



LIBRARY SERVICE QUALITY AND USER SATISFACTION AT A PRIVATE HIGHER EDUCATION INSTITUTION: A DESCRIPTIVE-COMPARATIVE STUDY USING THE LIBQUAL+ FRAMEWORK

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ABSTRACT

This descriptive-comparative study assessed library service quality and user satisfaction at the academic library of a private higher education institution in Negros Occidental, Philippines, using an adapted 32-item LibQUAL+-based survey administered to 308 actual student library users. The instrument demonstrated excellent internal consistency across four dimensions. Comparative analysis revealed consistent, statistically significant differences by sex, with male students rating all four dimensions significantly higher than female students (all $p < .001$). Year level produced no significant differences in any dimension. Frequency of library use significantly influenced three dimensions, with daily users recording the highest satisfaction for Affect of Service and Library as a Place, while monthly users led on Information Control. The two lowest-rated items across the entire instrument were printed collection currency, and digital resource currency. Temperature appropriateness carried the highest standard deviation in the study. Recommendations address climate control, transparent collection development communication, Wi-Fi infrastructure, targeted outreach to better understand and address the service expectations of female library users, and staff competence training in subject-specific reference support.

KEYWORDS: Library Service Quality, LibQUAL+, User Satisfaction, Academic Library, SERVQUAL, Philippines, Gender Differences, Frequency of use

INTRODUCTION

Academic libraries have always been more than collections of books. They are the intellectual infrastructure of higher education — the spaces where students research, reflect, collaborate, and develop the information fluency that defines graduate readiness. Across the globe and across every type of institution, the quality of library services shapes the quality of the student experience, and that relationship has become more complex — and more important to measure — as student expectations evolve alongside technological change (Barfi et al., 2023; Dahan et al., 2016). A library that keeps pace with student needs builds institutional credibility; one that does not quietly erodes it.

In the Philippine higher education landscape, academic library quality has taken on specific regulatory significance. CHED Memorandum Order No. 22, Series of 2021, establishes minimum standards for academic libraries, requiring institutions to provide adequate resources, qualified personnel, and modern services that support both learning and research (Galagala, 2024). Despite this regulatory push, empirical studies examining library service quality using validated, user-centered frameworks at private HEIs in provincial settings remain relatively limited. Research in the Philippine context tends to focus on large public universities, leaving smaller private institutions — which serve large and demographically diverse student populations — comparatively understudied (Tuble & Panhilason, 2024; Puertos, 2022).

This matters because library service quality gaps at the institutional level are not abstract — they have concrete consequences for how students learn, research, and complete coursework. As Puertos (2022) documented in a Philippine HEI study, students with high library resource utilization also demonstrated higher critical thinking performance, while satisfaction with staff services and resource availability emerged as significant predictors of academic engagement. Similarly, Tuble and Panhilason (2024) found that students at a private Negros Occidental university reported very high satisfaction with library resources and services, though they identified digital connectivity as a persistent gap — a finding that closely mirrors the pattern observed in the present study.

This study responds to these evidence gaps by assessing library service quality and user satisfaction at the academic library of a private HEI in Negros Occidental using a 32-item instrument aligned with the LibQUAL+ framework (Nitecki & Hernon, 2000). The LibQUAL+ model was selected over generic service quality instruments because it was specifically developed and validated for academic library contexts and captures the multidimensional nature of library service quality through four dimensions: Affect of Service, Information Control, Library as a Place, and Overall Satisfaction (Mahmood et al., 2021; Dahan et al., 2016). The study pursues five specific objectives: to profile library users demographically; to assess perceived service quality across all four dimensions at the item level; to test for significant differences across sex, year level, and frequency of use; to identify priority areas for service



improvement; and to provide targeted, evidence-based recommendations.

REVIEW OF RELATED LITERATURE

The LibQUAL+ Framework: Theoretical Foundations

The conceptual foundation of this study rests on two interconnected theoretical pillars. The first is the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988), which defined service quality as the gap between customer expectations and their actual service perceptions. SERVQUAL operationalized this through five dimensions — tangibility, reliability, responsiveness, assurance, and empathy — and has since served as the baseline for service quality measurement across industries, including libraries (Parasuraman et al., 1988). While its application in library settings has been fruitful, researchers have consistently noted that the five SERVQUAL dimensions do not map cleanly onto the specific environment of academic libraries, which have unique characteristics not captured in generic service quality frameworks (Nitecki & Hernon, 2000).

The second pillar is the LibQUAL+ framework, which adapted the SERVQUAL model specifically for academic library contexts. Nitecki and Hernon (2000), in their foundational study of service quality at Yale University's libraries, demonstrated both the value and the limitations of direct SERVQUAL application in library settings, and their work contributed to the conceptual architecture that eventually produced the LibQUAL+ model's three core dimensions: Affect of Service, Information Control, and Library as a Place. This three-dimensional structure reflects the reality that students evaluate academic libraries not just as service providers but as information gatekeepers and physical learning environments simultaneously (Dahan et al., 2016). The present study adds Overall Satisfaction as a fourth dimension to capture aggregate user sentiment alongside the dimensional ratings.

