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Service quality, loyalty building and institutional image at a university in Lima, Peru using structural equations

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The objective of the research was to explain the satisfaction of students at a private university in Lima, Peru, by applying structural equations. The study aimed to explain the perceived quality of service and how it contributes to student loyalty and institutional image. A purposefully designed quantitative survey was administered to a convenience sample of third-semester university students, considering the semesters 2022-I, 2022-II, and 2023-I. A total of 655 responses were included in the analysis. Descriptive and inferential analyses were conducted to test the proposed hypotheses and identify findings. The results demonstrate a statistical relationship between the variables. The quality of service perceived by the university students almost entirely (99%) explained their satisfaction with the university services provided. Satisfaction, in turn, influences the institutional image by 91% and loyalty by 47%. The image perceived by the students accounts for 39% of their loyalty to the university they attend. Given that the development of student competencies is a primary objective of higher education, this is important because the participants are preparing for qualified employment. For this reason, the use of quality surveys in education is of interest to academics, communities, and governments alike. Although the quality results of this study are admirable, based on them, the dimensions of quality can continue to be reinforced over time. Studying service provision, student satisfaction, and loyalty can help educators and institutions improve learning.

KEYWORDS

service quality, satisfaction, loyalty, institutional image, universities

Introduction

In some Latin American countries, educational systems aim to respond to institutional and regulatory demands, but also to build their own idea of the Nation (Bottinelli, 2017), highlighting the relationship between education and society. From a sociological perspective, there are cultural norms, values, and social structures that influence human behavior and affect customer loyalty (Ghilini, 2023). Therefore, it is necessary for institutions to align their values in a way that is accepted and recognized through the products or services they offer.

To satisfy social needs, educational institutions rely on structures for the exercise of academic, research, and outreach functions, as well as for management development and the fulfillment of local and international criteria and requirements. They represent academic spaces for the formation of human beings in cognitive, technical-procedural, and attitudinal competencies, which are required for professional growth and social development (Taiye et al., 2021).

Universities offer higher education services with differentiating characteristics (Susan et al., 2023) that strive for transformative quality (Nguyen et al., 2021). This pursued differentiation aims to meet student value expectations and foster their satisfaction with the services, enabling them to promote the institution and project a positive image of it in society (Coelho and Henseler, 2012; Yadav and Pathak, 2017). This, in turn, can increase its reputation, loyalty, and commitment to the services (Susan et al., 2023; Leonnard et al., 2014; Coelho and Henseler, 2012), as well as loyalty that values actions, facilities, behavior, and disposition (Yadav and Pathak, 2017).

In emerging countries, it is argued that the quality of service at the university level is below the global standard (Olokundun et al., 2019), putting them at a disadvantage in the face of international competition (Villaseñor et al., 2015). Therefore, they work toward ensuring the quality of their education systems and develop actions to differentiate themselves, gain credibility, and have an impact (Ordorika, 2015). They aim to offer services that meet desires and expectations (Akdere et al., 2020) and cover value characteristics that lead to states of fulfillment with the service (Cheng-Kun et al., 2023), supported by curricular programs and pedagogical practices (Monteiro et al., 2023). This fulfillment, associated with student satisfaction, becomes a predictor of loyalty intentions (Leonnard et al., 2014) and leads to positive recommendation processes about the institution (Masa'deh et al., 2022).

In recent years, universities have been pressured to implement evaluation processes aimed at quality assurance (Villaseñor et al., 2015) focused on positive quantitative indicators associated with research production and impact (Villaseñor et al., 2015), teaching, internationalization, resource management, and other aspects required for successful performance and the construction of institutional reputation and image (Ordorika and Rodriguez, 2010). The results of quality measurements do not always meet the demands of national and international evaluating bodies, nor the growing expectations of students (Taiye et al., 2021). For this reason, universities continuously work on service quality as a fundamental aspect that not only influences the satisfaction and loyalty of internal users but also the image and reputation in society at large.

