



Online Service Quality Assessment in Higher Education: Development, Validation, and Implementation of an e-Tool

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

In pursuit of quality and excellence in educational institutions, it is increasingly important to identify demands and needs of stakeholders. Service quality has been identified as one such demand. The purpose of the current study was to develop and validate a quality service assessment tool based on SERVQUAL Model to describe the service quality in Higher Education Institution. The sources of data were the head and personnel of the different clusters of CBSUA. The data were treated statistically using weighted mean and rank. The weighted-mean scores for the five SERVQUAL dimensions across the offices of the University President, Research and Innovation, Administration and Finance, Business and External Affairs, and Academic Cluster demonstrates that respondents find all five dimensions to be appropriate for assessing the service quality of each office. The relatively high scores across all dimensions highlight the importance of Tangibility, Assurance, Reliability, Reliability, Responsiveness, and Empathy in shaping stakeholders' perceptions and expectations of service quality within an educational institution. While some dimensions hold greater

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importance for specific offices due to their unique roles and responsibilities, all dimensions are nonetheless essential for evaluating the overall service quality in each context. The findings align with previous research on the applicability of the SERVQUAL model across various contexts, including higher education institutions. Ultimately, the results underline the significance of maintaining a high level of service quality across all dimensions in each office, as this is crucial for ensuring stakeholder satisfaction and fostering a positive reputation for the university.

Keywords: e-Qual; development; validation; online quality service; assessment tool; higher education institution; quality service.

1. INTRODUCTION

In today's globalized and highly competitive environment, education has emerged as both a crucial industry and an essential investment for future success. The quality of education, particularly at the higher education level, plays a pivotal role in shaping the functionality, employability, and competitiveness of graduates in the global arena (Al-Ibrahim, 2014). This has led to an increasing prioritization of higher education institutions (HEIs) by students and their families, who seek institutions reputed for delivering quality education as a pathway to respectable and rewarding careers (Setyawan, 2003; Wadjdi and Djamin, 2021).

The importance of quality in educational management cannot be overstated, as it directly impacts the present and future economic stability of nations (Cayanan, 2017; Nenadal, 2015). As Datta and Vardhan (2017) emphasize, the competitiveness of educational institutions is largely determined by their ability to swiftly adapt to the evolving socio-economic environment. This adaptation hinges on the provision of high-quality education and continuous improvement. Şavga (2013) supports this view, categorizing universities as service providers whose primary products—knowledge and competencies—must meet the needs and expectations of students and other stakeholders to be considered of high quality.

In the Philippines, the Commission on Higher Education (CHED) has highlighted the necessity of quality assurance (QA) in higher education through CHED Memorandum Order No. 46, series of 2012. This policy mandates HEIs to implement reform strategies, such as quality assurance, performance evaluation, and financial audits, aimed at elevating the performance of the higher education sector to meet global standards. Ensuring that HEIs produce graduates equipped with the right competencies and attitudes through excellent quality education is crucial for this goal, making QA a central

concern (Setyawan & Abhiyoga Alan, 2023; Wadjdi et al., 2021). Donlagic and Fazlic (2015) echo this sentiment, noting that the quality of services provided by HEIs must be continuously improved to meet the demands and expectations of various stakeholders.

State Universities and Colleges (SUCs) in the Philippines must align with these changing educational landscapes by offering degree programs that meet world-class standards. They must also produce graduates who possess lifelong learning competencies, achievable through a commitment to quality assurance and service. This focus on quality assurance not only boosts student confidence but also enhances the university's credibility, enabling it to compete effectively with other institutions. This aligns with the Philippine Constitution, which mandates the state to "protect and promote the right of all citizens to quality education at all levels" (Section 1, Article 14).

For universities, delivering quality service to stakeholders—especially students—is critical (Janjua & Aftab, 2016). Quality service impacts the overall educational experience, influencing students' satisfaction, motivation, and loyalty (Mwiya et al., 2017; Nyenya & Bukaliya, 2015). Abdullah (2006) and Siming et al. (2015) highlight that satisfied students are more likely to be motivated and competent, which in turn contributes to the institution's reputation and success. Singh and Kumar (2014) further elaborate that as the service sector grows and plays an increasingly vital role in the global economy, the study of services and innovation becomes crucial. Reliable methods of measurement, assessment, and improvement are necessary to enhance performance in knowledge-intensive business services, including higher education (Yarimoglu, 2014).

Given these imperatives, the Central Bicol State University of Agriculture (CBSUA) aims to establish a robust system for assessing the quality of services it provides. Current mechanisms,

such as customer satisfaction surveys and accreditations like AACUP, ISO certification, and ISA evaluation, offer some insights into service quality. However, as Singh and Kumar (2014) suggest, there is a need for a more comprehensive, scientifically validated tool that can accurately measure and report on the quality of services delivered. Raphael (2014) points out that traditional measures of quality in higher education often focus on institutional prestige and other areas that may not fully capture the student experience or meet their expectations.

This study, titled "e-Qual: Development and Validation of an Online Quality Service Assessment Tool in Higher Education Institutions," seeks to address this gap by developing an assessment tool grounded in the SERVQUAL model. The SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry, measures service quality based on multiple dimensions, including both functional and technical aspects (Afridi, Khattak, & Akhan, 2016; Kanakana, 2014; Krsmanovic et al., 2014). Vazirova (2016) argues that service quality is a strong competitive tool, not only for service companies but also for HEIs globally, as it raises their competitiveness in the tertiary sector. The e-Qual tool will not only evaluate service quality but also facilitate continuous improvement, helping CBSUA and other HEIs enhance their quality management systems, thereby fostering better educational outcomes and stakeholder satisfaction.

