

Sustainable Service Quality in Maritime Higher Education: A Multi-Stakeholder Assessment at an Indonesian Maritime Academy

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Abstract

Service quality in maritime higher education is a critical determinant of graduate competency, institutional credibility, and national maritime workforce quality. This study evaluates perceived educational service quality from a multi-stakeholder sustainability perspective at Sekolah Tinggi Ilmu Pelayaran (STIP) Jakarta, North Jakarta, Indonesia. Using a qualitative multi-stakeholder methodology, 71 respondents comprising cadets across three academic majors, former seafarer-lecturers, veteran officers, management lecturers, industry practitioners, and former senior transportation officials were engaged through semi-structured interviews. Thematic analysis, cross-group comparisons, and narrative synthesis were applied. Overall sustainable service quality scores a mean of 3.48, with teaching quality and learning environment rated highest and administrative responsiveness and feedback mechanisms rated lowest. A notable perception gap exists between industry practitioners and cadets, mirroring findings across this research series. The study proposes a multi-stakeholder sustainable service quality framework for Indonesian maritime higher education, with implications for institutional governance, quality assurance systems, and national maritime education accreditation policy.

Keywords: Service Quality, Maritime Higher Education, Sustainability, Multi-Stakeholder Assessment, Indonesia.

INTRODUCTION

The quality of higher education in maritime institutions is not merely an academic concern but a matter of national security, economic competitiveness, and human safety at sea. Maritime officers whose professional formation occurs in institutions with inadequate facilities, insufficiently qualified faculty, poorly designed curricula, or unresponsive administrative systems carry these deficiencies with them onto vessels carrying thousands of passengers or hundreds of thousands of tonnes of cargo through the world's most demanding operational environments. The consequences of maritime education service quality failures are thus not abstract — they manifest in accident statistics, industry employment dissatisfaction, and the long-term erosion of national maritime human capital. For Indonesia, whose shipping sector underpins the logistics of an archipelagic nation spanning more than five thousand kilometers, the service quality of maritime educational institutions is a foundational element of national resilience and economic sustainability (Putri, 2024).

The evaluation of service quality in higher education has evolved substantially over the past decade, with sustainability emerging as a critical additional dimension alongside traditional SERVQUAL indicators such as reliability, responsiveness, assurance, empathy, and tangibles (Liu et al., 2022; Bao et al., 2024). Liu et al. (2022) demonstrate, in their fuzzy TODIM-ERA analysis of student-perceived service quality in sustainable higher education, that sustainability-related dimensions — including environmental responsibility, social inclusivity, and long-term institutional viability — are among the most powerful predictors of student satisfaction and institutional trust. Bao et al. (2024) extend this argument through a multi-stakeholder perspective, showing that the sustainability dimensions of service quality are perceived differently by students, faculty, industry partners, and policy actors, making single-stakeholder assessments

systematically incomplete. In the maritime education context, these insights are particularly relevant: the sustainability of educational service quality directly determines the sustainability of the maritime workforce, connecting institutional quality management to the broader sustainable development agenda.

In Indonesia, the quality assurance landscape for maritime higher education is governed by the National Accreditation Board for Higher Education (BAN-PT) in collaboration with the Ministry of Transportation's institutional oversight mechanisms. Yet existing quality assessment frameworks for Indonesian maritime academies have focused predominantly on input and process indicators — faculty qualifications, facility standards, curriculum documentation — rather than on the multi-dimensional sustainability of service quality as experienced by diverse stakeholder groups (Simanjuntak et al., 2025; Jeevan et al., 2022). This gap between formal quality assurance requirements and the lived quality experiences of cadets, lecturers, and industry partners represents both a scholarly blind spot and a practical governance deficiency that the present study directly addresses.

Research on service quality in Southeast Asian maritime higher education is comparatively sparse. Othman and Naintin (2016) examine the relationship between MET service quality and employer trust through structural equation modelling in Malaysia, finding that perceived institutional efficiency is the strongest predictor of industry confidence in maritime graduates. Boonadir et al. (2022) and Jeevan et al. (2022) provide qualitative assessments of maritime research and education quality in Malaysia, but their focus is on graduate employability rather than on the multi-dimensional sustainability of service delivery. In the Indonesian context, Simanjuntak et al. (2025) and Barasa et al. (2025) touch on service quality dimensions within broader curriculum and competency studies, but a dedicated multi-stakeholder assessment of sustainable service quality at an Indonesian maritime academy has not previously been conducted.