The research aims to explain the satisfaction of students at a private university in Lima, Peru, based on the quality of service, and to determine how this contributes to student loyalty and institutional image. This objective leads to the formulation of the hypothesis: Quality of service generates satisfaction, and this contributes to student loyalty and institutional image.

Specific objectives are defined to determine whether service quality generates satisfaction and if this contributes to building loyalty among university students and to constructing the institutional image. Similarly, it aims to determine if student

loyalty contributes to image creation. Based on these objectives, specific hypotheses are formulated: H1: Service quality generates satisfaction, and this contributes to building loyalty among university students; H2: Service quality generates satisfaction, and this contributes to constructing the institutional image; and H3: Student loyalty contributes to the creation of the institutional image. The models and methodologies for evaluating the quality of service offered by universities become a central element to be studied, allowing for explanations of how service quality contributes to student loyalty and the promotion of institutional image.

Literature review and research hypotheses

Service quality refers to the overall judgment that considers an individual's attitude toward the received service, which is widely accepted as a precursor to satisfaction (Zeithaml et al., 1985; Berdugo-Correa et al., 2016; Erdogan and Ayyildiz, 2022). Models used to evaluate service quality measure levels of user satisfaction with the quality offered by universities based on established elements or criteria. These models have evolved over time and have been applied to organizations of various natures (Koc and Kaya, 2021; Akdere et al., 2020), refining their essence to ensure accurate results or findings are communicated. Table 1 presents measurement models of quality, specifying objectives and essential dimensions.

The SERVPERF model is employed for its practicality and incorporation of psychometric properties based on perceptions rather than expectations (Vazquez, 2015; Misaii et al., 2019; Moosavi et al., 2019; Rizvi et al., 2020), focusing on user evaluations (perceptions) regarding service performance (SERVICE PERFORMANCE).

SERVPERF uses 22 sentences or statements related to perceptions of service performance; however, adaptations to the measurement instrument were made for research purposes, considering the study context (Fuentes, 2021). Thus, an instrument consisting of 20 items was assumed to measure the five dimensions of the adopted model (Rafati et al., 2021): tangibles, reliability, responsiveness, assurance, and empathy.

Universities define coherent actions that can lead to student satisfaction or dissatisfaction. Students engage with their academic career and are motivated by their positive university experience, valuing curriculum content, academic guidance, and relationships with faculty and peers (Llanes et al., 2021). Based on these experiences, they become loyal to the institution through the effective performance of actors involved in teaching, research, and community engagement or service (Palacio et al., 2002). Loyal students demonstrate willingness to recommend the institution, speak positively about their academic program and the university (Susan et al., 2023; Masa'deh et al., 2022; Carter et al., 2023). Thus, student satisfaction predicts loyalty, which increases with the harmonious and efficient performance of services. Based on this, the hypothesis is proposed: H1: Service quality generates satisfaction, and this contributes to building loyalty among university students.

TABLE 1 Service quality measurement models.