Ultimately, this approach aligns with the broader goal of higher education institutions to meet the demands of an increasingly competitive knowledge-based global economy, as Atiyah (2017) emphasizes. By focusing on continuous improvement in service quality, HEIs can ensure they remain relevant and competitive, providing students with the skills and knowledge they need to succeed in a rapidly changing world.

This research aims to contribute to the Central Bicol State University of Agriculture's (CBSUA) newly crafted university goal of establishing an e-governance system by developing and validating an online quality service assessment tool specifically designed for higher education institutions. The general problem addressed by this study is the need for a reliable and efficient mechanism to assess and enhance the quality of services provided within the university. The specific problems include the development of a quality service assessment tool based on the

SERVQUAL model, which will be tailored to address the unique needs and expectations of the university's stakeholders. Additionally, the study seeks to validate the effectiveness and accuracy of the developed assessment tool, ensuring it accurately reflects the quality of services provided and offers actionable insights for continuous improvement. Through this endeavor, the university will not only meet its e-governance objectives but also elevate the overall service quality within its institution.

2. METHODOLOGY

The study employed a development and descriptive-evaluative research method to systematically evaluate the appropriateness of a newly developed Quality Service Assessment Tool within the university. This approach allowed the researchers to not only create a tool tailored to the specific context of educational services but also to rigorously test its validity and reliability across multiple dimensions of service quality. The descriptive-evaluative method was particularly useful for obtaining and analyzing stakeholders' perceptions of the quality of service provided by various clusters within the university. The use of graphical presentations, such as bar graphs, helped to visually communicate the results, making it easier to identify patterns and areas of concern.

The Quality Service Assessment Tool was developed through a thorough literature review, focusing on existing models and instruments related to service quality. The SERVQUAL model, a widely recognized framework for assessing service quality, served as the foundation for the tool's design. The SERVQUAL model includes five key dimensions: tangibility, assurance, reliability, responsiveness, and empathy. These dimensions were carefully adapted to fit the educational context, resulting in a tool that consisted of 20 items—four for each dimension. The tool was designed to be universally applicable across all clusters within the university, ensuring consistency in the evaluation process.

The validation process of the tool was conducted in two stages to ensure its accuracy and relevance. Initially, the tool was pre-tested on a small, diverse sample group consisting of students, teachers, non-teaching staff, and alumni. This initial trial provided valuable feedback, leading to necessary revisions in the tool's content and format.

Following this, the revised tool was distributed to a broader audience via Google Forms for further validation. The purposive sampling technique was employed to select respondents, focusing on personnel from different clusters within the university, including heads of offices and staff. The broader validation process was crucial in refining the tool, ensuring it accurately measured the intended dimensions of service quality. Expert validation was also sought to review and finalize the tool, reinforcing its reliability and appropriateness for the university's specific context.

The final version of the Quality Service Assessment Tool incorporated feedback from the validation stages and was approved by experts. It employed a 4-point Likert scale, ranging from "not appropriate" to "very appropriate," to assess the quality of services provided by each office. This scale allowed for a nuanced understanding of service quality, capturing varying levels of appropriateness across different dimensions.

The assessment tool was then administered to a total of 105 respondents, including students, faculty, non-teaching staff, and external stakeholders. The online administration via Google Forms ensured a wide reach and facilitated easy data collection. Clear instructions were provided to respondents to ensure that the tool was completed accurately. Finally, the data collected from the completed assessments were analyzed using weighted mean and rank. This analysis provided a detailed understanding of the appropriateness of each service quality indicator within the SERVQUAL dimensions. By ranking the items, the study was able to pinpoint specific strengths and areas needing improvement in the university's service quality, offering valuable insights for future enhancements. The study's comprehensive approach—from tool development to data analysis—demonstrates a robust framework for assessing service quality in an educational setting.

3. RESULTS AND DISCUSSION

3.1 Quality Service Assessment tool Developed Based on the SERVQUAL Model

In assessing the quality of services provided by an office, a comprehensive tool was developed to evaluate five key dimensions of service quality: Tangibility, Assurance, Reliability,

Responsiveness, and Empathy. Each dimension was assessed through four specific indicators, which together provide a detailed understanding of the office's service performance.

In the **Tangibility** dimension, the indicators focused on the physical aspects of service delivery. These included the office staff's appearance and demeanor, the organization and labeling of relevant documents, the cleanliness and organization of the office space, and the provision of a designated receiving area for clients.

The **Assurance** dimension evaluated the competence and trustworthiness of the office personnel. Indicators here included the qualifications of the office head and staff, the confidentiality maintained in transactions, the ability of the personnel to convey trust, and their competence in handling client needs.

For **Reliability**, the indicators assessed the consistency and accuracy of the services provided. This included the office staff's performance of expected functions, the accuracy and correctness of services rendered, the ability to deliver promised services, and the dependability of personnel in meeting client requests.

The **Responsiveness** dimension measured the efficiency and promptness of the office in handling client transactions. Indicators in this dimension included timely submission of reports, efficiency in service delivery, prompt action on requests, and flexibility in addressing client complaints and resolving issues.

Finally, the **Empathy** dimension focused on the relationship between the office personnel and the clients. This was assessed through indicators such as the quality of relationships between staff and clients, the helpfulness and consideration shown by personnel, the extent to which clients felt important and cared for, and the clarity and appropriateness of communication used in client interactions.

