined with Servqual and the Kano Model, QFD enables institutions to translate qualitative feedback into measurable technical responses through the House of Quality (HOQ) matrix. This integrated approach provides a robust methodology for prioritizing service improvements.

This study is proposed to apply the QFD method, supported by Service Quality dimensions and the Kano Model, to identify, classify, and prioritize the needs of students in improving academic services at the Faculty of Engineering, Unsoed. The research is expected to contribute practically by offering improvement strategies for academic services and theoretically by enriching literature on QFD application in higher education contexts.

LITERURE REVIEW AND RESEARCH QUESTIONS

Total Quality Management (TQM)

TQM is a comprehensive management approach that focuses on customer satisfaction, total employee involvement, and continuous improvement. In educational institutions, TQM serves as a foundational framework to improve service delivery by emphasizing customer orientation—in this case, students as the primary stakeholders.

Service Quality (Servqual)

Servqual measures service quality based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions provide insight into the gap between student expectations and perceptions, helping institutions identify which attributes require improvement.

Kano Model

The Kano Model classifies service attributes into three categories: Must-Be, One-Dimensional, and Attractive. This model aids in prioritizing which features contribute most to student satisfaction. When integrated with Servqual, the Kano Model enriches the understanding of student preferences and emotional responses to services.

Quality Function Deployment (QFD)

QFD is a structured method to transform Voice of Customer (VoC) into technical specifications through tools such as the House of Quality (HoQ). By combining Servqual and the Kano Model into QFD, institutions can systematically align student needs with service improvement priorities.

Theoretical Foundation

This study is grounded in Resource Dependence Theory (RDT) and Resource-Based View (RBV). RDT explains how institutions depend on external feedback to improve performance, while RBV supports the use of internal capabilities (such as data analysis from QFD) to build sustainable competitive advantages.

Research Questions

1. What service quality dimensions are perceived as most critical by students?
2. How are academic service attributes classified using the Kano Model?
3. How can QFD be applied to translate student feedback into improvement priorities?

RESEARCH METHODS

Research Design

This study adopts a qualitative-descriptive approach with exploratory intent. The research aims to design and recommend improvements for academic services at the Faculty of Engineering, Universitas Jenderal Soedirman using the Quality Function Deployment (QFD) method, supported by Service Quality dimensions and the Kano Model. The study consists of several stages including literature review, field studies, instrument design, and data analysis.

Population and Sample

The population in this study consists of active students and lecturers at the Faculty of Engineering, Universitas Jenderal Soedirman. The sample is determined using the unknown population formula with a confidence level of 95% and a margin of error of 10%, resulting in a minimum sample size of 96 respondents. Respondents will be selected purposively to ensure representation of those who have experienced academic services.

Data Collection Technique and Instrument Development

Data will be collected using structured questionnaires designed based on Servqual dimensions (Tangibles, Reliability, Responsiveness, Assurance, Empathy) and Kano's functional–dysfunctional question pairs. The questionnaire will be distributed in two phases:

Phase I: Pilot testing with 30 respondents to validate the instrument and test reliability.

Phase II: Full-scale data collection after validated attributes are confirmed.

Additionally, qualitative insights will be gathered via brainstorming sessions with administrative staff and academic service managers to enrich interpretation of technical needs.

Instrument Validation and Reliability

Instrument validity will be assessed using the Pearson product-moment correlation technique. An item is considered valid if the correlation coefficient (r count) exceeds the critical value from the r table. Reliability will be tested using Cronbach's Alpha; an instrument is considered reliable if the alpha value exceeds 0.6.

Data Analysis Techniques

The analysis is structured into the following stages:

Service Quality Analysis (Servqual)

Calculating the gap between student expectations and perceptions using the formula:

$G=P-E$ .....ie (1)

where P is perceived service and E is expected service. Negative gaps indicate dissatisfaction and areas needing improvement.

Kano Model Evaluation

Kano's categorization is used to classify attributes into Must-Be, One-Dimensional, or Attractive. This is based on functional and dysfunctional questionnaire responses.