Service quality measurement models	Objective	Essential dimensions
SERVQUAL (Acronym for Service Quality)	It captures consumers' expectations and perceptions through service quality dimensions.	<ol style="list-style-type: none"> 1. Tangibility 2. Reliability 3. Security 4. Responsiveness 5. Empathy
SERVPERF (Service Performance)	It is frequently used to determine the service quality performance in various areas such as public transportation, tourism, shopping malls, air services, or telecommunications companies. It is considered a superior measure of service quality compared to the SERVQUAL model.	<ol style="list-style-type: none"> 1. Tangible Aspects 2. Reliability 3. Responsiveness 4. Security 5. Empathy
HEDPERF	It measures service quality in the higher education sector and how the provider meets expectations. It expands upon the basic dimensions of traditional models (ServPerf and ServQual) and redirects them toward measurements specific to higher education services.	<ol style="list-style-type: none"> 1. Academic aspects 2. Non-academic aspects 3. Access to academic information 4. Academic program issues 5. Reputation 6. Image 7. Student loyalty
HIEDUQUAL	HiEduQual is an adapted version of SERVQUAL for the higher education sector. It is designed as a 31-item instrument to assess students' perceptions of service quality in higher education. It comprises six dimensions: teaching, administrative services, academic facilities, campus infrastructure, support services, and internationalization.	<ol style="list-style-type: none"> 1. Teaching 2. Academic services 3. Academic facilities 4. Campus infrastructure 5. Support services 5. Internationalization
EDUQUAL	Integrated Systemic Approach Model for Customer Service Quality Evaluation applied to the education system, this technique measures the satisfaction levels of four key stakeholders: students, alumni, recruiters, and parents.	<ol style="list-style-type: none"> 1. Students 2. Alumni 3. Recruiters 4. Parents

Source: Own elaboration based on Cronin and Taylor (1994), Zeithaml et al. (1985), Teeroovengadum et al. (2016), and Parasuraman et al. (1991).

The students are part of society, they adhere to a culture (norms, beliefs, rules, habits, customs), and based on this culture, they establish their needs and requirements. From a sociological perspective, loyalty focuses on behavior resulting from cognitive aspects, trust, and attitude toward institutions. It manifests as a strong commitment by consumers to remain loyal to specific services or products (Cristancho and Cancino, 2023), seeking to understand differences in cognitive behavior influenced by cultural and social factors that lead to organizational loyalty. Specifically, drawing from social exchange theory and social resource theory (Wallstrom et al., 2023), importance is placed on emotional bonds and social interactions that foster user loyalty.

From a sociological perspective, loyalty is explained through social exchange theory and social learning theory, both of which help understand how loyalty is formed and expressed (Zhang et al., 2022). It is the result of emotional and social factors rather than material rewards, supporting relationships between the user and the institution from a social and cultural standpoint. This manifests not only in repetitive purchasing behavior (consistent and loyal) as part of social behavior, but also through the influence of emotional, psychological, and social factors. These factors encompass experiences, values, beliefs, and the user's identity, demonstrating support for the institution and its image.

According to Coelho and Henseler (2012) and Yadav and Pathak (2017), meeting user value expectations generates satisfaction, which derives from receiving efficient, reliable, and secure services that enhance the sense of belonging. Consequently, a positive institutional image is built. Student satisfaction with quality services will increase loyalty (Masa'deh et al., 2022;

Susan et al., 2023; Leonnard et al., 2014), leading them to advocate for their experiences and recommend the institution, thereby enhancing its reputation and corporate image. Institutions are responsible for building satisfaction levels through their performance to contribute to the construction of a positive image. Based on these considerations, the hypothesis is proposed: H2: Service quality generates satisfaction, and this contributes to the construction of institutional image.

The contribution of student loyalty to the creation of institutional image highlights that satisfaction has a positive impact on loyalty. In the educational context, specifically in universities, student satisfaction and loyalty are essential aspects that guide strategies (Austin and Pervaiz, 2017). All components of student satisfaction predict loyalty and are associated with the institutional image: faculty, user rates, facilities, administrators, and extracurricular activities. A satisfied student will be loyal to the institution, promoting behaviors and actions that strengthen the corporate image. The university's image inspires student satisfaction with the institution (Palacio et al., 2002). Efforts should be made to build satisfaction levels that lead to student loyalty to the institution, and from this perspective, projecting a positive image in society leads to the formulation of the hypothesis: H3: Student loyalty contributes to the creation of institutional image.

User loyalty toward an institution, trust, and emotional commitment are established through positive interactions with the organization's personnel, as well as the perception of personalized and quality treatment. Students engage with the institution when they experience strong and satisfying relationships with the staff.