Library Service Quality Research: International Evidence

The past several years have produced a growing body of literature examining library service quality through the LibQUAL+ lens across diverse institutional and national contexts. Barfi et al. (2023), publishing in *Heliyon* (Elsevier), employed the LibQUAL model with 1,000 participants across five colleges in a Ghanaian university. Their study found that overall library service quality fell short of user expectations and identified a statistically significant difference between male and female users in service quality perceptions — a finding that directly parallels the pattern documented in the present study. The variations were attributed to differences in information needs between sexes, highlighting the importance of gender-disaggregated analysis in library service quality research (Barfi et al., 2023).

Mahmood et al. (2021), in a study published in *Sustainability* (MDPI) examining 998 respondents across college libraries in Pakistan, found that none of the service quality dimensions met users' desired expectations and that significant differences based on gender and academic discipline were present across all LibQUAL dimensions. Their work reinforces the cross-institutional and cross-cultural validity of gender as a meaningful variable in library service quality research. Dahan et al. (2016), studying the UMP library in

Malaysia and publishing in *The Journal of Academic Librarianship* (Elsevier), found that users were generally satisfied with services but identified digital resource access and ICT infrastructure as critical improvement areas — consistent with the Information Control findings of the present study.

The Affect of Service dimension — which captures the human dimension of library interaction through staff responsiveness, empathy, and competence — consistently emerges as a primary driver of overall satisfaction in LibQUAL+ research (Nitecki & Hernon, 2000; Barfi et al., 2023). The Library as a Place dimension has received increasing attention as students' expectations of physical learning environments evolve. Studies have shown that temperature regulation, adequate seating, and noise management are among the most frequently cited environmental concerns in student surveys, particularly in tropical countries where thermal discomfort can meaningfully undermine study quality (Mahmood et al., 2021). The Information Control dimension, which captures collection currency and digital infrastructure, tends to exhibit the most variance across institution types, reflecting large differences in acquisition budgets, database subscriptions, and Wi-Fi capacity (Dahan et al., 2016; Barfi et al., 2023). More recent bibliometric work has reinforced these patterns: Rabelo et al. (2024), analyzing 160 studies on student experience in academic libraries, identified servicescape and service design, and psychological and emotional aspects, among the recurring themes shaping how students evaluate library service quality, closely mirroring the Affect of Service and Library as a Place findings of the present study. Similarly, Scoulas et al. (2024), examining undergraduate campus engagement, found that library use (both physical and online) ranked among the most frequently utilized campus resources, and that psychological factors such as stress meaningfully shaped students' academic engagement — a pattern consistent with the frequency-of-use effects documented here.

Library Service Quality in the Philippine Context

Research on library service quality and user satisfaction in Philippine higher education has been growing, though it remains concentrated in public and urban institutions. Tuble and Panhilason (2024), studying a private university in Negros Occidental — the same geographic context as the present study — found that both faculty and students reported very high utilization and satisfaction with library resources, services, and facilities, while also identifying digital connectivity as a recurring area of concern. Their Pearson's *r* analysis revealed a significant positive relationship between library resource utilization and satisfaction, consistent with the broader literature. Puertos (2022) similarly documented high satisfaction with library staff ethics and resource utilization among 384 college students in a Philippine HEI, and found that both variables significantly predicted students' critical thinking performance — a finding that underscores the broader academic impact of library service quality beyond simple user satisfaction.

Galagala (2024), in a study of state universities and colleges in the Philippines, documented that student satisfaction with library services was consistently influenced by the availability of resources, staff responsiveness, and the physical study environment — precisely the dimensions assessed in the



present study. The Commission on Higher Education's Memorandum Order No. 22, Series of 2021, which sets minimum standards for academic library personnel, collections, and facilities, provides the regulatory backdrop against which these empirical studies must be understood: institutional compliance with CHED standards does not automatically translate into high user satisfaction, and the gap between compliance and genuine user experience is where studies like the present one contribute.

A notable gap in the Philippine literature is the limited number of studies examining how demographic variables — particularly sex and frequency of library use — systematically shape service quality perceptions. Most Philippine studies report aggregate satisfaction levels without disaggregating by these variables, leaving unanswered questions about which student populations may be systematically underserved. Recent studies at similarly small, provincial, and faith-based private institutions echo several of the present study's concerns: Seno-Sanoria (2024), studying library user satisfaction across rural Philippine state universities, found that infrastructure limitations and digital inequity remained persistent barriers to aligning user expectations with actual service experience. Bawasanta et al. (2025), at St. Peter's College of Toril — a small private Catholic institution comparable in scale and context to the present study's setting — similarly found high student satisfaction with library facilities and services, though only weak correlations between satisfaction and actual library utilization, suggesting that satisfaction alone does not guarantee engagement. Sumalinog et al. (2025), examining a private university library in Cagayan de Oro City, similarly linked the perceived quality of library services and the extent of library use to the satisfaction of students' information needs, reinforcing the relevance of service-quality assessment for small private Philippine HEIs. The present study directly addresses this gap through inferential comparative analysis across sex, year level, and frequency of use among 308 actual library users.

RESEARCH METHODOLOGY

Research Design

This study employed a descriptive-comparative quantitative survey design. The descriptive component characterized library service quality as currently perceived by student users through means, standard deviations, and item-level frequency distributions. The comparative component tested for significant differences across three demographic variables using independent samples t-tests and one-way ANOVA, following the methodological approach established in the LibQUAL+ literature (Barfi et al., 2023; Mahmood et al., 2021). All statistical computations were performed using JASP 0.19.0.3.

