

Service Quality and Student Referral Intentions in Higher Education: The Mediating Role of Student Satisfaction at Islam Syekh-Yusuf University

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Abstract

This study examines how five dimensions of service quality—tangibles, reliability, responsiveness, assurance, and empathy—shape student referral intentions through student satisfaction at Islam Syekh-Yusuf University, Indonesia. A sequential exploratory-to-confirmatory design was used: preliminary interviews contextualized service issues and informed the survey, followed by a cross-sectional questionnaire administered to 175 students from the 2021–2022 cohorts selected using proportional random sampling. The structural model was estimated with partial least squares structural equation modeling (PLS-SEM) in SmartPLS 3.2.9. The results show that assurance is the only SERVQUAL dimension with a statistically significant positive effect on student satisfaction ($\beta = .386$, $p = .003$). Student satisfaction, in turn, strongly predicts referral intention ($\beta = .583$, $p < .001$). Assurance also has a significant indirect effect on referral intention through satisfaction ($\beta = .225$, $p = .005$), whereas the other indirect effects are not significant. The model explains 51.7% of the variance in student satisfaction and 72.9% of the variance in referral intention. Internal consistency and convergent validity are acceptable; however, several heterotrait–monotrait (HTMT) ratios exceed the conventional .90 threshold, indicating that discriminant validity is not fully established for some construct pairs. The study therefore supports a focused managerial implication: competence, credibility, security, and clear communication are central to satisfaction-driven student referrals, while the non-significant dimensions should not be interpreted as unimportant without addressing measurement overlap and contextual heterogeneity.

Keywords: service quality; SERVQUAL; student satisfaction; referral marketing; word of mouth; higher education; PLS-SEM

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1. Introduction

Higher education institutions increasingly operate in an environment in which educational quality, student experience, institutional reputation, and enrollment are closely intertwined. Because students repeatedly interact with academic and administrative services throughout their study period, service encounters become a visible part of the university value proposition. Service quality is therefore not limited to physical facilities or classroom delivery; it also concerns the reliability, responsiveness, assurance, and empathy experienced across institutional touchpoints. The SERVQUAL tradition provides a widely used framework for organizing these dimensions, while higher-education-specific instruments such as HEdPERF and HESQUAL show that service quality must also be interpreted within the distinctive context of universities (Abdullah, 2006; Parasuraman et al., 1988; Teeroovengadum et al., 2019).

Student satisfaction is a particularly important outcome because it links service experiences to subsequent behavioral responses. In higher education, satisfied students are more likely to speak positively about their institution, remain loyal, and recommend it to prospective students. Evidence from private universities, management education, and digital higher-education services consistently shows that satisfaction is an important mechanism

connecting perceived service quality with positive word of mouth and related behavioral intentions (Kanduri & Radha, 2023; Rasheed & Rashid, 2024; Tan et al., 2022; Zeqiri et al., 2023). In the present study, the term referral marketing refers to students' willingness to recommend the university to others and is therefore conceptually aligned with positive word of mouth and referral intention.

The literature, however, does not support a simple assumption that every dimension of service quality has the same influence on satisfaction. Studies in different higher-education contexts have identified different dominant dimensions. Responsiveness, empathy, reliability, competence, assurance, and tangible aspects have each been important in particular settings, whereas other studies have found some dimensions to be non-significant once the dimensions are modeled simultaneously (Darawong & Sandmaung, 2019; Darawong & Widayati, 2022; Demis Alamirew, 2024; Htang, 2021; Magasi et al., 2022). These differences suggest that students evaluate service quality contextually and that dimensions may overlap empirically even when they are distinct conceptually.

This issue is relevant to Islam Syekh-Yusuf University, where student recruitment and service experience were identified as managerial concerns during the 2020–2024 period. Rather than treating service quality as a single undifferentiated construct, this study evaluates the five SERVQUAL dimensions separately and examines two pathways to referral behavior: direct effects on referral intention and indirect effects through student satisfaction. This dimension-specific approach makes it possible to identify which aspects of the student service experience appear most consequential when the dimensions are considered together.

The study contributes in three ways. First, it extends higher-education service research by testing the five SERVQUAL dimensions, satisfaction, and referral intention in one integrated PLS-SEM model. Second, it distinguishes direct referral effects from satisfaction-mediated effects, which is important because prior research indicates that satisfaction can fully or partially transmit the influence of service quality to positive word of mouth (Rasheed & Rashid, 2024; Tan et al., 2022). Third, the analysis interprets measurement quality conservatively: in addition to reliability, convergent validity, and the Fornell–Larcker criterion, the HTMT results are examined against established discriminant-validity guidance rather than being treated as valid merely because values are below 1.00 (Henseler et al., 2015; Roemer et al., 2021).