Method

The research was quantitative, non-experimental, cross-sectional, hypothetico-deductive, and had an explanatory scope to understand image, loyalty, and satisfaction based on the quality of service provided by the university to its students.

The study was conducted at a private university that carries out its academic activities in the departments of Lima and Ica, Peru. The data collection took place during the semesters 2022-I, 2022-II, and 2023-I. The participating students met the following requirements: (a) enrollment during the evaluated periods; (b) pursuing professional degrees in administration and accounting sciences; and (c) voluntary participation (Table 2).

To test the hypotheses and validate the model, multivariable analysis techniques were employed. The study began with service quality as the independent variable, loyalty and image as the dependent variables, and satisfaction as the mediating variable. An ordinal scale was used to measure the four variables

according to the designed model, which is shown in Figure 1, Table 3.

- **Service Quality:** Service quality is defined as the conformity with the requirements of a product or service (Makanyeza and Mumiriki, 2016; Duque Oliva, 2005), upon which there are expectations and perceptions about performance. Based on what is received, general judgments about its excellence and superiority are made (Erdogan and Ayyildiz, 2022; Zeithaml et al., 1985) to assume a position at a specific moment (Duque et al., 2012). The user values the fundamental characteristics of the services (Morais et al., 2013) based on their value expectations.
- **Satisfaction:** Satisfaction refers to the comparison between expectation and experience. It is a subjective reflection of the

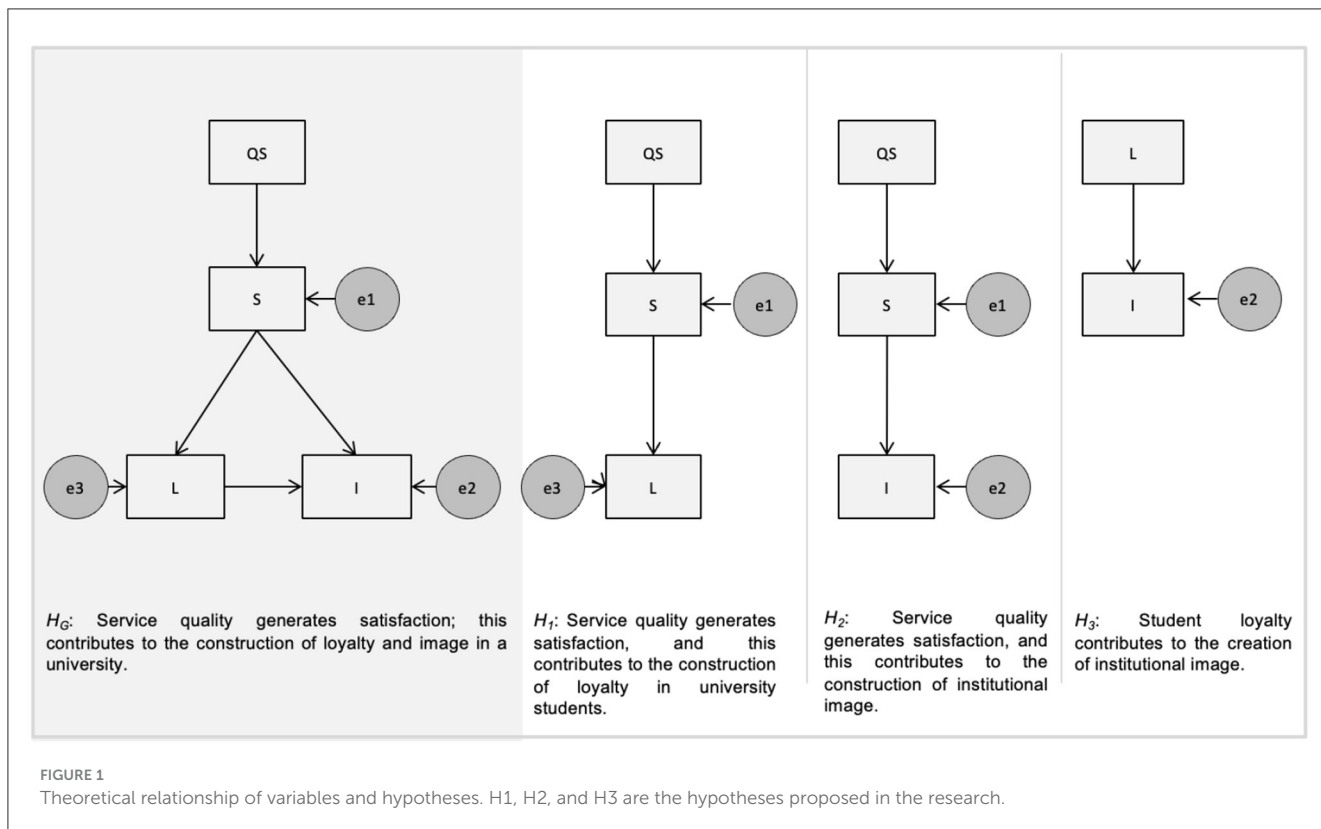
TABLE 2 Study sample.

