Application of LibQUAL +TM Model to Evaluate Library Service Quality: A Study of National Institute of Technology Libraries of North India

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ABSTRACT

Service quality and customer satisfaction are two of the extensively studied concepts by the service industries and libraries are not an exception to it. This study aimed to assess the level of service quality (SQ) provided by the Central Libraries of the National Institute of Technology of North India from users' viewpoints using the LibQUAL+TM survey instrument in printed format. A total of 1076 questionnaires were distributed to undergraduate and postgraduate, Ph.D., and faculty members, out of which, 1037 completely filled questionnaires were received back and found satisfactory for analysis. The survey results expressed that under dimension-wise library performance and overall Library Service Quality (LSQ) the highest mean scores were noticed in the LP dimension at all three levels (minimum, desired, and perceived). Therefore, LP is the most desired dimension and the perceived performance level is also the highest in this dimension. The SAG score of each dimension is positive and hence the perceived level of services is adequate from the minimum acceptable level in all three LibQUAL dimensions. The most satisfied dimension was found to be IC as it realized the maximum SAG score (0.7), while the AS dimension was found at least satisfied dimension due to the lowest SAG score (0.4). On the other hand, SSG scores in all three dimensions are negative; obviously, users' perceived SQ level is less than their desired service level. The overall perceived LSQ mean value is 6.5 which is still less than desired mean of 7.2. In order to satisfy patrons, the library needs to match or exceed their desired level of services.

KEYWORDS: Performance assessment, Expectations, Perceived service quality, LibQUAL, Gap score.

INTRODUCTION

Service quality and customer satisfaction are two of the extensively studied concepts by the service industries, and libraries are not an exception to it. Quality has become a buzzword in today's competitive environment because maintaining & bringing quality to an organization's products and services have foremost goal of every organisation. In a highly competitive environment, the library service should be provided according to the expectations of users.

Compliance with national/international standards doesn't mean libraries are providing quality services. There is a contrary association between Service quality and customer satisfaction. If user satisfaction is high, there is said to be service quality and if user satisfaction is less, there is no or less service quality (Sajna and Mohamed, 2016). Previously, the quality of a library was assessed based on the size of its collection, rather than the services it offers, or what the library possesses. Due to the increasing competition among higher education institutions, service quality (SQ) has become the primary priority and key management strategy. Institutions can't impart quality education without rendering quality library services. Since academic libraries are considered the heart of any educational organisation, the concept of "service quality" approach is of utmost importance (Kumar and Mahajan, 2019).

LIBQUAL

LibQUAL+ is a Web-based survey instrument that helps libraries assess and improve library services, change organisational culture, and market the library. The survey instrument is based on the Gap Theory of Service Quality helps to find out what the users expect from the library service as well as how they perceive the quality of service received. The survey instrument measures library users' minimum, perceived, and desired service levels of service quality across three dimensions: The effect of Service, Information Control, and Library as Place. There are 22 questions in the questionnaire and a comments box is also given with the questionnaire for writing comments of the respondents. A 9-point Likert Scale is used to measure the responses (Sanjna and Mohanmand, 2016).

Originally LibQUAL is adapted from Parasuraman, Zeithmal, and Berry's SERVQUAL quality measurement model. LibQUAL+ was initiated during 1999-2000 as a pilot project for benchmarking perceptions of library service quality across thirteen Association of Research Libraries (ARL) member institutions under the direction of Fred Heath and Colleen Cook of Texas A&M University Libraries, and Martha Kyrillidou, former senior director of statistics and service quality programs at ARL (https://www.libqual.org/home). The project was started for three years with help from the U.S. Department of Education for the improvement of Post-Secondary Education (FIPSE). After preliminary field testing among thirteen libraries improved surveys in 2001–02 and a more or less final version with minor changes was implemented in 2003 (Greenwood, Watson, and Dennis, 2011).

REVIEW OF LITERATURE

There have been several studies on library performance assessment of service quality through libqual+TM, but it was impossible to trace the related work on the topic, thus, an attempt has been made here to examine the pertinent research using the LibQUAL+TM tool to measure the service quality of the National Institutes of Technology of Northern region.