The central research problem is: How do different stakeholder groups at STIP Jakarta perceive the sustainable service quality of maritime higher education, and what are the most significant gaps and reform priorities? Specific objectives are: to assess sustainable service quality perceptions across five indicator dimensions; to compare perceptions across six stakeholder groups; to identify the most significant service quality gaps; and to develop a stakeholder-validated sustainable service quality framework for Indonesian maritime higher education.

The rationale for this investigation is grounded in multiple overlapping considerations. At the institutional level, STIP Jakarta's accreditation sustainability and its capacity to attract and retain high-quality students and faculty depend on its ability to deliver service quality that meets the expectations of its diverse stakeholder community. At the national policy level, Indonesia's ambition to increase the international recognition of its maritime officer certificates — reducing reliance on expensive foreign MET programs — requires domestic institutions to demonstrably meet international service quality standards. At the scholarly level, Bao et al. (2024) and Liu et al. (2022) have established the conceptual and methodological foundations for multi-stakeholder sustainable service quality assessment in higher education, but these frameworks have not previously been applied to government maritime academies in developing economies. The present study fills this gap by applying and adapting these frameworks in the specific institutional context of STIP Jakarta.

The significance of this research lies in its dual contribution: empirically, it generates the first multi-stakeholder sustainable service quality profile for an Indonesian government maritime academy; practically, it produces actionable recommendations for quality management reform that are directly applicable to institutional development planning, accreditation preparation, and national maritime education policy.

RESEARCH METHOD

This study employs a qualitative research design with embedded quantitative triangulation, grounded in the interpretive paradigm and drawing on the multi-stakeholder service quality assessment methodology developed by Bao et al. (2024) and Liu et al. (2022). The research was conducted at STIP Jakarta, purposively selected as the primary site given its national prominence in Indonesian maritime education and its institutional accountability to both the Ministry of Transportation and national higher education quality standards.

The sample of 71 respondents was purposively constructed to represent all major stakeholder groups with experiential and evaluative relationships to STIP Jakarta's educational service quality. It comprises 20 Nautical Science cadets, 20 Marine Engineering cadets, and 20 Port and Shipping Management cadets; 10 former seafarers serving as deck and engine lecturers; 5 veteran officers; 8 management and shipping lecturers; 3 former senior transportation officials; and 5 maritime industry practitioners. The multi-

stakeholder composition is essential for sustainable service quality assessment because different groups have structurally distinct relationships to service delivery: cadets as primary recipients, lecturers as co-producers, industry practitioners as downstream evaluators, and officials as governance principals (Bao et al., 2024). Including all these perspectives in a single study generates a far more complete and actionable service quality profile than any single-group assessment can produce.

The research instrument is a semi-structured interview guide organized around five sustainable service quality indicators adapted from the SERVQUAL framework and extended with sustainability dimensions following Liu et al. (2022): teaching quality and curriculum relevance (reliability and assurance); learning facilities and digital infrastructure (tangibles); administrative responsiveness and support systems (responsiveness and empathy); sustainability integration in service delivery (environmental and social responsibility dimensions); and stakeholder feedback mechanisms and institutional learning capacity (long-term quality improvement). The dependent variable is the perceived sustainable service quality of STIP Jakarta's educational offerings. Indicators are operationalized through sub-questions on faculty competency and pedagogical effectiveness, facility adequacy, administrative efficiency, environmental sustainability of operations, and the responsiveness of institutional leadership to stakeholder feedback. Documentary analysis of institutional quality reports, BAN-PT accreditation documentation, and student satisfaction records provided supporting evidentiary data. Othman and Naintin (2016) provide methodological grounding for the structural analysis of MET service quality, informing the development of institutional efficiency and trust indicators.