The indicators for each dimension were adapted from Parasuraman's SERVQUAL model to better align with the specific context of educational quality services provided by the organization. The researcher has tailored these indicators to reflect the unique needs and expectations within an educational setting. Each indicator within the

respective dimensions is further explained to clarify its relevance and applicability in this context. Table 1 presents the Tangibility dimension and its corresponding indicators, along with detailed explanations. Table 2 outlines the Assurance dimension, followed by explanations for each indicator. Table 3

details the Reliability dimension, with accompanying explanations. Table 4 lists the Responsiveness dimension and provides explanations for its indicators. Finally, Table 5 covers the Empathy dimension, along with explanations that illustrate its suitability in an educational environment.

Table 1. Indicators in tangibility dimension

Indicator	Explanation
1. The office staff serve with a smile and appropriately dressed.	In an educational institution, approachable and professional staff are essential for fostering a positive learning environment. A well-dressed staff with a friendly demeanor can make students, faculty, and other stakeholders feel more comfortable when seeking assistance or information.
2. Relevant documents are properly arranged and labelled.	Educational institutions often require a wide range of documents for various purposes, such as enrollment, transcript requests, and course materials. Proper organization and labeling of these documents ensure efficient access and support for students and faculty in their academic pursuits.
3. The office is clean and organized with visible and clear information materials.	In an educational setting, a clean and organized office with accessible information materials can enhance students' and faculty members' experiences by making it easier for them to find relevant resources and navigate the services offered by the institution.
4. The office provides receiving space/area for the clients.	A designated receiving area for clients, such as students, faculty, and visitors, shows the institution's commitment to providing a welcoming and comfortable space for them. This aspect of tangibility can help create a supportive atmosphere that encourages academic success and collaboration.

Table 2. Indicators in assurance dimension

Indicator	Explanation
1. The office is managed by qualified head off office and staff.	Qualified leadership and staff are critical to ensuring that an educational institution's office provides accurate and reliable services. Their expertise and knowledge contribute to the assurance that the office can address clients' needs and concerns effectively.
2. The office personnel observed confidentiality in each transaction.	Confidentiality is essential in educational institutions, as they often handle sensitive information such as students' personal data, grades, and academic records. Maintaining confidentiality in each transaction builds trust and ensures that clients feel secure when sharing their information with the office.
3. The office personnel have the ability to convey trust to the clients.	Trust is a vital aspect of assurance, particularly in educational institutions where students, faculty, and other stakeholders rely on the office for various services. Office personnel who can convey trust help to create an environment where clients feel confident in the office's ability to address their needs.
4. The office personnel have the ability to demonstrate competence.	Demonstrating competence is crucial in educational institutions, as it assures clients that the office personnel are capable of handling complex tasks, addressing concerns, and providing accurate information. Competent staff contribute to the overall sense of assurance in the quality of services provided by the office.

Table 3. Indicators in reliability dimension

Indicators	Explanation
1. The office staff performs its expected function.	In an educational institution, it is crucial for the office staff to effectively perform their expected functions, such as providing information, processing requests, and offering support. This demonstrates the office's ability to deliver consistent and dependable services to its clients.
2. The office rendered service to its clients accurate and right the first time.	Accuracy and timeliness are essential for building trust and meeting clients' expectations in an educational setting. Providing accurate services the first time reduces the need for repeat visits, saves time for both the clients and the office, and contributes to the overall sense of reliability in the institution's services.
3. The office has the ability to perform the promised service to the clients.	Delivering on promises is a critical aspect of reliability in educational institutions. Clients need to trust that the office can provide the services it claims to offer, such as processing transcripts, assisting with enrollment, or addressing academic concerns, to ensure a smooth and efficient experience.
4. The office personnel provide client's request/need dependably.	Dependable service is an essential component of reliability in an educational institution's office. The ability of office personnel to consistently address clients' requests and needs demonstrates the office's commitment to providing reliable, high-quality service, fostering trust and satisfaction among students, faculty, and stakeholders.

Table 4. Indicators in responsiveness dimension

Indicators	Explanation
1. The office personnel prepare and submit on time required reports and other outputs.	Timely submission of required reports and outputs demonstrates the office's commitment to efficiently address the needs of students, faculty, and other stakeholders. This aspect of responsiveness helps ensure that the office remains accountable and responsive to the institution's requirements.
2. The office personnel demonstrate efficient Services in handling business transaction with clients.	Efficient service is crucial for a positive client experience in an educational institution. Office personnel who can handle transactions quickly and effectively contribute to the overall sense of responsiveness and show that the office values clients' time and needs.
3. Concerned officials and office staff act promptly on requests.	Prompt action on requests is a key aspect of responsiveness in educational institutions. When officials and staff address requests quickly, it demonstrates the office's commitment to providing attentive and responsive service, which can lead to higher levels of satisfaction and trust among students, faculty, and stakeholders.
4. The office provides quick service and handles requests, complaints, and resolution of problems with flexibility.	Offering quick and flexible service is essential for addressing the diverse needs and concerns of clients in an educational setting. A responsive office that can adapt to various situations and resolve issues efficiently contributes to a positive experience for students, faculty, and other stakeholders.

3.2 Validation Phase

Quality service is an evaluation of how good a provided service approves client's expectation. Today, service quality is a popular emerging construct and a field of interest for the higher education stakeholders. Stakeholders deserve

service quality and encourage repeated good if not the best service as they are important resource of the university. Figures below show the graphical result on the appropriateness of the indicators in every SERVQUAL dimensions validated by every cluster in the university.

Fig. 1 reveals that empathy got the highest mean of 3.89 interpreted as very appropriate. This finding conforms to the core principle of the administration on care. This shows that the office of the President is consistent in addressing the principle on care by rating the indicators in the empathy dimension very appropriate. This is in conformity with the statement that empathy is on care and individualized attention the firm provides to its customers (Green, 2016). Moreover, indicators in other dimensions, such as assurance, reliability, responsiveness, and empathy were all rated very appropriate.