Crowley and Gilreath (2002) explored LibQUAL findings through a focus group study at the Texas A&M University and recognized a significant gap between user expectations and perceptions of LSQ with regards to "Assurance".

Pedramnia, Modiramani, and Ghavami (2012) in their study emphasised the value of librarians' specialised skills in providing appropriate services in circulation and reference sections as well as identifying the strengths and weaknesses of MUMS schools and hospitals libraries for improving decisions affecting the library service quality. "Service Effect" had the highest average score of 6.39, while "Library as Place" received the lowest average score of 5.75.

Pourahmad, Neshat & Hasani (2016) evaluate and analyse the quality level of services of four different university libraries which are located in the North Khorasan province in Iran. The total services for university libraries of North Khorasan were negative in terms of service fitness gap, which means that libraries were not capable of satisfying the minimum anticipation of their users. Interestingly, for all library services, the gap was negative too.

Partap (2017) analyzed LibQUAL data generated from the central library of Chaudhary Charan Singh Haryana Agricultural University, Hisar, and observed that the most desired and perceived LibQUAL+ items were the Library is a gateway for study, learning, and research, The Library has print and/or electronic journal collections, which I require for my work and Library has a comfortable and inviting location. A superiority gap was found in the Library has community spaces for group learning and group study (mean score = 2.24) and Electronic resources of the library are accessible from my home or office (mean score = -2.78).

Kumar and Mahajan (2019) in their study entitled "Library Performance Assessment of Service Quality through LibQUAL: The Case of Maharshi Dayanand University (MDU), Rohtak (India)" discovered that among the three dimensions, The library as Place (LP) dimension is where library users have maximum desired expectations. The actual library performance was also reported maximum in the LP dimension, followed by Information Control (IC), and Affect of Service (AS) with mean scores of 6.45, 6.41, and 6.19 respectively.

Varghese & Thirunavukkarasu (2020) in their comparative Study of Service Quality and User Assessment among the Autonomous Colleges of Thrissur District Using LibQUAL+® Tool revealed that none of the colleges under study attained service superiority in any of the core areas – Affect of Service, Information Control, and Library as a Place. Even in the case of service adequacy Christ College Irinjalakuda and St. Thomas College Thrissur lag behind in a number of areas. In the case of St. Thomas College, the major shortcomings are in the area of the Library as a Place, which will be rectified once their new college building begins to function.

Emmanuel and Liu (2021) presents the LibQUAL+TM tool and SERVQUAL gap analysis by measuring the perception and expectation of the quality services provided by academic libraries from the point of view and experiences of International students at Jiangsu University. The study revealed that International students have high expectations of service quality; while perception of services delivered by Jiangsu University Library is a mixture of both low and high across the three dimensions of service quality. In addition, the results show that there is a negative gap for the Affect of Serve (-0.62) and Information Control (-0.54) dimension and a positive gap for the Library as Place (0.07) service dimension.

RESEARCH QUESTIONS

The study attempts to assess the service quality of the central library of the National Institute of Technology of North India from the users' viewpoint. The study focused on seeking answers to the following specific research questions:

- What is the users' minimum desired and perceived service levels on libqual core items?
- How are service adequacy and service superiority gap scores?
- How is the library performance in each dimension and overall LSQ?
- To suggest measures for improving the level of services in north India's national institutes of technology.

SCOPE

The scope of the study is limited to North India's National Institutes of Technology. According to the Geological Survey of India, North India comprises three Union Territories namely Chandigarh, Delhi, Jammu & Kashmir, and five States namely Haryana, Himachal, Punjab, Uttar Pradesh, and Uttarakhand. From the above UTs and states, only UT Chandigarh does not have any NIT. The entire NITs were established as Regional Engineering Colleges by the Government of India except NIT Uttarakhand & NIT Delhi. After that, all these Regional Engineering Colleges acquired the status of National Institute of Technology deemed to be University status. The study focused on the library users (i.e., Undergraduates, Postgraduates, and Research scholars and Faculty) of NIT's of North India.