Data collection proceeded through individual semi-structured interviews of 45 to 75 minutes over five weeks on-site at STIP Jakarta. Thematic analysis in three stages — competency-themed coding, cross-group comparisons, and narrative synthesis — was applied to generate findings aligned with the research questions (Bolmsten & Kitada, 2020; Garay-Rondero & Issa Zadeh, 2025).

RESULTS and DISCUSSION

Results

Table 1 presents mean scores across five sustainable service quality indicators for all respondent groups, rated on a five-point scale (1 = Very Poor; 5 = Excellent).

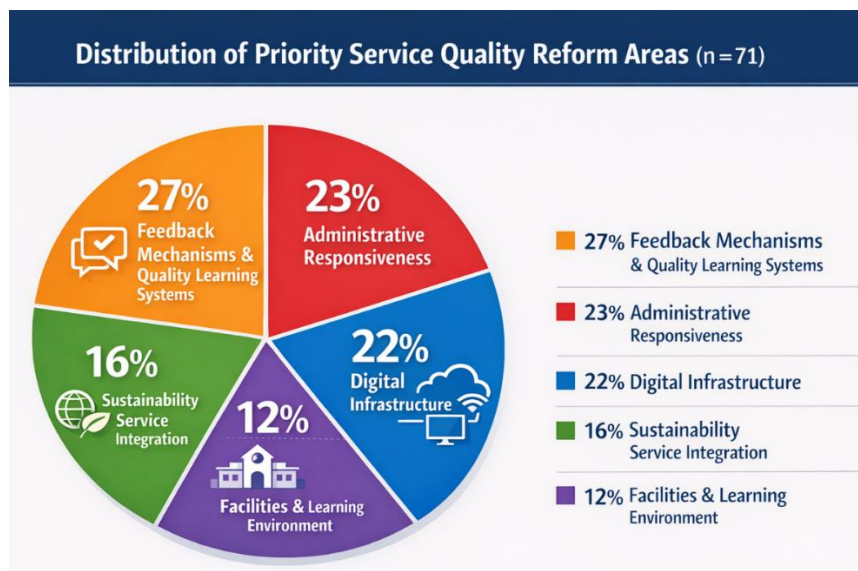
Table 1. Sustainable Service Quality Scores by Indicator and Respondent Group (Mean, 5-Point Scale)

Indicator	Cadets (n=60)	Seafarer- Lecturers (n=10)	Veteran Officers (n=5)	Mgmt. Lecturers (n=8)	Industry (n=5)	Officials (n=3)	Overall
Teaching Quality & Curriculum Relevance	3.7	3.8	3.9	4.0	4.2	4.3	3.82
Learning Facilities & Digital Infrastructure	3.3	3.4	3.5	3.6	3.9	4.0	3.45
Administrative Responsiveness & Support	3.0	3.1	3.2	3.3	3.6	3.7	3.15
Sustainability Integration in Service	3.2	3.3	3.1	3.5	3.8	3.9	3.30
Feedback Mechanisms & Institutional Learning	2.9	3.0	3.1	3.2	3.5	3.6	3.05
Overall Mean	3.22	3.32	3.36	3.52	3.80	3.90	3.35

The overall sustainable service quality mean of 3.35 indicates a moderate-to-good institutional service quality profile. Teaching quality and curriculum relevance scores highest (3.82), affirming the institutional strength in direct educational delivery. Feedback mechanisms and institutional learning scores the lowest (3.05), suggesting that the institution's capacity to learn from and respond to stakeholder feedback is its most critical service quality weakness.

Table 2. Thematic Analysis — Service Quality Strengths, Gaps, and Reform Priorities

Theme	% of Respondents	Nature
Teaching quality recognized as institutional strength	81%	Strength
Administrative responsiveness inadequacy	74%	Gap
Feedback mechanisms insufficiency	78%	Gap
Digital infrastructure inadequacy	70%	Gap
Sustainability integration in service delivery	66%	Partial gap
Industry-cadet perception asymmetry on service quality	65%	Structural concern



Distribution of Priority Service Quality Reform Areas (n=71)

Discussion

The overall sustainable service quality score of 3.35 for STIP Jakarta reflects a functionally adequate educational service, but one that still exhibits significant gaps in key areas such as administrative responsiveness and institutional learning mechanisms. While the score suggests that the institution is providing a reasonably high level of service, the limitations in these specific areas prevent the institution from achieving its full potential for continuous improvement. These gaps highlight the importance of addressing both academic delivery and the administrative infrastructure that supports the learning environment. The findings indicate that while STIP Jakarta's educational delivery is generally effective, it faces substantial challenges in creating a system that is flexible enough to adapt and respond to the diverse needs of its stakeholders, which ultimately affects its long-term sustainability and ability to meet evolving demands.