Accordingly, the study asks: (1) Which SERVQUAL dimensions are associated with student satisfaction? (2) Which dimensions directly predict referral intention? (3) Does student satisfaction predict referral intention? and (4) Does satisfaction mediate the relationship between each service-quality dimension and referral intention? The findings are intended to inform service-improvement priorities while also clarifying the methodological limits of strong causal or dimension-specific claims from a single-institution, cross-sectional design.

2. Literature Review and Hypothesis Development

2.1 Service quality in higher education

SERVQUAL conceptualizes perceived service quality through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). Tangibles capture the visible physical and technological environment; reliability concerns accurate and dependable service delivery; responsiveness reflects promptness and willingness to help; assurance concerns competence, courtesy, credibility, and the ability to inspire confidence; and empathy reflects individualized attention and understanding of users' needs. Although developed for service industries broadly, the framework remains influential in

educational-service research because university students experience both technical and relational aspects of service delivery.

At the same time, higher education is not an ordinary commercial service. Its outcomes unfold over time, students co-produce their learning experience, and academic quality cannot be reduced to customer convenience. Higher-education-specific measurement approaches therefore complement SERVQUAL by emphasizing academic, administrative, reputational, transformative, and access-related dimensions (Abdullah, 2006; Teeroovengadum et al., 2019). The present study retains SERVQUAL because its five dimensions correspond to the original instrument and empirical model, but the findings are interpreted as perceptions of service encounters rather than as a complete measure of educational quality.

Prior evidence indicates substantial contextual variation. Darawong and Sandmaung (2019) found responsiveness to be especially important for satisfaction in international programs, while Darawong and Widayati (2022) reported that the relative influence of service dimensions differed between Indonesian and Thai students in online courses. In Ethiopia, Demis Alamirew (2024) found tangibility and assurance to be significant while other dimensions were not. Htang (2021) likewise showed that students' perceptions of service quality are related to satisfaction but vary across service domains. Such variation provides a substantive reason to test the dimensions separately rather than assuming uniform effects.

2.2 Student satisfaction and referral intention

Student satisfaction can be understood as an overall evaluative judgment regarding whether educational and service experiences meet or exceed expectations. In higher education, satisfaction reflects accumulated experiences across teaching, administration, facilities, communication, and support rather than a single transaction. Higher-education service studies consistently treat satisfaction as an important criterion for assessing institutional performance and student experience (Magasi et al., 2022; Teeroovengadum et al., 2019).

Referral intention is a behavioral outcome through which students communicate favorable evaluations to others. Because university choice involves uncertainty, interpersonal recommendations may be especially persuasive. Empirical research shows that satisfaction is positively associated with word of mouth and recommendation behavior in higher education. Tan et al. (2022) found that satisfaction mediated the service-quality-behavioral-intention relationship in Malaysian private universities; Kanduri and Radha (2023) showed that satisfied management students were more likely to engage in word-of-mouth communication; Rasheed and Rashid (2024) similarly found that student satisfaction was linked with recommending the institution; and Zeqiri et al. (2023) demonstrated a positive relationship between e-service quality, satisfaction, and word of mouth in a university context.

2.3 Hypotheses

Based on the service-quality framework and the satisfaction-behavior literature, the following directional hypotheses are tested. The direct service-quality hypotheses are separated from the mediation hypotheses to match the structural model estimated in SmartPLS.

- H1. Tangibles are positively associated with student satisfaction.
- H2. Reliability is positively associated with student satisfaction.
- H3. Responsiveness is positively associated with student satisfaction.
- H4. Assurance is positively associated with student satisfaction.
- H5. Empathy is positively associated with student satisfaction.

- H6. Tangibles are positively associated with student referral intention.
H7. Reliability is positively associated with student referral intention.
H8. Responsiveness is positively associated with student referral intention.
H9. Assurance is positively associated with student referral intention.
H10. Empathy is positively associated with student referral intention.
H11. Student satisfaction is positively associated with student referral intention.
H12. Student satisfaction mediates the relationship between tangibles and referral intention.
H13. Student satisfaction mediates the relationship between reliability and referral intention.
H14. Student satisfaction mediates the relationship between responsiveness and referral intention.
H15. Student satisfaction mediates the relationship between assurance and referral intention.
H16. Student satisfaction mediates the relationship between empathy and referral intention.