Lists of NIT's included in the study

Table-1 NIT's included in the study

Sr. No.	NIT	State	Founded in Year	Established as NIT
1.	NIT Srinagar	Jammu & Kashmir	1960	2003
2.	Motilal Nehru National Institute Technology of Allahabad	Uttar Pradesh	1961	2001
3.	NIT, Kurukshetra	Haryana	1963	2002
4.	NIT, Hamirpur	Himachal Pradesh	1986	2002
5.	Dr BR Ambedkar NIT Jalandhar	Punjab	1987	2002
6.	NIT, Uttarakhand	Uttarakhand	2010	2010
7.	NIT Delhi	Delhi	2010	2010

RESEARCH METHODOLOGY

The purpose of the study is to evaluate the library service quality through LibQUAL+TM in the National Institute of Technology libraries of North India. The study is based on both primary and secondary data. For secondary data, various sources such as research reports, research articles, newspapers, journals, magazines, e-papers, books, websites, etc. are accessed and consulted. The survey was carried out using the LibQUAL+TM instrument containing 22 core items categorized in 3 dimensions namely Affect of Service (AS), Information Control (IC), and Library as Place (LP). On each question, library users had to rate their "minimum, desired, and perceived service levels" on a nine-point point Likert scale. The survey questionnaire also included demographic features.

SAMPLING

The stratified Random Sampling Technique is used for the collection of appropriate samples from the total population of students and faculty. The sample size (1062) that is fixed with the help of Solvin's Formula is further divided into 4 strata (Undergraduate, Post-Graduate, PhD, and faculty) of 7 NITs of North India. Further, each stratum's population is fixed with the help of percentage method.

DATA ANALYSIS AND PROCESSING

Table 2 Categories wise respondents' sample

No. of Respondents from select NITs				
Student	**UG**	**PG**	**Ph.D.**	**Total**
N (%)	690(68.66)	238(23.68)	77(7.66)	1005(100)
Staff	**Teaching**	**Non-Teaching**	**-**	**Total**
N (%)	16(50.0)	16(50.0)	-	32(100)

Table 2 provides information on the number of respondents according to their categories. Out of 1005 respondents Under Graduate are 68.66 per cent and Post Graduate and Ph.D. are 23.68 and 7.66 per cent respectively. The table also depicts that among Staff Teaching and Non-teaching have the same percentages of respondents.

Table 3 Frequency of Library Visit

Frequency of library visit	Everyday	Weekly	Fortnightly	Monthly	Occasionally	Total
NIT Srinagar N (%)	96 (62.34)	37 (24.03)	6 (3.89)	0 (0.00)	15 (9.74)	154 (100)
Motilal Nehru NIT of Allahabad N (%)	139 (44.13)	46 (14.60)	13 (4.13)	4 (1.27)	13 (4.13)	315 (100)
NIT Kurukshetra N (%)	155 (75.24)	42 (20.39)	4 (1.94)	2 (0.97)	3 (1.46)	206 (100)
NIT Hamirpur N (%)	105 (61.76)	48 (28.24)	4 (2.35)	10 (5.88)	3 (1.76)	170 (100)
Dr BR Ambedkar NIT Jalandhar N (%)	125 (67.57)	52 (28.11)	3 (1.62)	1 (0.54)	4 (2.16)	185 (100.00)
NIT, Uttarakhand N (%)	33 (57.90)	21 (36.84)	0 (0.00)	0 (0.00)	3 (5.26)	57 (100)
NIT Delhi N (%)	32 (64.00)	15 (30.00)	1 (2.00)	0 (0.00)	2 (4.00)	50 (100)
Total N (%)	685 (66.06)	261 (25.16)	31 (2.99)	17 (1.64)	43 (4.15)	1037 (100)

Table 3 describes the information about the frequency of library visits by the users. It shows that overall 66.06 per cent of users use the library every day and only 1.64 per cent use it monthly. Most of the respondents are from Motilal Nehru NIT of Allahabad but the everyday use percentage of the library is 44.13 per cent. On the other hand, a small portion of respondents are covered from NIT Delhi but the share of everyday users is 66 per cent which is higher than all other NITs. The second highest share of library visitor falls under the category of weekly users which are 25.16 per cent and other categories only cover less than 10 per cent of total respondents.