University/Campus	Faculty	Study programs	Units of analysis-Students
Campus 1	Business Studies	Accounting and administration	427
Campus 2			158
Campus 3			170
TOTAL			655

TABLE 3 Goodness-of-fit measures.

Index	Values obtained	Criteria
X ²	807.626	
gl	153	
p	0.000	
CFI	0.955	0.90
TLI	0.945	>0.90
NFI	0.946	0.90
RMSEA	0.081	<0.08

X², Chi-square; df, degrees of freedom; CFI, Comparative Fit Index; TLI, Tucker-Lewis Index; NFI, Normed Fit Index; RMSEA, Root Mean Square Error of Approximation.



condition (Suchánek et al., 2017; Ottong et al., 2016; Kotler and Armstrong, 2012).

- **Loyalty:** Loyalty represents an indicator of the commitment between users and the service-providing institution (Coelho and Henseler, 2012; Aksoy et al., 2015). It evaluates the actions of the organization's members, facilities, behavior, and disposition (Yadav and Pathak, 2017). These relationships are influenced by emotional, psychological, and social factors, from which experiences, values, beliefs, and the user's identity are combined. This leads the user to demonstrate support for the institution and its image, generating a commitment to repeat the purchase (Saltos et al., 2017).
- **Image:** Image refers to a multidimensional concept based on a variety of dimensions, attributes, or tangible and intangible factors of the organization (Guédez Fernández and Mejías Acosta, 2010). It encompasses everything people perceive and think about a personal or institutional brand (Bernabel, 2016), representing the idea or perception that allows for rational and emotional evaluation of the institution's attributes based on personal, social, and historical interests and experiences (Fernández et al., 2015).

Questionnaire

To measure service quality, a questionnaire instrument was designed with five response alternatives using a Likert scale (from 1 to 5) to assess the relationships among its various components. The basis for constructing the instrument was the Servperf service quality measurement model from 1985, updated by Fuentes (2021) in Guayaquil. Fuentes adapted this model specifically for Higher Education Institutions (private university), comprising 5 dimensions: Tangibles (3 items), Reliability (4 items), Responsiveness (6 items), Assurance (3 items), and Empathy (4 items), totaling 20 items that addressed the elements studied in the research.

The questionnaire used to determine student satisfaction with the services provided by a university considered 5 dimensions: reliability (2 items), responsiveness (3 items), assurance (3 items), empathy (3 items), and tangibles (3 items). For the institutional image variable, the following were considered: (a) Functional image (7 items), (b) Affective image (9 items), and (c) Reputation image (6 items). Regarding the loyalty questionnaire, it included behavioral elements (6 items), attitudinal elements (5 items), and an integrative approach (6 items).