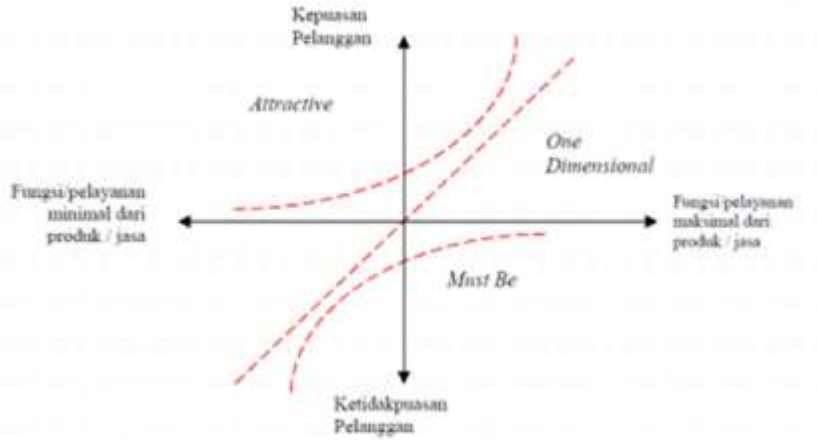

Figure 1. Kano Models

QFD and House of Quality (HoQ)

The final step involves constructing a House of Quality matrix that maps student needs to technical responses. This matrix helps prioritize service improvements based on their relationship strength and importance weighting.

Figure 2. House Of Quality

Research Setting and Period

The research will be conducted at the Faculty of Engineering, Universitas Jenderal Soedirman, located in Purbalingga, Central Java, Indonesia. The study is planned for completion within the 2025 academic year.

RESULTS AND DISCUSSION

As this study is currently in the proposal phase, the results presented in this section are anticipated outcomes based on the literature and planned methodology. The application of the Servqual method is expected to identify service quality dimensions with significant performance gaps between student expectations and perceptions. It is anticipated that dimensions such as responsiveness and reliability will show higher negative gaps, indicating a need for urgent improvement.

The Kano model will classify service attributes into Must-Be, One-Dimensional, and Attractive categories. Attributes such as timely issuance of transcripts and responsive academic staff are expected to fall under Must-Be, while added-value services like self-service kiosks or automated academic updates may be classified as Attractive.

Through the integration of Servqual and Kano findings, the House of Quality (HoQ) will be constructed as a strategic planning tool. It is anticipated that the HoQ will prioritize technical responses related to improving communication systems, increasing administrative efficiency, and standardizing service procedures.

The use of Quality Function Deployment (QFD) in an academic context is expected to offer a structured, student-oriented approach to quality improvement. This aligns with the core principles of Total Quality Management (TQM) and reflects the institutional commitment to continuous service enhancement.

From a theoretical perspective, this study reinforces the applicability of Resource Dependence Theory (RDT) and Resource-Based View (RBV) in service quality development. By treating student feedback as a strategic resource, academic institutions can build competitive advantage and operational excellence in higher education services.

CONCLUSION

This proposed study aims to improve the quality of academic services at the Faculty of Engineering, Universitas Jenderal Soedirman by implementing the Quality Function Deployment (QFD) method, supported by Service Quality dimensions and the Kano Model. The integrated approach is designed to translate student expectations into technical specifications that guide continuous service improvement.

The practical implication of this research is to provide a structured framework that allows academic service providers to prioritize actions based on student needs and satisfaction impact. Theoretically, this study contributes to the literature by demonstrating the applicability of QFD in a higher education context, particularly when combined with Servqual and the Kano Model.

The study is limited by its scope, which is focused on a single faculty within one institution and does not involve longitudinal analysis. Data collection relies on self-reported perceptions, which may be influenced by individual biases.

For future research, it is recommended to expand the scope across multiple faculties or institutions, apply longitudinal designs to monitor service quality improvements over time, and consider incorporating emotional or behavioral dimensions such as student loyalty or engagement.

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