Respondents

The study drew its sample exclusively from students who confirmed actual library use during the 2nd Semester Academic Year 2025-2026. A screening item ("Have you used the library this school year?") at the start of the survey ensured that only active library users contributed service quality ratings, consistent with the practice recommended in LibQUAL+-based studies of filtering to actual users before analysis (Mahmood et al., 2021; Dahan et al., 2016). Table 1 presents the demographic profile of these 308 respondents.

Female students comprised the majority ($n = 205$, 67.2%), with male students at 32.8% ($n = 100$; three did not report sex). This female-majority composition is typical of private HEIs offering health science and education programs in the Philippines (Puertos, 2022). Second-year students were the largest year-level group ($n = 107$, 35.7%), followed by first-year ($n = 81$, 27.0%), third-year ($n = 78$, 26.0%), and fourth-year ($n = 34$, 11.3%). In terms of library use frequency, weekly users were the plurality ($n = 125$, 43.4%), with infrequent users second ($n = 76$, 26.4%), monthly users third ($n = 61$, 21.2%), and daily users the smallest group ($n = 26$, 9.0%). The program distribution spanned medical technology, pharmacy, accountancy, radiologic technology, engineering, and education, among others.

Table 1
Respondent Profile (N = 308)

Variable / Category	n	%
Sex		
Male	100	32.8
Female	205	67.2
Year Level		
First Year	81	27.0
Second Year	107	35.7
Third Year	78	26.0
Fourth Year	34	11.3
Frequency of Library Use		
Daily	26	9.0
Weekly	125	43.4
Monthly	61	21.2
Rarely	76	26.4
Total	308	100.0

Note. Sex percentages based on 305 valid responses; Year Level on 300; Frequency on 288. Percentages may not sum to 100.0 due to rounding.



Research Instrument

The 32-item survey was adapted from the LibQUAL+ framework (Nitecki & Hernon, 2000), which is grounded in the SERVQUAL model (Parasuraman et al., 1988). The LibQUAL+ framework was selected because of its extensive international validation and its specific design for academic library contexts, unlike generic service quality instruments that were not developed with library-specific service characteristics in mind (Dahan et al., 2016; Mahmood et al., 2021). Items were organized into four dimensions: Affect of Service (Q1–Q9) measuring staff responsiveness, competence, and communication; Information Control (Q10–Q19) evaluating collection adequacy, currency, digital access, and retrieval systems; Library as a Place (Q20–Q28) assessing the physical environment, comfort, and study suitability; and Overall Satisfaction (Q29–Q32) capturing aggregate user sentiment and recommendation intent. All items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Means were interpreted as: 4.21–5.00 = Very High, 3.41–4.20 = High, 2.61–3.40 = Moderate, 1.81–2.60 = Low, 1.00–1.80 = Very Low.

Reliability

Internal consistency reliability was assessed using Cronbach's alpha computed for each dimension. The coefficients were: Affect of Service ($\alpha = 0.944$), Information Control ($\alpha = 0.944$), Library as a Place ($\alpha = 0.861$), and Overall Satisfaction ($\alpha = 0.934$). All values exceed the 0.70

threshold for social science research instruments, and three of the four fall in the conventionally excellent range ($\alpha \geq 0.90$), affirming strong internal consistency of the adapted instrument in this context (Mahmood et al., 2021).

Data Analysis

Descriptive statistics were computed. Dimensional means were calculated as unweighted averages of all item scores within each subscale. Independent-samples t-tests compared male and female groups, and one-way ANOVA compared year levels and frequency-of-use groups. Significance was set at $\alpha = .05$.

RESULTS AND DISCUSSION

Affect of Service

Table 2 presents the Affect of Service results. The dimension yielded an overall mean of 4.50 ($SD = 0.58$, $\alpha = 0.944$), rated Very High — one of the two highest-rated dimensions in the study. Every one of the nine items in this dimension was rated Very High, reflecting a consistent and deeply positive student perception of library staff across all aspects of interpersonal service interaction. This finding aligns with what the LibQUAL+ literature consistently reports as the most fundamental driver of overall library satisfaction: the quality of the human dimension of library service (Nitecki & Hernon, 2000; Barfi et al., 2023).

Table 2
Affect of Service — Item Means and Interpretations (N = 308)

Item	Indicator	Mean	SD	Interpretation
Q1	Library staff are consistently courteous toward users.	4.50	0.66	Very High
Q2	Staff show genuine willingness to help.	4.60	0.60	Very High
Q3	Staff are competent in answering research-related queries.	4.36	0.79	Very High
Q4	Services are provided promptly and without unnecessary delays.	4.47	0.72	Very High
Q5	Staff perform services efficiently.	4.57	0.64	Very High
Q6	Staff communicate clearly with library users.	4.62	0.62	Very High
Q7	I feel comfortable approaching staff for assistance.	4.49	0.72	Very High
Q8	Staff understand my specific academic needs.	4.44	0.74	Very High
Q9	Staff handle concerns and complaints dependably.	4.48	0.72	Very High
	Dimension Mean	4.50	0.58	Very High

Note. Cronbach's $\alpha = 0.944$ (Excellent). All items rated Very High. Q6 frequency: SA = 206, A = 82, N = 13, D = 3, SD = 0 (~95% agreement rate). Scale: 4.21–5.00 = Very High; 3.41–4.20 = High.