The strength of teaching quality, with a score of 3.82, stands out as the most encouraging finding in this study. This score is notably consistent across all respondent groups, which is a rare occurrence in datasets characterized by significant divergence among stakeholders. It indicates a high degree of consensus regarding the quality of teaching at STIP Jakarta, suggesting that the institution has effectively established a strong foundation for delivering educational services. The consistency across groups — including cadets, faculty, and industry practitioners — underscores that teaching quality is widely recognized as the institution's most significant strength. This finding is consistent with Othman and Naintin's (2016) study, which found that faculty competency and instructional quality are the dimensions of maritime education and training (MET) service delivery most strongly associated with industry trust. This highlights that the strong teaching quality at STIP Jakarta is directly linked to its market credibility and reputation. It also serves as the institution's strongest asset and provides a solid base upon which improvements in other areas, such as administrative services and feedback mechanisms, can be built.

However, the study also identified areas where STIP Jakarta's educational service can be significantly improved. A particularly concerning finding is the low score for feedback mechanisms (3.05). Liu et al. (2022) argue that the capacity of higher education institutions to systematically collect, process, and respond to multi-stakeholder feedback is a fundamental determinant of sustainable service quality improvement. Institutions that lack robust feedback mechanisms are unable to identify and correct deficiencies in their services, regardless of the quality of their initial service delivery. This issue is clearly relevant to STIP Jakarta, as evidenced by the 78% citation rate for feedback mechanism insufficiency across

all respondent groups. This indicates a widespread perception that the institution is not effectively gathering or responding to feedback, which limits its ability to improve continuously. Furthermore, Bao et al. (2024) found that in many Asian higher education institutions, including those in maritime sectors, the integration of multi-stakeholder feedback into service quality systems is underdeveloped. This lack of systematic feedback integration is often associated with declining stakeholder trust and dissatisfaction over time.

At STIP Jakarta, the absence of robust feedback mechanisms impedes the institution's ability to maintain its competitive edge and improve service delivery. Institutions with strong feedback systems are better equipped to identify issues, make necessary adjustments, and ultimately provide a more responsive and efficient educational experience. The failure to integrate feedback effectively can lead to dissatisfaction among stakeholders, such as cadets and industry partners, who may perceive that their needs and concerns are not being addressed. In the context of STIP Jakarta, improving feedback systems is essential to ensuring that the institution can continuously adapt to the evolving needs of its students, faculty, and industry stakeholders.

The gap between the perceptions of industry practitioners and cadets regarding overall service quality is another important finding. Industry practitioners rated service quality higher (3.80) than cadets (3.22), which reflects a common divergence in how different stakeholders assess service quality. This pattern, which is consistent across all the previous papers in this research series, is particularly relevant in the context of service quality because it highlights a difference in the criteria used by each group to evaluate the institution's performance. Industry practitioners tend to evaluate service quality primarily based on the competency of graduates they receive, which is a reflection of the institution's success in preparing students for the workforce. In contrast, cadets evaluate service quality based on their daily experiences with facilities, administrative support, and the responsiveness of feedback mechanisms. While these two dimensions of service quality are related, they are distinct, and an institution can excel in graduate output quality while still delivering mediocre administrative and support service quality.