Given the context of the Office of the University President and their role in overseeing the processes of the university, the weighted-mean scores for each dimension show that respondents find all five dimensions appropriate for assessing this office.

Tangibility (3.72): The slightly lower score for Tangibility may indicate that physical aspects are still considered important, but perhaps not as critical as other dimensions for the Office of the University President. A professional appearance and well-organized environment contribute to positive perceptions, but the primary focus for this office lies in overseeing processes and ensuring the effective functioning of the university (Zeithaml, Parasuraman, & Berry, 1990).

Assurance (3.86): In the context of the Office of the University President, assurance is crucial as it demonstrates the office's expertise, trustworthiness, and authority in leading the institution. The ability to convey trust and competence is essential for maintaining credibility among stakeholders and ensuring the university runs smoothly. Research by Kuo, Wu, and Deng (2009) emphasizes the importance of assurance in shaping trust and confidence in an organization.

Reliability (3.88): The high score for reliability reflects the importance of the University President's Office in consistently delivering on their promises and effectively

managing university processes. In a leadership role, reliability is key for maintaining the trust of stakeholders and ensuring the successful execution of institutional goals (Zeithaml, Parasuraman, & Berry, 1990).

Responsiveness (3.88): Responsiveness is important for the Office of the University President, as it indicates their ability to promptly address concerns and requests from various stakeholders. A responsive office fosters a sense of accountability and ensures that issues are resolved efficiently. This aligns with research by Parasuraman, Zeithaml, and Berry (1988), which highlights the significance of responsiveness in shaping clients' perceptions of service quality.

Table 5. Indicators in empathy dimension

Indicators	Explanation
1. The office shows harmonious and good working relationship among staff and clients.	A harmonious working environment is essential for fostering positive interactions between staff and clients in an educational institution. This aspect of empathy helps create a supportive atmosphere that encourages collaboration and facilitates the resolution of issues or concerns.
2. The office personnel are helpful and considerate with issues of the client.	Being helpful and considerate demonstrates the office's commitment to understanding and addressing clients' individual needs and concerns. This aspect of empathy ensures that clients feel heard and respected, which contributes to their satisfaction and trust in the institution's services.
3. The office personnel made the client feel important and cared for.	Making clients feel important and cared for is a key aspect of empathy in an educational setting. When office personnel display genuine concern for clients' needs, they foster a sense of belonging and trust, which can lead to a more positive experience for students, faculty, and other stakeholders.
4. The office personnel spoke clearly and used appropriate language in dealing with clients.	Clear communication and the use of appropriate language are essential for conveying empathy and understanding in an educational institution. By speaking clearly and using language that is respectful and inclusive, office personnel demonstrate their commitment to addressing clients' needs in a considerate and professional manner.

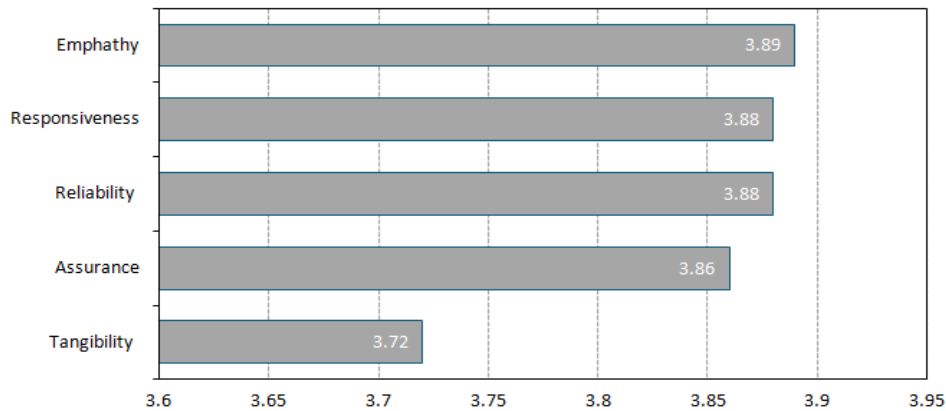


Fig. 1. Validation on the appropriateness of indicators along SERVQUAL dimensions in the office of the president

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

Empathy (3.89): The high score for empathy suggests that respondents value the office's ability to provide individualized attention and understanding. The University President's Office must be attuned to the needs and concerns of various stakeholders, fostering strong relationships and trust within the institution. Research by Zeithaml, Parasuraman, and Berry (1990) and Kuo, Wu, and Deng (2009) supports the importance of empathy as a key driver of service quality.

In summary, the results indicate that all five SERVQUAL dimensions are considered appropriate for assessing the Office of the University President. These findings are consistent with previous research on the significance of these dimensions in shaping service quality perceptions and customer satisfaction in various contexts, including educational institutions (Parasuraman, Zeithaml, & Berry, 1988; Kuo, Wu, & Deng, 2009). Fig. 2 reveals that items along reliability has the highest mean with 3.96 interpreted as very appropriate. This is followed by the items along empathy with 3.95, along assurance with 3.90 and items along responsiveness with 3.86 of which all are very appropriate. The lowest mean is along tangibility with 3.80 still interpreted as very appropriate. Therefore, all items or indicators in the 5 SERVQUAL dimensions validated by the personnel in the academic cluster are very appropriate.

Based on the weighted-mean scores for each dimension, it appears that the respondents found all five dimensions appropriate for assessing the Academic Cluster, which includes the different

colleges within the university. The scores range from 3.80 to 3.96.