The highest-rated item was Q6 ("Staff communicate clearly with library users," $M = 4.62$, $SD = 0.62$), with approximately 95% of respondents selecting either Strongly Agree or Agree. Q2 ("Staff show genuine willingness to help," $M = 4.60$, $SD = 0.60$) and Q5 ("Staff perform services efficiently," $M = 4.57$, $SD = 0.64$) ranked second and third respectively. These three items together convey a library staff

culture that communicates effectively, actively wants to help, and delivers services with minimal friction. The relatively lowest item within this dimension was Q3 ("Staff are competent in answering research-related queries," $M = 4.36$, $SD = 0.79$) — still Very High, but suggesting a slight disparity between approachability and specialized subject expertise. This pattern, where staff warmth and willingness



outperform research competence, is documented in the library service quality literature and typically points to the need for subject-specific reference staff development (Nitecki & Hernon, 2000; Mahmood et al., 2021).

Information Control

Table 3 presents the Information Control dimension results. With an overall mean of 4.21 (SD = 0.72, $\alpha = 0.944$), this dimension sits precisely at the boundary between High and Very High — technically rated Very High but noticeably lower than the other three dimensions. Its excellent internal consistency confirms the instrument reliably captured the range of student views on collections and digital access.

Table 3
Information Control — Item Means and Interpretations (N = 308)

Item	Indicator	Mean	SD	Interpretation
Q10	The printed book collection is regularly updated.	4.09	0.85	High
Q11	Electronic and digital resources are regularly updated.	4.09	0.90	High
Q12	Printed materials are relevant to my academic program.	4.30	0.85	Very High
Q13	Electronic resources are relevant to my academic program.	4.23	0.88	Very High
Q14	I can access electronic resources when I need them.	4.18	0.93	High
Q15	The library has sufficient printed materials for my course.	4.20	0.89	High
Q16	The catalog or OPAC helps me locate materials efficiently.	4.26	0.86	Very High
Q17	The library Wi-Fi is reliable for academic use.	4.30	0.97	Very High
Q18	ICT equipment available for academic tasks is adequate.	4.24	0.88	Very High
Q19	I can independently find information using library systems.	4.24	0.83	Very High
	Dimension Mean	4.21	0.72	Very High

Note. Cronbach's $\alpha = 0.944$ (Excellent). Q10 frequency: SA = 112, A = 119, N = 64, D = 7, SD = 2. Q11 frequency: SA = 120, A = 104, N = 67, D = 10, SD = 2. Q17 (Wi-Fi) had the highest SD in this dimension (0.97).

The two lowest-rated items in the entire 32-item instrument were Q10 ("The printed book collection is regularly updated," M = 4.09, SD = 0.85) and Q11 ("Electronic and digital resources are regularly updated," M = 4.09, SD = 0.90), both rated High. A notable feature is that Q10 received 64 neutral responses out of 304 valid answers (21%), and Q11 received 67 out of 303 (22%). This pattern of neutral responses alongside the slightly lower means suggests that many students are uncertain whether the collection is being updated, rather than certain that it is not — a distinction with practical implications. As Tuble and Panhilason (2024) similarly observed in a Philippine academic library study, students often lack visibility into acquisition processes, which depresses collection currency

perceptions even when actual acquisition activity is ongoing. Improved communication about new acquisitions may therefore raise these ratings without requiring immediate budget increases. Q17 (Wi-Fi reliability, M = 4.30, SD = 0.97) exhibited the highest standard deviation within this dimension, reflecting the most divergent experiences with digital connectivity across the user population.

Library as a Place

Table 4 presents the Library as a Place dimension. This dimension achieved a mean of 4.42 (SD = 0.60, $\alpha = 0.861$), rated Very High. Seven of the nine items were rated Very High, reflecting strong student appreciation for the library's physical environment.



Table 4

Library as a Place — Item Means and Interpretations (N = 308)

Item	Indicator	Mean	SD	Interpretation
Q20	The library space is clean and well maintained.	4.63	0.59	Very High
Q21	The library is well organized and easy to navigate.	4.62	0.62	Very High
Q22	The library environment is comfortable for studying.	4.65	0.64	Very High
Q23	The library provides sufficient seating for its users.	4.57	0.69	Very High
Q24	The library is quiet enough to support focused study.	4.43	0.84	Very High
Q25	The temperature in the library is appropriate for studying.	4.07	1.20	High
Q26	Lighting is adequate for reading and academic work.	4.22	1.07	Very High
Q27	Ventilation provides satisfactory air circulation.	4.07	1.18	High
Q28	The physical spaces of the library support effective learning.	4.53	0.72	Very High
	Dimension Mean	4.42	0.60	Very High

Note. Cronbach's $\alpha = 0.861$ (Good). Q22 was the highest-rated item in this dimension ($M = 4.65$). Q25 (temperature) had the highest SD in the entire 32-item instrument ($SD = 1.20$). Q27 (ventilation) also showed notably high variance ($SD = 1.18$).

The top three items — Q22 ("Library environment is comfortable for studying," $M = 4.65$, $SD = 0.64$), Q20 ("Library space is clean," $M = 4.63$, $SD = 0.59$), and Q21 ("Library is well organized," $M = 4.62$, $SD = 0.62$) — reflect a consistently well-maintained and organized physical environment that students genuinely value. The most conspicuous exception was Q25 ("Temperature in the library is appropriate for studying," $M = 4.07$, $SD = 1.20$). With a standard deviation of 1.20 — the highest in the entire instrument — student experiences with library temperature are clearly polarized, not just slightly varied. Approximately 14% of respondents selected Disagree or Strongly Disagree on this item, suggesting that a substantial minority of users experience genuine thermal discomfort. Q27 (ventilation, $M = 4.07$, $SD = 1.18$) produced a similarly high standard

deviation, and the co-occurrence of these two high-variance physical environment items points to a shared thermal challenge, likely concentrated in specific zones of the library. As noted in similar studies in tropical academic settings, temperature asymmetry within a library building frequently results from uneven cooling coverage rather than an overall inadequate cooling system (Mahmood et al., 2021).