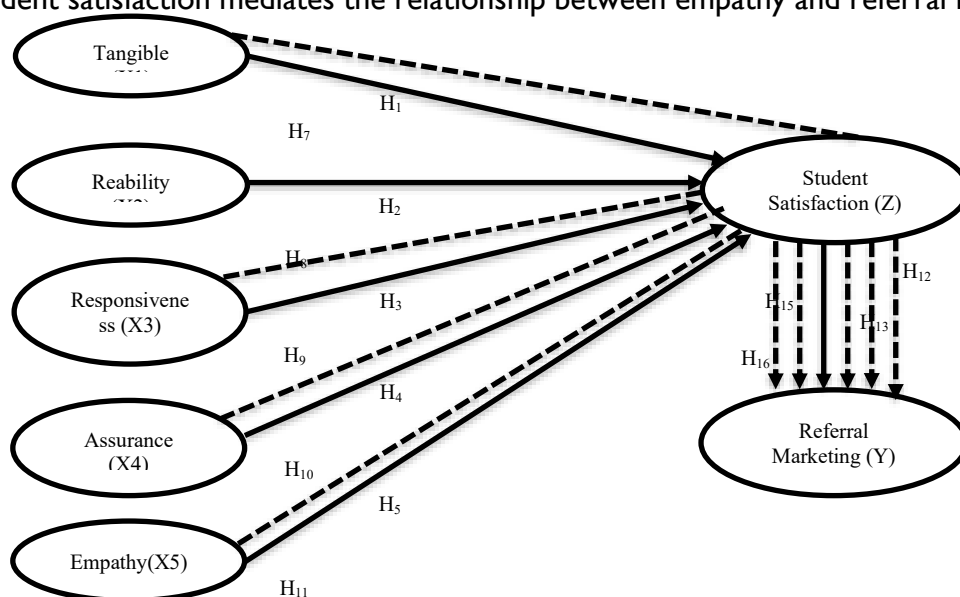


Figure 1. Conceptual framework of service quality, student satisfaction, and referral intention.

3. Method

The study followed a sequential exploratory-to-confirmatory design. Preliminary interviews were used to contextualize student concerns about university services and to refine the survey instrument. The interview phase served as contextual instrument development rather than as an independently analyzed qualitative strand. The hypothesis-testing stage was quantitative and cross-sectional, and the inferential results reported below derive from this survey phase.

The empirical setting was Islam Syekh-Yusuf University in Tangerang, Banten, Indonesia. The analysis focuses on students as direct users of academic and administrative services. The unit of analysis is the individual student.

The study population comprised 4,753 undergraduate students during the 2020–2024 period. The final quantitative sample included 175 students from the 2021–2022 cohorts, aged 19–23 years, drawn across faculties using proportional random sampling. Data were collected using a structured self-administered questionnaire.

The sample size was determined using a five-observations-per-indicator heuristic. Because an a priori statistical-power analysis was not recorded, sample adequacy should be interpreted cautiously. Future replication should determine the minimum sample size using

explicit power assumptions based on the maximum number of predictors and the smallest effect size of substantive interest.

The questionnaire measured seven reflective constructs: tangibles, reliability, responsiveness, assurance, empathy, student satisfaction, and referral marketing/referral intention. The five service-quality dimensions were adapted from the SERVQUAL framework. Student satisfaction captured the overall fulfillment of students' service expectations, while referral intention captured willingness to recommend the university through interpersonal or digital word of mouth. All items were rated on a five-point Likert-type scale.

A pretest was conducted to assess wording clarity and contextual fit. During measurement-model assessment, indicators with outer loadings below .50 were removed (X1.1, X2.1, X2.5, X3.5, X5.4, X5.5, Y1.1, and Z1.4). Because indicator deletion can alter construct content, this procedure should be interpreted alongside content validity, composite reliability, and AVE rather than as a mechanical loading rule (Hair et al., 2019; Hair et al., 2022).