Table 4 Item-wise means scores at Minimum, Desired and Perceived service levels

Item No.	Description of service Items	M	D	P	SAG (P-M)	SSG (P-D)
AS-1	Library Staff Instill Confidence in users	5.6	7.7	6.2	0.6	-1.5
AS-2	Library Staff pays individual attention to users	5.4	7.7	5.9	0.5	-1.8
AS-3	Library staff is consistently courteous	5.2	7.5	5.9	0.7	-1.6
AS-4	Library staff is always ready to respond to users' questions	5.3	7.4	6.1	0.8	-1.3
AS-5	Library staff has knowledge to answer users' question	5.7	7.8	6.4	0.7	-1.4
AS-6	Library staff deals with the users in a caring manner	5.4	7.3	6.0	0.6	-1.3
AS-7	Library staff understand the needs of their users	5.3	7.8	6.4	1.1	-1.4
AS-8	Library staff shows willingness to help users	5.2	7.4	6.0	0.8	-1.4
AS-9	Library staff shows dependability in handling users' service problems	5.6	7.3	6.5	0.9	-0.8
IC-10	Library provides remote access to electronic resources	6.2	7.5	6.8	0.6	-0.7
IC-11	Library Website enables me to locate information on my own	5.6	7.1	6.9	1.3	-0.2
IC-12	Library has printed materials, I need for my work	5.7	7.3	6.2	0.5	-1.1
IC-13	Library has electronic information resources, I need for my work	5.5	7.8	6.4	0.9	-1.4
IC-14	Library has modern equipment that lets me have easy access to the needed information	6.3	7.6	7.0	0.7	-0.4
IC-15	Library has easy-to-use access tools that allow me to find information on my own	5.6	7.5	6.5	0.9	-1
IC-16	Library makes the information easily accessible for independent use	5.4	7.5	6.2	0.8	-1.3
IC-17	Library has print and/or electronic journal collections, I require for my work	5.3	7.6	6.1	0.8	-1.5
LP-18	Library has space that inspires study and learning	5.5	7.9	6.9	1.4	-1
LP-19	Library has quiet space for individual work	5.9	8.1	6.4	0.5	-1.6
LP-20	Library has comfortable and inviting location	6.1	8.0	7.2	1.1	-0.9
LP-21	Library is secure and peaceful place for study, learning and research	6.3	7.9	7.1	0.8	-0.8
LP-22	Library has space for group learning and group study	5.5	7.8	6.5	1	-1.3

Note: M (Minimum service) D (Desired service) P (Perceived service) SAG (Service adequacy gap) SSG (Service superiority gap)

At the minimum service level, "Library is a secure and peaceful place for study, learning and research" (LP-21), "Library has comfortable and inviting location" (LP-20) and "Library has modern equipment that lets me have easy access to the needed information" (IC-14) were found as the three topmost service items with a mean score of 6.3,6.1 and 6.2 respectively, whereas "Library staff is consistently courteous' (LP-3) and "Library staff shows willingness to help users" (AS8) were the two lowest items with mean score of 5.2 each. This shows that library users have high

expectations for these two items (LP21, IC10 & IC-14) which belong to the LP and IC dimension. On the other hand, the items LP-3 and AS-8 have the lowest expectations.

Based on the highest mean of users' desired service level (Table 4), the four most important service items were associated with the LP dimension. These service items were "Library has comfortable and inviting location" (LP-20), "Library has quiet space for individual work" (LP-19), and "Library is a secure and peaceful place for study, learning and research" (LP-21) with a mean score of 8.1, 8.0, and 7.9 respectively. On the other hand, "Library Website enables me to locate information on my own" (IC-11), "Library staff deals with the users in a caring manner" (AS-6), and "Library staff shows dependability in handling users' service problems" (AS-9) were ranked as the three lowest desired items (least important) with 7.1, 7.3 mean score respectively.