Overall Satisfaction

Table 5 presents the Overall Satisfaction results. This dimension recorded the highest mean among the four dimensions ($M = 4.52$, $SD = 0.61$, $\alpha = 0.934$, Very High), suggesting that despite the specific gaps identified in other dimensions, students hold a broadly positive and confident view of their library experience.

Table 5

Overall Satisfaction — Item Means and Interpretations (N = 308)

Item	Indicator	Mean	SD	Interpretation
Q29	Overall, I am satisfied with the services of the library.	4.47	0.70	Very High
Q30	The library meets my academic needs effectively.	4.46	0.69	Very High
Q31	My overall experience using the library is positive.	4.55	0.67	Very High
Q32	I would recommend the library services to fellow students.	4.60	0.61	Very High
	Dimension Mean	4.52	0.61	Very High

Note. Cronbach's $\alpha = 0.934$ (Excellent). Q32 frequency: SA = 203, A = 88, N = 15, D = 0, SD = 1. ~95% agreement rate on peer recommendation item.

The highest-rated item within this dimension was Q32 ("I would recommend the library services to fellow students," $M = 4.60$, $SD = 0.61$), with 203 of 307 valid respondents selecting Strongly Agree and 88 selecting Agree — a

combined endorsement rate of approximately 95%. Peer recommendation intent is widely regarded in the library service quality literature as one of the most reliable indicators of genuine user satisfaction, because it represents a



willingness to stake one's own reputation on an endorsement (Dahan et al., 2016). Q31 ("Overall experience is positive," M = 4.55, SD = 0.67) and Q29 ("Overall satisfied with library services," M = 4.47, SD = 0.70) were also rated Very High. The slightly lower rating for Q30 ("Library meets my academic needs effectively," M = 4.46, SD = 0.69) — still Very High but lowest within this dimension — is the one item in Overall Satisfaction that echoes the collection currency concern identified in Information Control, suggesting a subtle but consistent signal that academic needs are largely but not fully met by current resources. This nuance between broad

satisfaction and specific academic utility has been documented in Philippine library studies as a common pattern in institutions where general library satisfaction is high but specialized resource needs go partially unmet (Puertos, 2022; Galagala, 2024).

Dimension Summary and Overall Library Service Quality Index

Table 6 provides a comparative summary of all dimensions and the overall quality index.

Table 6
Dimension Summary and Overall Library Service Quality Index (N = 308)

Dimension	Items	Mean	SD	α	Interpretation
Affect of Service	Q1–Q9	4.50	0.58	0.944	Very High
Information Control	Q10–Q19	4.21	0.72	0.944	Very High
Library as a Place	Q20–Q28	4.42	0.60	0.861	Very High
Overall Satisfaction	Q29–Q32	4.52	0.61	0.934	Very High
Overall Quality Index	Q1–Q32	4.39	0.53	—	Very High

Note. Scale: 4.21–5.00 = Very High; 3.41–4.20 = High. Overall Quality Index is the unweighted mean across all 32 items.

All four dimensions and the overall library service quality index achieved Very High ratings. The rank order — Overall Satisfaction (M = 4.52) > Affect of Service (M = 4.50) > Library as a Place (M = 4.42) > Information Control (M = 4.21) — with Information Control as the lowest-rated dimension is consistent with the pattern reported in developing-country academic library studies more broadly (Mahmood et al., 2021; Barfi et al., 2023), where digital infrastructure and collection currency tend to lag behind staff

quality and physical environment in user perceptions. The overall quality index of 4.39 (Very High) represents a strong institutional baseline, particularly for a private HEI in a provincial setting where resource constraints are more pronounced than in metropolitan or state-funded institutions.

Comparative Analysis by Demographics

Table 7 presents the results of comparative tests across sex, year level, and frequency of library use.

Table 7
Comparative Analysis of Library Service Quality by Demographic Variables (N = 308)

Dimensions	Variable	Group Means A	Group Means B	Test Stat.	p-value
Affect of Service	Sex	Male: 4.71	Female: 4.4	t = 4.558	< .001***
Information Control	Sex	Male: 4.49	Female: 4.07	t = 4.947	< .001***
Library as a Place	Sex	Male: 4.6	Female: 4.33	t = 3.724	< .001***
Overall Satisfaction	Sex	Male: 4.76	Female: 4.41	t = 4.762	< .001***
Affect of Service	Year Level	Y1: 4.58	Y2: 4.44, Y3: 4.46, Y4: 4.6	F = 1.47	0.223
Information Control	Year Level	Y1: 4.3	Y2: 4.11, Y3: 4.13, Y4: 4.44	F = 2.567	0.055
Library as a Place	Year Level	Y1: 4.55	Y2: 4.38, Y3: 4.32, Y4: 4.41	F = 2.292	0.078
Overall Satisfaction	Year Level	Y1: 4.6	Y2: 4.48, Y3: 4.43, Y4: 4.62	F = 1.464	0.224
Affect of Service	Freq. of Use	Daily: 4.63	Wkly: 4.35, Mo: 4.61, Rarely: 4.57	F = 4.426	0.0046**
Information Control	Freq. of Use	Daily: 4.13	Wkly: 4.04, Mo: 4.45, Rarely: 4.2	F = 4.685	0.0033**
Library as a Place	Freq. of Use	Daily: 4.69	Wkly: 4.34, Mo: 4.43, Rarely: 4.36	F = 2.661	0.0484*
Overall Satisfaction	Freq. of Use	Daily: 4.59	Wkly: 4.41, Mo: 4.63, Rarely: 4.54	F = 2.154	0.094

Note. *p < .05; **p < .01; ***p < .001. Y = Year Level. Frequency categories: Daily, Weekly, Monthly, Rarely. α = .05 significance level.