PLS-SEM was estimated using SmartPLS 3.2.9. The analysis proceeded in two stages. First, the reflective measurement model was evaluated using indicator loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), the Fornell–Larcker criterion, and HTMT. AVE values of at least .50 were treated as evidence of convergent validity, while internal consistency was evaluated using alpha and composite reliability (Fornell & Larcker, 1981; Hair et al., 2019). HTMT values below .85 or .90 are commonly used as conservative benchmarks for discriminant validity, depending on construct similarity (Henseler et al., 2015).

Second, the structural model was evaluated using standardized path coefficients, *t* statistics, *p* values from bootstrapping, and *R*² values for the endogenous constructs. Statistical significance was assessed using two-tailed tests at $\alpha = .05$. Specific indirect effects were used to evaluate mediation. Consistent with contemporary PLS-SEM reporting recommendations, coefficient magnitudes are interpreted as standardized associations rather than as percentages of variance explained; explained variance is represented by *R*² (Hair et al., 2019).

4. Results

4.1 Measurement model

Table 1 summarizes reliability and convergent validity. Cronbach's alpha ranges from .746 to .883, composite reliability from .839 to .919, and AVE from .567 to .750. These values indicate acceptable internal consistency and convergent validity for all seven constructs.

Table 1. Reliability and convergent validity.

Construct	Cronbach's α	Composite reliability	AVE	Assessment
Tangibles (X1)	0.746	0.839	0.567	Acceptable
Reliability (X2)	0.780	0.872	0.693	Acceptable
Responsiveness (X3)	0.883	0.919	0.740	Acceptable
Assurance (X4)	0.841	0.887	0.611	Acceptable
Empathy (X5)	0.834	0.900	0.750	Acceptable
Student satisfaction (Z)	0.811	0.876	0.641	Acceptable
Referral intention (Y)	0.866	0.909	0.714	Acceptable

The Fornell–Larcker matrix in Table 2 indicates that the square root of AVE for each construct exceeds its correlations with other constructs. On this criterion alone, discriminant validity appears acceptable.

Table 2. Fornell–Larcker discriminant-validity matrix (diagonal = square root of AVE).

Construct	X1	X3	X5	X4	X2	Z	Y
Tangibles (X1)	0.753						
Responsiveness (X3)	0.582	0.860					
Empathy (X5)	0.553	0.686	0.866				
Assurance (X4)	0.637	0.710	0.815	0.782			
Reliability (X2)	0.572	0.800	0.643	0.703	0.833		
Student satisfaction (Z)	0.582	0.598	0.594	0.682	0.576	0.801	
Referral intention (Y)	0.534	0.671	0.656	0.706	0.603	0.812	0.845

The HTMT results require a more cautious conclusion. Three construct pairs exceed the conventional .90 threshold: empathy–assurance (.971), responsiveness–reliability (.960), and student satisfaction–referral intention (.968). Accordingly, discriminant validity is not fully established under the standard HTMT criterion. This overlap does not invalidate every structural result, but it increases the risk that some path coefficients reflect shared measurement content and should therefore be interpreted conservatively (Henseler et al., 2015; Roemer et al., 2021).

Table 3. Heterotrait–monotrait ratios (HTMT). Bold values exceed .90.

Construct	X1	X3	X5	X4	X2	Z	Y
Tangibles (X1)							
Responsiveness (X3)	0.726						
Empathy (X5)	0.709	0.801					
Assurance (X4)	0.808	0.823	0.971				
Reliability (X2)	0.748	0.960	0.779	0.852			
Student satisfaction (Z)	0.724	0.700	0.725	0.828	0.717		
Referral intention (Y)	0.665	0.767	0.770	0.826	0.725	0.968	

4.2 Structural model

The model explains 51.7% of the variance in student satisfaction (adjusted $R^2 = .498$) and 72.9% of the variance in referral intention (adjusted $R^2 = .716$). The latter R^2 reflects the combined contribution of the five service-quality dimensions and student satisfaction, not the service-quality dimensions alone. The reported SRMR is .079 for both the saturated and estimated models. Because global fit indices in PLS-SEM should not substitute for measurement and predictive assessment, SRMR is treated as supplementary evidence rather than as proof of model validity (Hair et al., 2019).

Table 4. Coefficients of determination.

Endogenous construct	R ²	Adjusted R ²
Student satisfaction (Z)	0.517	0.498
Referral intention (Y)	0.729	0.716

Table 5 presents the direct effects. Assurance is positively associated with student satisfaction ($\beta = .386$, $p = .003$), supporting H4. Student satisfaction is strongly and positively associated with referral intention ($\beta = .583$, $p < .001$), supporting H11. The other direct paths are not statistically significant at the .05 level. Responsiveness has the largest non-significant direct coefficient on referral intention ($\beta = .216$, $p = .061$), but it should not be described as significant.