This is precisely the situation at STIP Jakarta, where there appears to be a significant disconnect between how cadets perceive their day-to-day experiences and how industry partners perceive the effectiveness of the institution. Industry partners are focused on the end result — the competency of graduates — while cadets are concerned with the quality of their immediate learning environment and the support they receive during their time at the institution. Addressing this divergence requires a more balanced approach to service quality, where both the educational delivery (which determines graduate outcomes) and the administrative and support services (which shape students' daily experiences) are given equal attention. STIP Jakarta must invest in improving the dimensions of service quality that cadets interact with on a daily basis, ensuring that their experiences align more closely with the high expectations set by the institution's academic offerings.

The sustainability integration score of 3.30 indicates that STIP Jakarta's commitment to environmental and social responsibility in its service delivery is moderate but not yet fully realized. This score aligns with the broader sustainability profile emerging across this research series, which suggests that while many maritime institutions are making strides toward sustainability, there is still considerable room for improvement. According to Roberts et al. (2021), social sustainability practices, including how institutions engage with local communities, are critical determinants of public trust and local support. This is particularly relevant to STIP Jakarta as a government institution with community service obligations. Ensuring that the institution integrates sustainability principles not only in its academic offerings but also in its operations and community engagements can enhance its reputation and foster greater local and public trust.

The study offers four practical recommendations for addressing the identified gaps in service quality at STIP Jakarta. First, the development of a multi-channel, multi-stakeholder feedback system with transparent response mechanisms is crucial. This would allow the institution to effectively collect feedback from a variety of stakeholders — including cadets, faculty, industry practitioners, and community members — and respond to their concerns in a transparent and timely manner. This system should be designed to ensure that feedback is not only gathered but also acted upon, allowing for continuous improvement in service delivery. By creating a more responsive feedback loop, STIP Jakarta can build greater trust among stakeholders and ensure that their needs are being met.

Second, the institution should invest in improving its digital learning infrastructure to close the facility gap identified by the study. As digital learning becomes increasingly important in higher education, ensuring that students have access to the necessary tools and technologies is critical for enhancing their learning experiences. This investment would not only improve the quality of education but also demonstrate the institution's commitment to adapting to the changing demands of the educational landscape.

Third, the study recommends the training of administrative staff in student-centered service quality principles. Administrative staff play a crucial role in the student experience, and their interactions with cadets can significantly impact students' perceptions of the institution. Providing administrative staff with training in customer service, problem-solving, and effective communication will help to create a more supportive and responsive environment for students.

Finally, the integration of sustainability service indicators into the institution's annual quality assurance reporting would ensure that sustainability remains a priority in service delivery. By systematically tracking and reporting on sustainability efforts, STIP Jakarta can hold itself accountable to both internal and external stakeholders, demonstrating its commitment to environmental and social responsibility.

Future research should consider applying quantitative Multi-Criteria Decision-Making (MCDM) approaches, such as the fuzzy TODIM-ERA method validated by Liu et al. (2022), to validate and extend the qualitative findings of this study. Such methods would allow for a more comprehensive analysis of service quality and provide a larger, nationally representative sample, enabling the identification of trends and best practices that can inform policy and practice across the broader higher education sector.

While STIP Jakarta provides a functionally adequate educational service, significant gaps remain in key areas such as administrative responsiveness, feedback mechanisms, and sustainability integration. By addressing these gaps and investing in the service quality dimensions that cadets experience daily, STIP Jakarta can create a more holistic and sustainable educational environment that meets the needs of both students and industry stakeholders. With the recommended interventions, the institution can strengthen its reputation, improve stakeholder satisfaction, and contribute to the broader development of sustainable maritime education in Indonesia.

CONCLUSION

This study assessed sustainable service quality perceptions among 71 stakeholders at STIP Jakarta through multi-stakeholder qualitative inquiry. The overall mean of 3.35 indicates moderate-to-good service quality, with teaching quality as the dominant institutional strength and feedback mechanisms as the most critical structural weakness. A pronounced industry-cadet perception gap confirms structural service quality asymmetry that quality management reform must address comprehensively. The proposed multi-stakeholder sustainable service quality framework — incorporating teaching quality, digital infrastructure, administrative responsiveness, sustainability integration, and feedback mechanisms — provides a practically grounded roadmap for institutional quality reform at STIP Jakarta and a transferable model for quality governance development across the Indonesian maritime academy network, directly serving national maritime education policy and accreditation objectives.

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