The respondents' perceived service level on each LibQUAL item is presented in Table 4 "Library is secure and peaceful place for study, learning and research" (LP-21) has been perceived highest level of SQ with mean score of 7.1, "Library has comfortable and inviting location" (LP-20) with mean score 7.2, "Library has modern equipment that lets me have easy access to the needed information" (IC-14) with mean score of 7.0. The two lowest perceived service levels were found on "Library staff is consistently courteous" (AS-2), and "Library staff is always ready to respond to users' questions" (AS-3) with a mean score of 5.9 each. Therefore, library performance was found very poor, especially on AS-2 and AS-3.
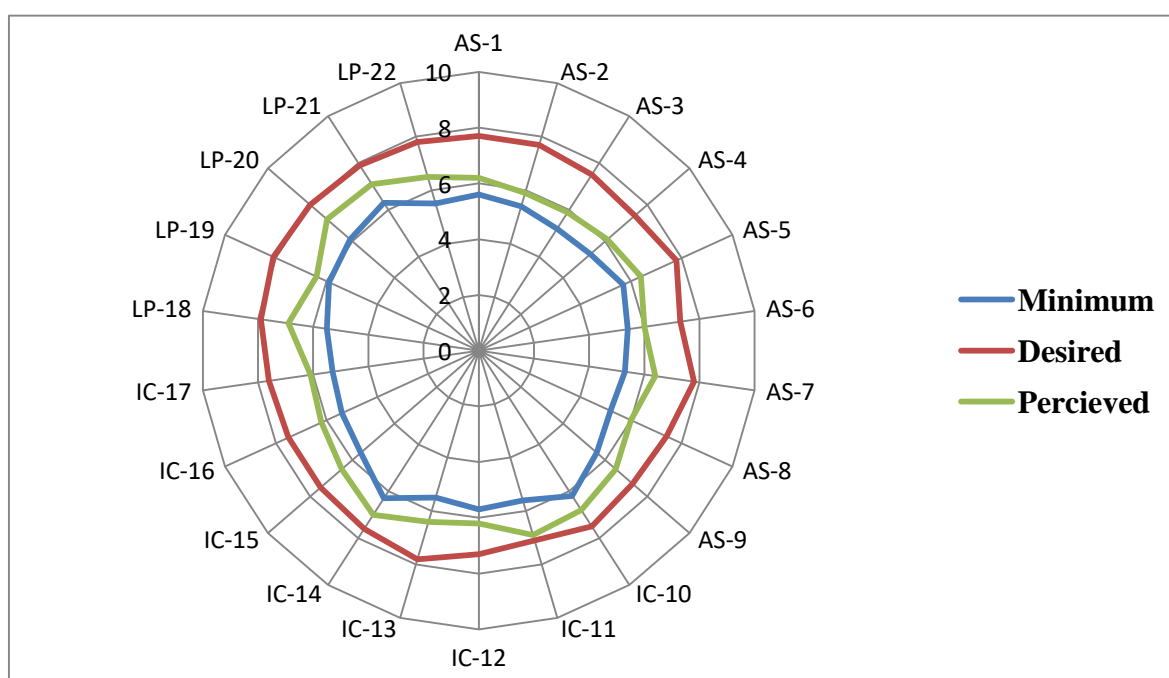

Figure 1 Radar Chart displaying item-wise mean scores at Minimum, Desired and Perceived service levels

Table 5 Dimension-wise performance and overall LSQ (n=1037)

Dimension	M	D	P	SAG	SSG
Affect of Service (AS)	5.8	7.1	6.2	0.4	-0.9
Information Control (IC)	5.7	7.2	6.4	0.7	-0.8
Library as Place (LP)	6.1	7.4	6.5	0.6	-1
Overall LSQ	5.7	7.2	6.5	0.8	-0.7

Table 5 shows dimension-wise library performance and overall Library Service Quality (LSQ) on the basis of mean scores. The highest mean scores were noticed in the LP dimension at all three levels (minimum, desired, and perceived). Therefore, LP is the most desired dimension and the perceived performance level is also highest in this dimension. The library staff needs to pay individual attention to users and also behave courteously with library users as it obtained the lowest mean score (6.2) in the AS dimension. The SAG score of each dimension is positive and hence the perceived level of services is adequate from the minimum acceptable level in all three LibQUAL dimensions. The most satisfied dimension was found to be IC as it realized the maximum SAG score (0.7), while the AS dimension was found at least satisfied dimension due to the lowest SAG score (0.4). On the other hand, SSG scores in all three dimensions are negative; obviously, users' perceived SQ level is less than their desired service level. The overall perceived LSQ mean value is 6.5 which is still less than desired mean of 7.2. In order to satisfy patrons, the library needs to match or exceed their desired level of services.