Tangibility (3.80): Tangibility received the lowest score, although it is still considered appropriate. This may be because tangibility mainly addresses the physical aspects of service quality, which could be perceived as less critical compared to other dimensions in an academic setting. However, research by Zeithaml, Parasuraman, and Berry (1990) highlights that a professional appearance and a well-organized environment contribute to positive perceptions of service quality.

Assurance (3.90): Assurance is particularly important in an academic context as it focuses on the knowledge, skills, and trustworthiness of the office personnel. In the case of the Academic Cluster, the expertise and credibility of deans, chairpersons, and office staff are vital for maintaining the quality of education and services provided. Studies such as Kuo, Wu, and Deng (2009) emphasize that assurance plays a significant role in shaping trust and confidence in an organization.

Reliability (3.96): The high score for reliability suggests that respondents perceive the Academic Cluster as dependable in fulfilling its functions and delivering on promises. In an academic setting, the reliability of the colleges is essential to ensure that students receive a high-quality education and support services. This finding aligns with research by Zeithaml, Parasuraman, and Berry (1990), which emphasizes the importance of reliability as a crucial aspect of service quality.

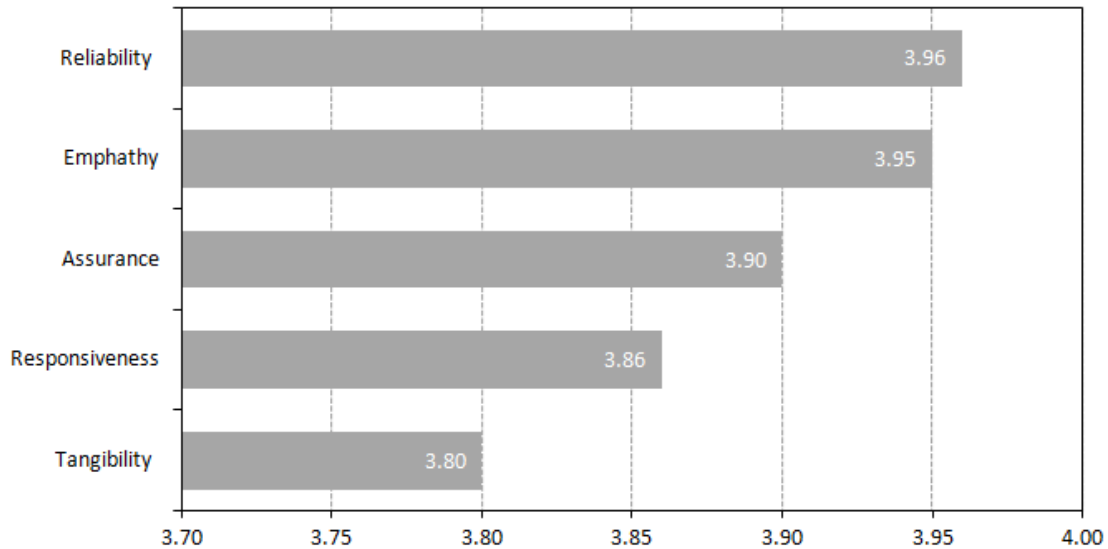


Fig. 2. Validation on the appropriateness of indicators along SERVQUAL dimensions in the academic affairs cluster

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

Responsiveness (3.86): The high score for responsiveness indicates that respondents view the Academic Cluster as prompt and efficient in addressing concerns and requests. This is in line with research by Parasuraman, Zeithaml, and Berry (1988), which highlights the importance of responsiveness in shaping clients' perceptions of service quality. In an educational institution, a responsive Academic Cluster can contribute to a positive experience for students, faculty, and other stakeholders by effectively addressing their needs and concerns.

Empathy (3.95): The high score for empathy reflects the importance of individualized attention and understanding in the context of the Academic Cluster. Research by Zeithaml, Parasuraman, and Berry (1990) and Kuo, Wu, and Deng (2009) supports the significance of empathy as a key driver of service quality. The high score suggests that respondents value the colleges' ability to provide caring and personalized support, fostering strong relationships and trust within the institution.

Fig. 3 reveals that items along responsiveness and empathy has the highest mean with 3.83 interpreted as very appropriate. This is followed by the items along reliability and assurance with 3, along assurance with 3.90 and items along responsiveness with 3.81 of which all are very appropriate. The lowest mean is along tangibility with 3.71 still interpreted as very appropriate.

Therefore, all items or indicators in the 5 SERVQUAL dimensions validated by the personnel in the Administration and Finance Cluster are very appropriate.

Given the context of the Administration and Finance Office, which is responsible for managing the financial aspects of the university, including budgeting, cash flow, and financial management support, the weighted-mean scores for each dimension suggest that respondents find all five dimensions appropriate for assessing this office.

Tangibility (3.71): A relatively high score for Tangibility indicates the importance of a professional appearance and well-organized environment in the Administration and Finance Office. As this office manages sensitive financial information and processes, maintaining a visually appealing and organized workspace can contribute to the perception of trustworthiness and competence among university stakeholders (Zeithaml, Parasuraman, & Berry, 1990).

Assurance (3.81): Assurance is essential for the Administration and Finance Office, as it demonstrates their expertise and competence in managing the university's financial resources. A high level of assurance is necessary to instill confidence among university stakeholders, including employees, students, and external partners, in the office's ability to handle financial matters effectively (Kuo, Wu, & Deng, 2009).