Sampling and data collection method

The population consisted of 3,074 enrolled students at the private university in Lima. A probabilistic sample was calculated at a 95% confidence level with a 5% margin of error, meeting the criteria for conducting a multivariable analysis. The sample comprised 655 students. The analysis conducted required at least 300 cases to be reliable (Comrey, 1985), and also exceeded the result of multiplying 40 by the number of variables included in the model (Tabachnick and Fidell, 1989).

Reliability and validity analysis

Reliability

The Cronbach's Alpha test was applied to determine the internal consistency of the items (Hernández and Mendoza, 2018): Service quality = 0.974, satisfaction = 0.973, image = 0.977, and loyalty = 0.945. These values fall within the required range for acceptance and application to the study sample (Hernández and Mendoza, 2018).

Validity

The instrument underwent evaluation by experts to validate its content and propose improvements for refinement. The final version obtained was psychometrically validated through Confirmatory Factor Analysis (CFA). The model fit coefficients of the final model were as follows: RMSEA, which assesses the residual matrix and should ideally fall between 0.05 and 0.08 (Byrne, 2009). Comparative fit indices CFI and TLI (Tucker-Lewis Index) were acceptable, both exceeding 0.90 (Hair et al., 2014). These results were considered as evidence of validity (Hu and Bentler, 1999), indicating sufficient model validation based on acceptable fit across these indices (see Table 1 and Figure 2).

Having verified the CFA of the questionnaire, an electronic form was developed using the Google Forms application. Subsequently, it was shared with the subjects who formed part of the study sample.

Results

The theoretical model was validated using Structural Equation Modeling (SEM) according to the proposed hypotheses. Perceived service quality by university students explained 99% of students' satisfaction with the services provided by the university, through reliability, responsiveness, security, empathy, and tangibility. Satisfaction, in turn, influenced institutional image by 91%, and loyalty by 47%. Finally, the image perceived by students explained 39% of loyalty toward the university they attend.

The proposed model shows adequate goodness-of-fit indices for predicting the service quality variable with $\chi^2 = 77.620$, degrees of freedom = 2, $\rho = 0.000$, GFI = 0.947, CFI = 0.985, TLI = 0.954, and CFI = 0.985, which exceed the recommended threshold of 0.90. However, the RMSEA = 0.240 does not fall within the recommended range (0.05 to 0.08), indicating that the fit may not always be achieved.

Based on the statistical findings, the central hypothesis of the research can be validated: Service quality generates satisfaction and contributes to building loyalty and image in a university (Table 4).

Taking into account the theoretical foundations, it was statistically demonstrated that service quality influenced 99% of university students' satisfaction ($p = 0.000 < 0.001$), and in turn explains 83% of loyalty ($p = 0.000 < 0.001$), improving the variability of the overall model regarding loyalty. There is a 26% difference in explaining loyalty improvement among university students. Considering the goodness of fit results, the research hypothesis is validated: Service quality generates satisfaction and this contributes to building loyalty in students at higher education