FINDINGS AND CONCLUSION

- On the basis of the results, it can be concluded that LP was the most desired dimension (7.4), and the perceived performance level was also found maximum (6.5) in the LP dimension. The IC dimension secured second position with a mean value of 6.5. The users were least satisfied with the AS dimension (6.2).

- The overall perceived LSQ mean value is 6.5 which is still less than desired mean 7.2.

- Therefore, the National Institute of Technology's library needs to focus on AS, especially on the issue of "courteous behavior" and "response to users". In all dimensions, the actual delivered (perceived service) level was found adequate from the minimum service level.

- Under the information control dimension users' desired level mean score (7.6) is higher than the perceived level mean core which is 7.0. The two lowest perceived service levels were found on "Library staff is consistently courteous" (AS-2), and "Library staff is always ready to respond to users' questions" (AS-3) with a mean score of 5.9 each. Therefore, library performance was found very poor, especially on AS-2 and AS-3.

- The most satisfied dimension was found to be IC as it realized the maximum SAG score (0.7), while the AS dimension was found at least satisfied dimension due to the lowest SAG score (0.4). On the other hand, SSG scores in all three dimensions are negative; obviously, users' perceived SQ level is less than their desired service level.

From the present study, it is concluded that the respondents were overall satisfied but there was a superiority gap in all 22 items of three dimensions of LibQUAL+TM. These days every area of the library is important for users'

services, viz. staff, collection, and services, therefore, the library authority should give emphasis on the improvement of all library areas viz., staff, collection, and services, so that the needs of users may be satisfied. Regular studies on quality measurement should also be carried out in order to identify gaps in service-related areas. Staff development and user orientation programs should be conducted periodically.

REFERENCE

[1] Crowley, G.H., and C.L. Gilreath. 2002. "Probing user perceptions of service quality: Using focus groups to enhance quantitative surveys." Performance Measurement and Metrics 3(2): 78-84.

[2] Emmanuel, B. G., & Liu, J. (2021). International students assessment of service quality in academic libraries. *International Journal of Research and Innovation in Social Science, 5(5),* 538-546.

[3] Greenwood, J. T., Watson, A. P., & Dennis, M. (2011). Ten years of LibQual: A study of qualitative and quantitative survey results at the University of Mississippi 2001–2010. *The Journal of Academic Librarianship*, *37*(4), 312-318.

[4] Kumar, A., & Mahajan, P. (2019). Library performance assessment of service quality through LibQUAL: The case of Maharshi Dayanand University (MDU), Rohtak (India). *Library Philosophy and Practice*, 1-17.

[5] LibQUAL+ (n.d.). Retrieved March 24, 2023 from https://www.libqual.org/home

Partap, B. (2017). Measuring library service quality using libQUAL+TM approach at Chaudhary Charan Singh Haryana Agricultural University, Hisar. *International Journal of Digital Library Services, 7(1),* 60-71.

[6] Pedramnia, S., Modiramani, P., & Ghavami Ghanbarabadi, V. (2012). An analysis of service quality in academic libraries using LibQUAL scale: Application oriented approach, a case study in Mashhad University of Medical Sciences (MUMS) libraries. *Library Management*, *33*(3), 159-167.

[7] Pourahmad, A. A., Neshat, M., & Hasani, M. R. (2016). Using LibQUAL model for improving the level of students' satisfaction from quality of services in academic libraries: A Case Study in North Khorasan Province, Iran. *Journal of Information & Knowledge Management*, *15*(01), 1650011.

[8] Sajna, K. P., & Mohamed, H. (2016). Measuring the service quality of libraries. *DESIDOC Journal of Library and Information Technology*, *41(2),* 75-81.

[9] Varghese, U. J., & Thirunavukkarasu, A. (2020). A Comparative Study of Service Quality and User Assessment among the Autonomous Colleges of Thrissur District Using LibQUAL® Tool. *Library Philosophy and Practice*, 1-22.

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