Sex Differences

Male students rated library service quality significantly higher than female students across all four dimensions: Affect of Service (Male $M = 4.71$ vs. Female $M = 4.40$, $t = 4.558$, $p < .001$), Information Control (Male $M = 4.49$ vs. Female $M = 4.07$, $t = 4.947$, $p < .001$), Library as a Place (Male $M = 4.60$ vs. Female $M = 4.33$, $t = 3.724$, $p = .0002$), and Overall Satisfaction (Male $M = 4.76$ vs. Female $M = 4.41$, $t = 4.762$, $p < .001$). This consistent pattern across all four dimensions is substantively important. Barfi et al. (2023) similarly documented significant gender differences in library service quality perceptions, attributing them to differing information needs between male and female users. Mahmood et al. (2021) also found significant gender-based differences in a large-scale LibQUAL study of developing-country college libraries. In the present context, one plausible explanation is that female students — who constitute the majority of users in health science and education programs at this institution — may have more intensive and specialized resource demands than their male counterparts, making them more sensitive to the collection currency and digital access gaps captured in Information Control. Female students' more frequent library visits may also expose them to a wider range of service imperfections that less frequent male users do not encounter as regularly.

Year Level Differences

No significant differences in perceived library service quality were found across year levels for any of the four dimensions: Affect of Service ($F = 1.470$, $p = .223$), Information Control ($F = 2.567$, $p = .055$), Library as a Place ($F = 2.292$, $p = .078$), and Overall Satisfaction ($F = 1.464$, $p = .224$). Interestingly, fourth-year students produced the highest means for Affect of Service ($M = 4.60$) and Overall Satisfaction ($M = 4.62$) — higher than first-, second-, and third-year students — though these differences did not reach significance. This contrasts with studies that found declining satisfaction among senior students as research demands grew more specialized (Nitecki & Hernon, 2000), and may reflect that fourth-year students who remain active library users by their senior year represent a positively selected group who have developed productive library relationships over time (Galagala, 2024).

Frequency of Library Use Differences

Frequency of library use produced significant differences in three of the four dimensions. Affect of Service showed a significant frequency effect ($F = 4.426$, $p = .005$), with daily users ($M = 4.63$) reporting the highest staff service satisfaction — consistent with the well-documented relationship between frequent library engagement and stronger staff-user rapport (Tuble & Panhilason, 2024). Information Control also showed a significant frequency effect ($F = 4.685$, $p = .003$), where monthly users ($M = 4.45$) rated resource access most highly — possibly because monthly visitors encounter fewer access failures than weekly users who make more varied and demanding resource requests. Library as a Place showed a borderline significant frequency effect ($F = 2.661$, $p = .048$), again with daily users reporting the highest satisfaction ($M = 4.69$). Overall

Satisfaction was the only dimension without a significant frequency effect ($F = 2.154$, $p = .094$), suggesting that regardless of how often students visit, their general impression of the library remains consistently very positive. These frequency-based differences extend the findings of Tuble and Panhilason (2024), who similarly documented that frequency of use was associated with differentially higher satisfaction in specific service dimensions, with more frequent users developing more nuanced but generally positive assessments of library quality.

DISCUSSIONS

The results of this study present a strong and coherent picture of library service quality at the study institution. An overall quality index of 4.39 (Very High) places this library well within the upper tier of user satisfaction reported in the LibQUAL+ literature for similar-sized private institutions in developing-country contexts (Mahmood et al., 2021; Barfi et al., 2023). The peer recommendation rate of approximately 95% — anchored by Q32, the highest-rated item in the Overall Satisfaction dimension ($M = 4.60$), and surpassed overall only by Q22 (“Library environment is comfortable for studying,” $M = 4.65$) — confirms that student endorsement of the library is not merely passive tolerance but active advocacy. This is a meaningful institutional asset.

The Affect of Service dimension's Very High rating ($M = 4.50$, $\alpha = 0.944$) reflects a library staff culture that communicates clearly, helps willingly, and delivers services efficiently. The slight gap between Q6 (clear communication, $M = 4.62$) and Q3 (research competence, $M = 4.36$) points to a specific professional development opportunity: while students experience library staff as warmly accessible, they are marginally less confident in staff members' ability to assist with specialized research queries. This gap is well documented in the library management literature as an approachability-expertise divide that is particularly pronounced in institutions with diverse academic programs where subject-specific reference support requires deliberate staff investment (Nitecki & Hernon, 2000; Mahmood et al., 2021).