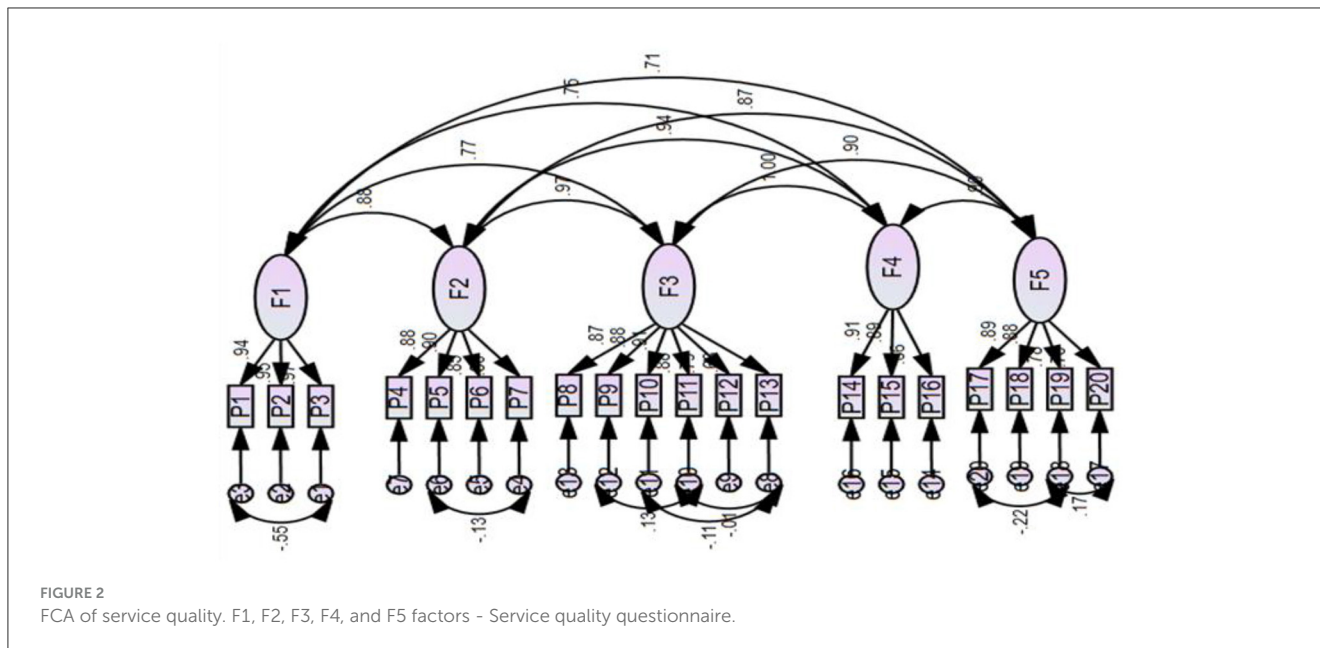


TABLE 4 Standardized coefficients and significance levels.

	Estimates	Sig.
S CS	0.994	0.000
IS	0.909	0.000
LS	0.474	0.000
LI	0.388	0.000

institutions ($X^2 = 65.540$, degrees of freedom = 1, $p = 0.000$, GFI = 0.940, CFI = 0.983, TLI = 0.948, and CFI = 0.983, and RMSEA = 0.314).

Relationships are explained by 91% ($p = 0.000 < 0.001$), maintaining the percentage of influence as per the use of structural equation modeling. The goodness of fit indices proved adequate to validate the hypothesis: Service quality generates satisfaction, and this contributes to the construction of institutional image ($X^2 = 30.130$, degrees of freedom = 1, $p = 0.000$, GFI = 0.971, CFI = 0.993, TLI = 0.972, and CFI = 0.993, and RMSEA = 0.211).

Finally, there is a direct relationship between institutional image and loyalty, which was assessed using ordinal logistic regression due to not meeting the assumptions for linear regression. These assumptions were previously verified using SPSS 26. The model fit is adequate with $p = 0.000 < 0.05$, and the goodness of fit was not significant ($p = 1.93 > 0.05$). The calculated Nagelkerke coefficient was 0.529, indicating that 52.9% of the variability in the institutional image perceived by university students explains the presence of loyalty. Regarding the hypothesis: Institutional image contributes to the creation of institutional loyalty, both levels of the variables were found to be significant. Institutional image was considered in three levels: low, medium, and high; while loyalty was categorized as good, regular, and high. This demonstrates that institutional image influences the loyalty of university students.

Discussion and conclusions

For the research, measurement models of service quality employed in different contexts were identified. It was necessary to extract representative elements to define the central variables in the research, from which hypotheses with relationships to be tested were formulated. The formulated hypotheses were accepted, validating relationships between service quality, satisfaction, image, and loyalty.