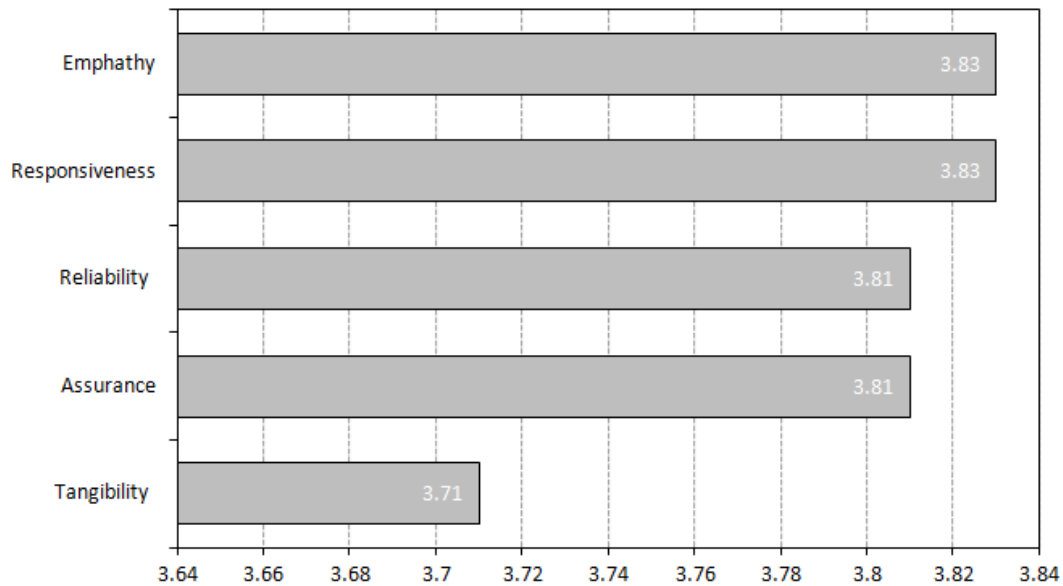


Fig. 3. Validation on the appropriateness of indicators along SERVQUAL dimensions in the office of the administration and finance cluster

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

Reliability (3.81): The high score for reliability reflects the importance of consistently delivering accurate financial information and managing resources effectively. A reliable office ensures that the university can maintain its financial stability and operations, which is crucial for the success of the institution as a whole (Zeithaml, Parasuraman, & Berry, 1990).

Responsiveness (3.83): Responsiveness is particularly important for the Administration and Finance Office due to the time-sensitive nature of financial matters. The ability to promptly address concerns and requests from university stakeholders helps foster a sense of accountability and ensures that financial issues are resolved efficiently (Parasuraman, Zeithaml, & Berry, 1988).

Empathy (3.83): The high score for empathy suggests that respondents value the office's ability to provide individualized attention and understanding to stakeholders when dealing with financial matters. By being empathetic and attentive to the needs of various stakeholders, the Administration and Finance Office can foster strong relationships and trust, which are essential for effective financial management (Zeithaml, Parasuraman, & Berry, 1990; Kuo, Wu, & Deng, 2009).

In summary, the results indicate that all five SERVQUAL dimensions are considered

appropriate for assessing the Administration and Finance Office. These findings align with previous research on the importance of these dimensions in shaping service quality perceptions and customer satisfaction across various contexts, including financial services and educational institutions (Parasuraman, Zeithaml, & Berry, 1988; Kuo, Wu, & Deng, 2009).

Fig. 4 reveals that items along empathy has the highest mean with 3.96 interpreted as very appropriate. This is followed by the items along reliability and responsiveness with both 3.82 mean also interpreted as very appropriate. This is followed by items along assurance with 3.78 of which all are very appropriate. The lowest mean is along tangibility with 3.76 still interpreted as very appropriate. Therefore, all items or indicators in the 5 SERVQUAL dimensions validated by the personnel in the academic cluster are very appropriate.

Given the context of the Research and Innovation office, with its three divisions focusing on different aspects of research, production, and community extension, the weighted-mean scores for each dimension show that the respondents find all five dimensions appropriate for assessing this office.

Tangibility (3.76): A relatively high score for Tangibility indicates that physical aspects, such

as a well-organized environment, are important for this office. As the office handles a variety of research projects and collaborations, maintaining a professional appearance and well-organized space can contribute to positive perceptions among researchers, funding sources, and community partners (Zeithaml, Parasuraman, & Berry, 1990).

Assurance (3.78): Assurance is important for the Research and Innovation office, as it demonstrates their expertise and competence in managing research projects and securing funding. A high level of assurance is essential for building trust among stakeholders and ensuring the office's credibility in the academic community (Kuo, Wu, & Deng, 2009).

Reliability (3.82): The high score for reliability reflects the importance of consistently delivering on promises and effectively managing research projects, funding, and community extension activities. A reliable office can help maintain the trust of researchers, funding sources, and community partners, which is crucial for the success of research and innovation initiatives (Zeithaml, Parasuraman, & Berry, 1990).

Responsiveness (3.82): Responsiveness is particularly important for the Research and Innovation office due to the diverse range of

projects and stakeholders they engage with. The ability to promptly address concerns and requests from researchers, funding sources, and community partners helps foster accountability and ensures that issues are resolved efficiently (Parasuraman, Zeithaml, & Berry, 1988).

Empathy (3.96): The highest score for empathy suggests that respondents value the office's ability to provide individualized attention and understanding to researchers, funding sources, and community partners. By being empathetic and attentive to the needs of various stakeholders, the Research and Innovation office can foster strong relationships and trust, which are essential for successful collaboration and project implementation (Zeithaml, Parasuraman, & Berry, 1990; Kuo, Wu, & Deng, 2009).

In summary, the results indicate that all five SERVQUAL dimensions are considered appropriate for assessing the Research and Innovation office. These findings align with previous research on the importance of these dimensions in shaping service quality perceptions and customer satisfaction across various contexts, including educational institutions and research organizations (Parasuraman, Zeithaml, & Berry, 1988; Kuo, Wu, & Deng, 2009).