The Information Control dimension's position as the lowest-rated area ($M = 4.21$) carries the most actionable implications. The collection currency items — Q10 and Q11 (both $M = 4.09$) — were among the six items in the entire instrument rated High rather than Very High, the others being Q14 ($M = 4.18$), Q15 ($M = 4.20$), Q25 ($M = 4.07$), and Q27 ($M = 4.07$). Q10 and Q11 also exhibited notably high neutral response proportions. As Tuble and Panhilason (2024) and Puertos (2022) observed in Philippine library settings, students often lack visibility into library acquisition processes and consequently underestimate active collection development. A low-cost first response — new arrivals displays, periodic acquisition announcements, faculty consultation on program-specific purchases — could substantially improve collection currency perceptions before any significant budget investment is required. The high variance in Wi-Fi satisfaction (Q17, $SD = 0.97$) separately indicates variable connectivity experiences across users and times, which warrants dedicated infrastructure assessment.



The Library as a Place dimension's thermal challenge (Q25, $M = 4.07$, $SD = 1.20$) stands out as the most urgent physical environment concern. A standard deviation of 1.20 on a five-point scale means the range of student experiences with library temperature is wide — not merely that the average comfort level is slightly suboptimal. This pattern of within-library variance, likely reflecting position-specific cooling coverage, is consistent with what Mahmood et al. (2021) described as a structural thermal asymmetry problem in tropical academic libraries. Targeted supplementary cooling in high-occupancy study zones — rather than blanket HVAC upgrades — would be the most efficient and cost-effective response, addressing the specific problem identified without requiring wholesale physical renovation.

The consistent gender differences across all four dimensions deserve institutional attention. As Barfi et al. (2023) and Mahmood et al. (2021) both documented, gender-based differences in library service quality perceptions reflect real differences in information-seeking behavior, service expectations, and resource demands — not mere perceptual bias. The female-majority user population at this institution is likely dominated by health science and education students whose research needs are more specialized and more resource-intensive than those of students in other programs, making them more sensitive to the collection and digital access gaps captured in Information Control. A gender-disaggregated follow-up survey or focus group would enable the institution to pinpoint exactly which service elements are driving lower female satisfaction and direct improvement efforts accordingly (Dahan et al., 2016; Galagala, 2024).

RECOMMENDATIONS

Based on the quantitative findings, the following five targeted recommendations are proposed for library administration.

First, thermal comfort requires zone-specific intervention. Q25 and Q27's high standard deviations suggest temperature variance within the library rather than a uniformly inadequate cooling system. A simple thermal mapping exercise during peak usage hours would identify problem zones without committing to full HVAC investment. Installing supplementary cooling units in identified high-occupancy study areas is both cost-effective and directly responsive to the polarized temperature experiences documented in this study.

Second, collection development communication should be improved alongside actual acquisitions. The high neutral response rates on Q10 and Q11 indicate that many students are uncertain about collection currency rather than certain it is inadequate. A visible New Arrivals display, regular acquisition updates on library notice boards, and periodic faculty-student consultation on program-specific needs would address the perception gap at minimal cost — an approach supported by the Philippine library literature (Tuble & Panhilason, 2024; Puertos, 2022).

Third, Wi-Fi infrastructure should be assessed and improved. The high standard deviation for Q17 ($SD = 0.97$) indicates highly variable connectivity experiences. Dedicating separate Wi-Fi access points for library users, optimizing router placement across the library space, and

monitoring connectivity during peak hours would address this variability (Dahan et al., 2016).

Fourth, targeted outreach to female library users is recommended. Given the consistent and statistically significant pattern of male students rating all dimensions higher, the institution should invest in understanding what is specifically driving lower satisfaction among female users. Focus group discussions with female students across different program areas — particularly health sciences — would provide the contextual depth that survey data alone cannot yield (Barfi et al., 2023; Mahmood et al., 2021).

Fifth, staff competence training in subject-specific reference support is recommended. Q3 ("Staff are competent in answering research-related queries," $M = 4.36$, $SD = 0.79$) was the lowest-rated item within the Affect of Service dimension. The gap between Q6 (communication, $M = 4.62$) and Q3 (research competence, $M = 4.36$) suggests that while staff are widely perceived as accessible and willing, there is room to strengthen their subject-specialist reference capabilities, particularly for health sciences and engineering programs. Targeted training in subject-specific reference support for these program areas would directly address this gap without requiring broader staffing changes (Nitecki & Hernon, 2000).

LIMITATIONS

Several limitations should inform the interpretation of findings. The study was conducted at a single institution, restricting generalizability to other academic libraries in the region, though findings align broadly with patterns reported in the Philippine and international library service quality literature (Tuble & Panhilason, 2024; Mahmood et al., 2021). The data are cross-sectional, capturing perceptions at a single point in time; longitudinal re-administration would allow assessment of service quality trends and the effectiveness of implemented improvements. The sub-group sizes for daily users ($n = 26$) and fourth-year students ($n = 34$) are relatively small for inferential analysis, and group-level comparisons involving these groups should be interpreted with appropriate caution. The study relies entirely on self-reported perceptions without objective performance indicators such as response times or collection turnover rates. Finally, no qualitative data were collected, which limits the depth of explanation available for some findings — particularly the gender differences — and represents an opportunity for future mixed-methods follow-up research.