It was possible to relate concepts of interest in educational contexts. As the central variable, service quality was assumed to be crucial in generating satisfaction and in building and projecting other related variables such as student loyalty and institutional image. Analyses were conducted based on these variables to establish connections and stimulate discussions. The relationship between service quality and student satisfaction is notable, demonstrating the influence of the latter, which has a stronger impact on institutional image than on loyalty. This highlights the importance of formulating strategies and performance models in educational services to evaluate the configuration and relevant actions regarding service quality (Mwiya et al., 2019), thereby continuing to build both image and loyalty. It is essential to intensify the implementation of strategies and other innovative approaches for effective organizational management in higher education institutions (Galeeva, 2016).

Regarding institutional image, it is influenced by the satisfaction of students with the institution, affirming that at the University, students are loyal due to their willingness to recommend the university positively. Service quality generates satisfaction and has positive effects with a significant link to loyalty (Agarwal and Dhingra, 2023). Students access educational services and feel satisfied when they are respected (Rodríguez Gudiño et al., 2022).

Service quality generates satisfaction, and this contributes to the construction of institutional image. University image

inspires satisfaction (Palacio et al., 2002), with reciprocal relationships existing between satisfaction and image. In this sense, relationships between the defined variables are strengthened, confirming also that student loyalty contributes to the creation of institutional image, thereby confirming the third hypothesis of the research.

From a sociological perspective, the variables studied in the research highlight individual and social behaviors influenced by social and cultural norms that shape the perceptions of users of products or services offered by institutions. In this context, the central unit of analysis was a university in Lima, Peru. Students were considered key informants, providing insights into their perceptions of the quality of services offered. The proposed hypotheses were validated, underscoring the importance of providing quality in the services offered by the institution.

The existence of quality in education entails satisfaction with tangible aspects such as infrastructure; reliability, concerning the trust demonstrated by staff and systems; efficient and timely responsiveness; security in providing information and specific services; and empathy from individuals within the institution. Together, these aspects lead to overall satisfaction and result in recommendations of both the services and the institution. Achieving these through quality processes aligned with the minimum requirements set by the National Superintendence of Higher University Education, Concytec, and Indecopi, helps solidify student loyalty and build a positive image within society.

In the university setting, certifying essential processes instills confidence in students to pursue their studies in an institution that demonstrates clear processes endorsed by accrediting bodies and audit firms. Additionally, continuous improvement in performance from period to period is focused on the education and employability of future professionals.

Limitations and future research directions

This research has certain limitations that warrant attention. Primarily, the data were gathered from a private university with three campuses located in Lima, Peru. Consequently, it is important to interpret the findings cautiously within this specific context. Future studies should endeavor to broaden the scope of analysis by incorporating data from both private and public universities to explore potential variations. Furthermore, it is recommended that future researchers expand the breadth of their investigation and collect a more extensive dataset encompassing multiple universities. This approach would bolster the generalizability of findings across diverse educational settings. Additionally, the research is still in its nascent stages. Despite being underpinned by existing sectoral studies and a robust methodological framework, there is a need for further exploration to deepen the model. This involves exploring additional facets that could lead to more refined and comprehensive outcomes within the studied field and sector. Lastly, it is imperative to consider variables that are pertinent to the specific context of the country under study and the realities of its universities. This adjustment will refine the proposed model in the research and enhance its relevance and applicability within the local context.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

RM: Investigation, Methodology, Writing – original draft, Writing – review & editing. IC: Conceptualization, Formal analysis, Methodology, Supervision, Visualization, Writing – original draft, Writing – review & editing. MG: Data curation, Investigation, Validation, Writing – review & editing. DP: Conceptualization, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft. GS: Conceptualization, Funding acquisition, Investigation, Project administration, Writing – original draft. FN: Data curation, Resources, Visualization, Writing – review & editing. FM: Formal analysis, Investigation, Writing – review & editing. OB: Investigation, Methodology, Resources, Validation, Visualization, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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