Table 5. Direct path coefficients and hypothesis decisions.

Path	β	Mean	SD	t	p	Decision
Tangibles → Satisfaction	0.204	0.205	0.123	1.667	0.096	Not supported
Reliability → Satisfaction	0.057	0.054	0.096	0.596	0.551	Not supported
Responsiveness → Satisfaction	0.132	0.140	0.115	1.162	0.245	Not supported
Assurance → Satisfaction	0.386	0.374	0.128	3.009	0.003	Supported
Empathy → Satisfaction	0.038	0.055	0.141	0.273	0.785	Not supported
Tangibles → Referral	-0.048	-0.044	0.077	0.626	0.532	Not supported
Reliability → Referral	-0.033	-0.027	0.096	0.350	0.726	Not supported
Responsiveness → Referral	0.216	0.206	0.115	1.877	0.061	Not supported
Assurance → Referral	0.114	0.112	0.106	1.072	0.284	Not supported
Empathy → Referral	0.117	0.107	0.091	1.283	0.200	Not supported
Satisfaction → Referral	0.583	0.593	0.081	7.209	<0.001	Supported

The structural equations, using the reported standardized coefficients, are:

$$Z = .204X_1 + .057X_2 + .132X_3 + .386X_4 + .038X_5 + \zeta_1$$

$$Y = -.048X_1 - .033X_2 + .216X_3 + .114X_4 + .117X_5 + .583Z + \zeta_2$$

4.3 Mediation analysis

Assurance is the only service-quality dimension with a significant specific indirect effect on referral intention through student satisfaction ($\beta = .225$, $p = .005$), supporting H15. The indirect effects for tangibles ($\beta = .119$, $p = .082$), reliability ($\beta = .033$, $p = .561$), responsiveness ($\beta = .077$, $p = .269$), and empathy ($\beta = .022$, $p = .798$) are not statistically significant.

Table 6. Specific indirect effects through student satisfaction.

Indirect path	β	Mean	SD	t	p	Decision
Tangibles → Satisfaction → Referral	0.119	0.117	0.068	1.738	0.082	Not supported
Reliability → Satisfaction → Referral	0.033	0.032	0.057	0.581	0.561	Not supported
Responsiveness → Satisfaction → Referral	0.077	0.084	0.070	1.105	0.269	Not supported
Assurance → Satisfaction → Referral	0.225	0.221	0.080	2.823	0.005	Supported
Empathy → Satisfaction → Referral	0.022	0.038	0.088	0.256	0.798	Not supported

5. Discussion

5.1 Interpretation of the main findings

The central finding is not that service quality is generally unimportant, but that assurance emerges as the only SERVQUAL dimension with a statistically distinguishable effect on satisfaction when all five dimensions are entered simultaneously. Assurance captures students' confidence in staff competence, credibility, courtesy, clarity, and the security of service interactions. In a university context, these attributes can reduce uncertainty in administrative and academic processes because students depend on institutional personnel for accurate information, documentation, academic procedures, and problem resolution. The result is consistent with evidence showing that assurance can be a salient predictor of student satisfaction in higher-education settings (Demis Alamirew, 2024).

The non-significant coefficients for tangibles, reliability, responsiveness, and empathy should be interpreted carefully. A non-significant partial path does not imply that students do not value these dimensions. It means that, in this sample and model, their unique contributions are not statistically distinguishable after accounting for the other dimensions. This distinction is especially important because the HTMT results indicate substantial overlap between responsiveness and reliability and between empathy and assurance. Multicollinearity or conceptual overlap can reduce the apparent uniqueness of individual paths. The cross-context literature also shows that the dominant dimension changes across settings, with responsiveness, empathy, reliability, or assurance becoming salient under different service systems (Darawong & Sandmaung, 2019; Darawong & Widayati, 2022; Htang, 2021; Magasi et al., 2022).

Student satisfaction is the strongest direct predictor of referral intention in the model. This is consistent with the broader higher-education evidence that favorable evaluations of the student experience translate into positive word of mouth and recommendation behavior (Kanduri & Radha, 2023; Rasheed & Rashid, 2024; Tan et al., 2022; Zeqiri et al., 2023). Importantly, $\beta = .583$ is a standardized path coefficient and should not be described as "58.3% of the variance." The explained variance in referral intention is $R^2 = .729$ for the full predictor set.