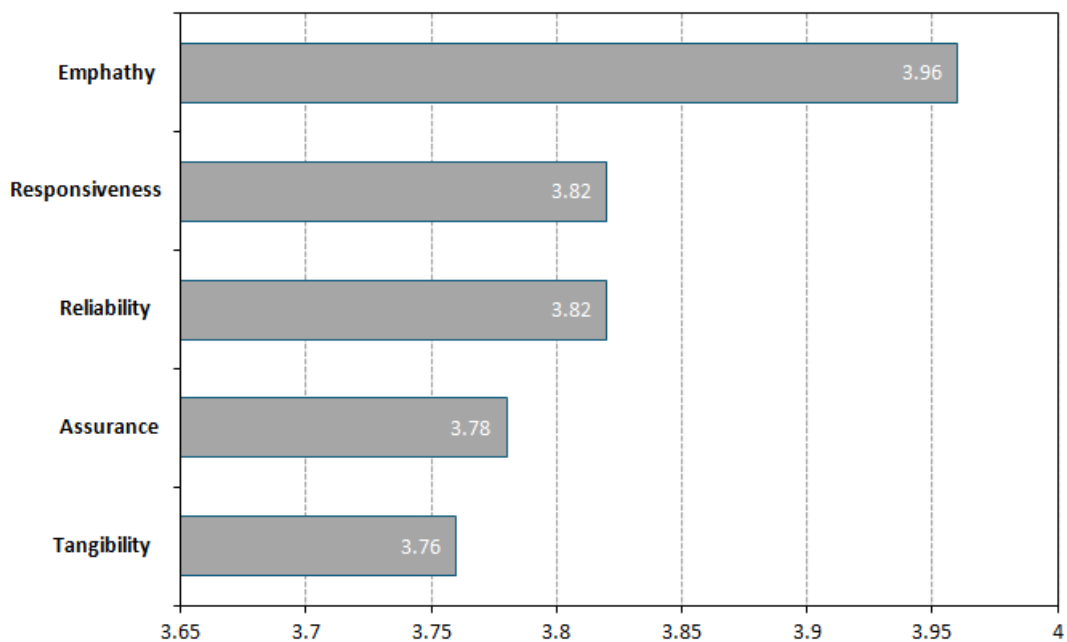


Fig. 4. Validation on the appropriateness of indicators along SERVQUAL dimensions in the research and innovation cluster

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

Fig. 5 shows that items along reliability and responsiveness have the highest mean of 3.83 interpreted as excellently provided. This is followed by the items along empathy with 3.79 interpreted as excellently provided. The lowest mean is along tangibility with 3.75 still interpreted as excellently provided. Therefore, all items or indicators in the 5 SERVQUAL dimensions are excellently provided by the personnel in the Business and External Affairs Cluster.

Given the context of the Business and External Affairs Office, which is responsible for managing the university's external relationships, including international affiliations, sister-school agreements, and collaborations with government agencies, the weighted- mean scores for each dimension suggest that respondents find all five dimensions appropriate for assessing this office.

Tangibility (3.75): A high score for Tangibility indicates the importance of a professional appearance and well-organized environment in the Business and External Affairs Office. As this office represents the university in external dealings and partnerships, maintaining a visually appealing and organized workspace can contribute to the perception of professionalism and trustworthiness among external stakeholders (Zeithaml, Parasuraman, & Berry, 1990).

Assurance (3.75): Assurance is crucial for the Business and External Affairs Office, as it demonstrates their expertise and competence in managing the university's external relationships. A high level of assurance is

necessary to instill confidence among university stakeholders and external partners in the office's ability to handle complex negotiations and agreements effectively (Kuo, Wu, & Deng, 2009).

Reliability (3.83): The high score for reliability reflects the importance of consistently delivering on commitments and maintaining successful partnerships. A reliable office ensures that the university can build and maintain strong relationships with external organizations, which is vital for the growth and reputation of the institution (Zeithaml, Parasuraman, & Berry, 1990).

Responsiveness (3.83): Responsiveness is particularly important for the Business and External Affairs Office, as the ability to promptly address concerns and requests from external partners helps foster a sense of accountability and ensures that partnerships are managed efficiently (Parasuraman, Zeithaml, & Berry, 1988).

Empathy (3.79): The high score for empathy suggests that respondents value the office's ability to provide individualized attention and understanding to external stakeholders when dealing with partnership-related matters. By being empathetic and attentive to the needs of various partners, the Business and External Affairs Office can foster strong relationships and trust, which are essential for successful collaboration (Zeithaml, Parasuraman, & Berry, 1990; Kuo, Wu, & Deng, 2009).