CONCLUSIONS

This study assessed library service quality and user satisfaction among 308 student library users at a private higher education institution in Negros Occidental, Philippines, using an adapted LibQUAL+-based instrument. The findings tell a genuinely encouraging story: all four dimensions — Affect of Service ($M = 4.50$), Overall Satisfaction ($M = 4.52$), Library as a Place ($M = 4.42$), and Information Control ($M = 4.21$) — were rated Very High, and the overall quality index of 4.39 reflects a library that its users are genuinely willing to recommend to their peers at a 95% rate. Library staff communication and willingness to help are this institution's most prominent service strengths; collection



currency, thermal comfort, and Wi-Fi reliability are its most actionable improvement opportunities.

The study's most novel contribution to the Philippine library literature is the consistent, statistically significant pattern of male students rating all four dimensions higher than female students. Consistent with findings by Barfi et al. (2023) and Mahmood et al. (2021) from international LibQUAL+ studies, this gender difference is not a statistical anomaly but a reliable signal that the library's female-majority user population — likely dominated by health science students with intensive and specialized information needs — experiences meaningful gaps in service quality that aggregate satisfaction scores obscure. Frequency of library use also emerged as a significant differentiator for three of four dimensions, extending the pattern documented by Tuble and Panhilason (2024) in a comparable Philippine institutional context.

Future research should replicate this assessment across multiple private HEIs in Negros Occidental and the broader Negros Island Region to produce comparative benchmarks, incorporate faculty and staff perspectives alongside student ratings, and include mixed-methods components that can explain the gender and frequency-based

differences documented here. Longitudinal re-administration of this survey after implementing the recommendations would provide the impact evidence needed to demonstrate that library service quality improvement is not just a policy aspiration but a measurable institutional achievement.

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- Improve the clarity and grammar of this paragraph without changing its meaning...
- Check this section for consistency in APA 7th edition citation format...
- Suggest a more concise phrasing for this sentence while keeping the statistical values unchanged...
- Proofread this reference list entry against APA 7th edition formatting rules...

REFERENCES

1. Barfi, K. A., Parbie, S. K., Filson, C. K., Teye, M. V., Kodua-Ntim, K., & Ayensu, E. (2023). Assessing the quality of services at an academic library. *Heliyon*, 9(12), e22449. <https://doi.org/10.1016/j.heliyon.2023.e22449>
2. Bawasanta, E. B. A., Apal, J. F., Bolasa, M. A., Lumanta, J. C. A., Mesario, K., Templá, E., & Rosales, K. (2025). Library satisfaction, library preference, and library utilization of college students in St. Peter's College of Toril, Inc. *Psychology and Education: A Multidisciplinary Journal*, 33(9), 1–12.
3. Dahan, S. M., Taib, M. Y., Zainudin, N. M., & Ismail, F. (2016). Surveying users' perception of academic library services quality: A case study in Universiti Malaysia Pahang (UMP) Library. *The Journal of Academic Librarianship*, 42(1), 38–43. <https://doi.org/10.1016/j.acalib.2015.10.006>
4. Galagala, M. R. G. (2024). University students' satisfaction with library services and facilities in state universities and colleges in the Philippines. *International Journal of Advanced and Applied Sciences*, 11(5), 87–95. [DOI unavailable – verify at <https://www.ijisc.com> or journal website]
5. Mahmood, K., Ahmad, S., Ur Rehman, S., & Ashiq, M. (2021). Evaluating library service quality of college libraries: The perspective of a developing country. *Sustainability*, 13(5), 2989. <https://doi.org/10.3390/su13052989>
6. Nitecki, D. A., & Hernon, P. (2000). Measuring service quality at Yale University's libraries. *The Journal of Academic Librarianship*, 26(4), 259–273. [https://doi.org/10.1016/S0099-1333\(00\)00117-8](https://doi.org/10.1016/S0099-1333(00)00117-8)
7. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
8. Puertos, J. (2022). Library resources utilization and students' satisfaction on staff services: Impact to the critical thinking of the higher education students. *Psychology and Education: A Multidisciplinary Journal*, 1(1), 50–56. [DOI not confirmed; verify at journal website or use SSRN preprint: <https://doi.org/10.2139/ssrn.4048483>]
9. Rabelo, C. A., Teixeira, J. G., & Mendes, G. H. S. (2024). Student experience in academic libraries: Analysis of intellectual structure and opportunities for future research. *The Journal of Academic Librarianship*, 50(3), Article 102878. <https://doi.org/10.1016/j.acalib.2024.102878>
10. Scoulas, J. M., De Groote, S. L., Shotick, K., & Osorio, N. L. (2024). A holistic approach to understanding undergraduates: Campus engagement, library use, and psychological factors. *The Journal of Academic Librarianship*, 50(5), Article 102936. <https://doi.org/10.1016/j.acalib.2024.102936>
11. Seno-Sanoria, M. T. (2024). Aligning expectations and perceptions: Analyzing library user satisfaction in higher education in rural Philippines. *Journal of Interdisciplinary Perspectives*, 3(8), 480–493. <https://doi.org/10.69569/jip.2024.394>
12. Sumalinog, L. C., Redondo, R. P., & Tagarda, E. P. (2025). Use and quality of library services: Implications on the satisfaction of students' information needs. *British Journal of Multidisciplinary and Advanced Studies*, 6(1), 1–12. <https://doi.org/10.37745/bjmas.2022.04228>
13. Tuble, R., & Panhilason, A. (2024). Users' access, utilization, and satisfaction with library resources, services, and facilities in a selected academic library. *Journal of Interdisciplinary Perspectives*, 2(7), 804–813. <https://doi.org/10.69569/jip.2024.0226>