The mediation analysis further clarifies the mechanism. Assurance does not have a significant direct effect on referral intention, but it has a significant indirect effect through satisfaction. This pattern suggests that confidence-inspiring service contributes to referrals primarily because it improves the student's overall evaluation of the university. In practical terms, students may not recommend an institution simply because staff appear competent; rather, competent and trustworthy service strengthens satisfaction, and satisfaction is what translates into recommendation behavior. This mechanism is compatible with previous evidence of satisfaction-mediated service-quality effects on positive word of mouth (Rasheed & Rashid, 2024; Tan et al., 2022).

5.2 Theoretical implications

The findings support a mediated service-quality framework in which satisfaction is more proximal to referral behavior than the individual SERVQUAL dimensions. This helps reconcile why direct service-quality paths to referral intention can be weak even when the overall service experience matters. The results therefore favor a process interpretation: service encounters shape evaluative satisfaction, which then informs advocacy behavior.

At the same time, the measurement results impose a boundary on the theoretical claim. Because several HTMT values exceed .90, the model does not provide strong evidence

that all seven latent variables are empirically distinct. This is particularly relevant for student satisfaction and referral intention (HTMT = .968). The model should therefore not be presented as definitive evidence of cleanly separated psychological constructs. Future measurement refinement should reduce semantic overlap between satisfaction items and recommendation items and should reassess discriminant validity using bootstrapped HTMT confidence intervals (Henseler et al., 2015; Roemer et al., 2021).

5.3 Managerial implications

For university management, the strongest evidence supports investments that strengthen assurance. This includes staff training in procedural knowledge, consistent and transparent communication, clear service standards, courteous interaction, secure handling of student information, and reliable escalation of complex cases. These interventions directly target the confidence and trust students need when dealing with academic and administrative services.

However, the non-significant results should not be used to justify neglecting facilities, responsiveness, reliability, or empathy. First, these dimensions are basic components of the student experience. Second, their statistical uniqueness is uncertain because of construct overlap. A more defensible managerial strategy is therefore two-tiered: maintain acceptable performance across all service dimensions while prioritizing assurance-related improvements that are most clearly associated with satisfaction in the present model. Satisfaction should then be monitored as a leading indicator of referral propensity rather than relying only on promotional campaigns.

5.4 Limitations and future research

Several limitations constrain generalization. First, the data come from one university and a specific cohort range, so institutional culture and local service processes may shape the results. Multi-institutional studies are needed before treating assurance as universally dominant. Second, the design is cross-sectional and based on self-reported perceptions, which limits causal inference and may increase common-method bias. Longitudinal or time-lagged designs would better establish whether service experiences precede satisfaction and subsequent referral behavior.

Third, discriminant-validity concerns are material rather than cosmetic. HTMT values above .90 for three construct pairs suggest that the measurement model should be revised before replication. Item wording should be reviewed for redundancy, followed by confirmatory measurement assessment and bootstrapped HTMT inference. Fourth, the preliminary interview phase was used for contextual instrument development; future mixed-methods research should report the qualitative sample, interview protocol, analytic procedure, and integration logic explicitly if qualitative inference is intended. Fifth, sample-size adequacy should be justified using statistical power rather than only an observations-per-indicator heuristic. Finally, future PLS-SEM studies should add out-of-sample predictive assessment (e.g., PLSpredict) and relevant robustness checks in line with current reporting guidance (Hair et al., 2019; Hair et al., 2022).

6. Conclusion

This study shows that student satisfaction is the key proximal predictor of referral intention at Islam Syekh-Yusuf University. Among the five SERVQUAL dimensions, assurance is the only dimension that significantly predicts satisfaction and the only dimension with a significant indirect effect on referral intention through satisfaction. The findings therefore point

to a satisfaction-mediated mechanism in which competence, confidence, credibility, and service security matter because they improve students' overall evaluation of their institutional experience.

The contribution is meaningful but should be stated with appropriate restraint. The data do not demonstrate that tangibles, reliability, responsiveness, or empathy are unimportant; rather, their unique effects are non-significant in a model where several constructs show high empirical overlap. For both research and practice, the most defensible conclusion is that assurance deserves priority while the broader service system remains important. Stronger future studies should refine the measurement model, expand the institutional sample, use longitudinal designs, and evaluate predictive performance.

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