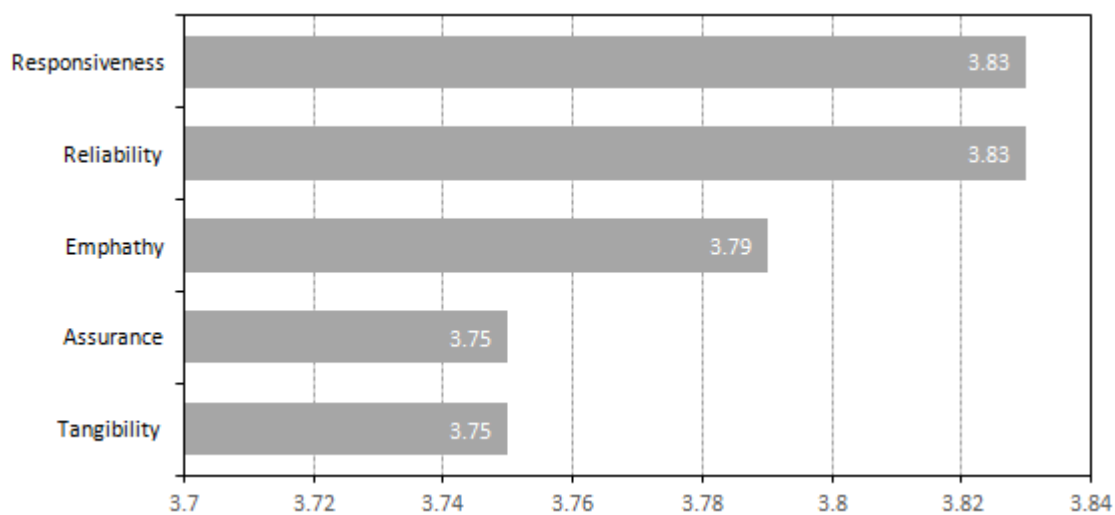


Fig. 5. Validation on the appropriateness of indicators along SERVQUAL dimensions in the office of the business and external affairs cluster

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

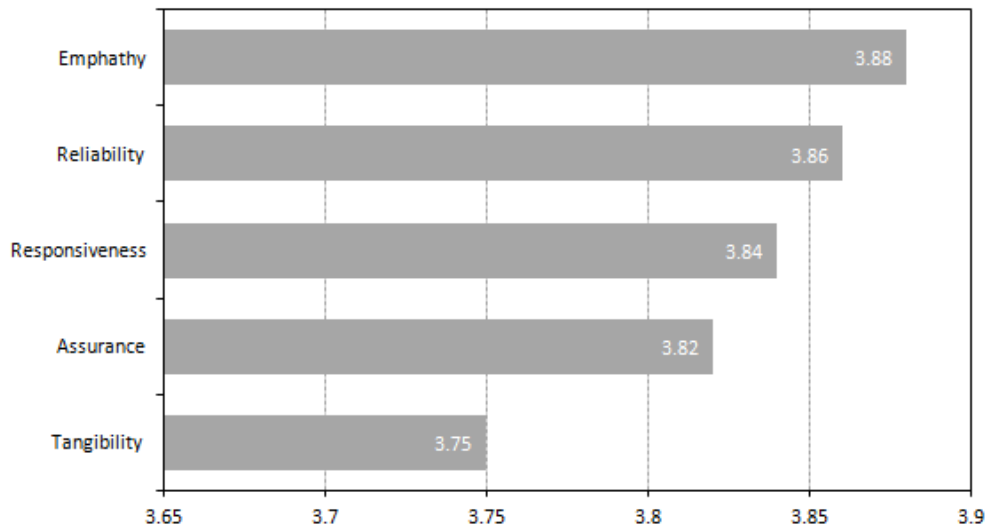


Fig. 6. Over-all Validation on the appropriateness of indicators along SERVQUAL dimension in the university

Note: 3.26-4.00, Very Appropriate; 2.51-3.25, Appropriate; 1.75-2.50, Fairly Appropriate; 1.00-1.75, Not Appropriate

In summary, the results indicate that all five SERVQUAL dimensions are considered appropriate for assessing the Business and External Affairs Office. These findings align with previous research on the importance of these dimensions in shaping service quality perceptions and satisfaction across various contexts, including partnership management and higher education institutions (Parasuraman, Zeithaml, & Berry, 1988; Kuo, Wu, & Deng, 2009).

The figure above reflects the overall validation of items in every SERVQUAL dimension on its appropriateness for the developed Quality Service Assessment Indicators. Empathy dimension has the highest mean of 3.88, followed by reliability with 3.86 mean, responsiveness with 3.84, assurance with 3.82 mean and the lowest mean is tangibility with 3.75. Over all, all the items along the 5 SERVQUAL dimensions rated very appropriate.

The bespoke analysis for each office reveals that while some dimensions hold greater importance for specific offices due to their unique roles and responsibilities, all dimensions are nonetheless essential for evaluating the overall service quality in each context. The findings align with previous research on the applicability of the SERVQUAL model across various contexts, including higher education institutions (Parasuraman, Zeithaml, & Berry, 1988; Kuo, Wu, & Deng, 2009).

4. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the weighted mean scores across the five SERVQUAL dimensions for the Office of the University President, Research and Innovation, Administration and Finance, Business and External Affairs, and Academic Affairs cluster demonstrate that stakeholders find the indicators appropriate for assessing service quality. The consistently high scores across all dimensions emphasize the significance of Tangibility, Assurance, Reliability, Responsiveness, and Empathy in shaping stakeholders' perceptions of service quality. These findings highlight the importance of maintaining high standards across these dimensions to ensure stakeholder satisfaction and to foster a positive university reputation.

The researcher recommends conducting a more extensive study to assess the extent of service quality and stakeholder satisfaction across the university using the developed Quality Service Assessment Tool. Furthermore, it is suggested that similar research be undertaken to assess service quality across all State Universities and Colleges (SUCs) in the Bicol Region. It is also recommended that the university adopt the developed and validated indicators for assessing service quality. The implementation of a Web-Based e- Quality Service Assessment Tool is suggested to enhance the university's service

assessment processes. The results obtained from this tool could serve as valuable evidence for ISO Certification, Program Accreditations, and Prime-HR, supporting the university's pursuit of excellence and future-readiness.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc have been used during writing or editing of this manuscript. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology.

Details of the AI usage are given below:

1. ChatGPT trial version used in editing some parts of the paper.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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