

Servqual: A dimension-specific analysis of performance and measurement of library service quality and user satisfaction among students at the universities of Haryana

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Abstract

The primary purpose of this present research paper is to evaluate library services and user satisfaction on five dimensions of the Servqual instrument: Tangible, Reliability, Responsiveness, Assurance, and Empathy. The study was conducted at three State-owned Universities of Haryana specializing in Science and Technology. The survey research method was used. A total number of 180 questionnaires were distributed among the library users, including under-graduates and post-graduate students from the field of Science and Technology specialization, and 169 (93.89%) valid questionnaires were considered for the study. The results explained a discrepancy in all the five service dimensions in these university libraries; users expect better quality services, especially in the Reliability and Tangible dimensions. Efforts should be made to modernize the library infrastructure, develop a rich collection of books and electronic resources, conduct training and workshops for library staff to excel in their skills and expertise and provide more value-added services to improve the quality of library service. The study will help the librarians to make more efforts to explore and eliminate pitfalls to achieve the highest perceived service quality and user satisfaction.

Keywords: - 1.Servqual; 2.University library; 3.Service Quality; 4.User Satisfaction; 5.Haryana

Introduction

The impact of university libraries is reflected in building institutional reputation, academic growth, and objectives. A library is a place to preserve history to bring future intellectual outputs. It keeps updating the information necessities of the academic community by providing rich resources and quality services

to its users. **Laudon & Loudon (2000)** quoted that “for which libraries are the repository of knowledge, organizing and administering systematically is the need for its successful usages.”

The advent of Information Communication and Technology brought information explosion, and it expanded the scope of libraries. **Paraschiv (2017)** opines that currently, users require a good and recent sound collection of resources, longer operational hours, quality library services with excellent quality services, and support from librarians. Libraries provide a podium for intellectuals to interact with each other, sharing their ideas within the physical boundary and virtual surroundings safely and securely to extend learning and facilitate innovation and ideas.

University libraries act as service providers, and users’ satisfaction is the principal concern. According to the **International Encyclopaedia of Information and Library Science**, quality is “conformance to standards and fitness for use.” **Jayasundara (2008)** stated that users’ perceptions and expectations became notable studies to understand service quality in academic libraries. The university authority can validate the satisfaction level of the users through various survey methods.

Servqual Model

In 1985, Parasuraman, Zeithaml, and Berry developed a service quality model to understand users' perceived and expected service quality. After two decades Servqual measurement scale was introduced by **A. Parasuraman, Valarie A., Zeithaml, and Leonard L Berry (1988)** to assess the service quality of an organization from the customer viewpoint. It is an instrument to measure service quality delivered by an organization to customers' expectations. Servqual model was also identified as the GAP model. The Servqual model has 32 items that indicate service quality based on five dimensions: Tangible, Reliability, Responsiveness, Assurance, and Empathy. Thus service quality can be calculated as

$$SQ = P - E,$$

Where SQ is the Service Quality

P is the perceived service quality by a customer.

E is the expected service quality by a customer.

It displays the interface between the quality of services delivered and customer satisfaction.

Literature Review

Adikata and Anwar (2006), in their paper, "Student library use: a study of faculty perceptions in a Malaysian university," revealed students' dissatisfaction as they received no assistance from librarians to find relevant documents in the library, which indicate poor service quality. **Sahu (2007)** studied Jawaharlal Nehru University Library to evaluate service quality using Servqual Instrument. The study suggested a wide range of library information service operations back to user satisfaction. Using Servqual, **Ahmed and Shoeb (2009)** surveyed the service quality of Dhaka University Public Library in Bangladesh. The study found the gap between users' expected and perceptions were measured. **Arshad and Ameen (2010)** carried out their study "Service quality of the University of Punjab's libraries: An exploration of users' perceptions" revealed that users' expectations do not match the service quality provided by the libraries. Likewise, the study undertaken by **Bukhari et al. (2010)** concluded that students were not satisfied with the services offered by the libraries. They were facing difficulties in finding relevant documents. Another study was undertaken by **Hossain and Islam (2012)** that implemented the Servqual tool to evaluate users' satisfaction with Dhaka University Public Library in Bangladesh. The research showed users' were highly satisfied with library hours, though the rest of the items did not fulfill users' needs. **Khan (2012)**, in his study, suggested that modern equipment, flexible infrastructure, and availability of rich resources contribute to quality library services and attain users' satisfaction. **Sohail and Raza (2012)**, in their study on "Dr. Zakir Husain Library of JamiaMiliaIslamia, New Delhi," revealed users were satisfied with the reliability dimension of service quality.

A study carried out by **Mairaj and Naseer (2013)** came out with findings that users were not satisfied with library infrastructure, furniture, and environment, but they found satisfied with the collection, staff approach, circulation & reference services. Another study conducted by **Sheikh (2014)** concluded the

quality of library services provided by CIIT library is much better than services provided by other university libraries in Pakistan. **Malik and Malik (2015)** used the Servqual model, and findings showed there was a discrepancy between users' perceptions and expectations. **Kitana and Serder (2014)** experienced that library users were dissatisfied with the collection and services offered. **Ahmed (2017)** opined that librarians should encourage users to view and give feedback for delivering better quality services.

Twum et al. (2020) opined that service quality dimensions are positively associated with the user. A study conducted by **Alam and Mezbah-ul-Islam (2021)** developed a five-dimension Servqual model consisting of 28 items for quality assessment of 10 private university libraries in Bangladesh to support the model. The findings of the study indicate that users were satisfied with the quality of services delivered by these university libraries. The work done by **Palubo (2022)** stated that publicity-owned libraries mainly focused on providing the best services to citizens by offering attractive services like loan facilities, catalogue's integration, promoting social exchanges, implementing people-centered cultural services, and fostering users' ideas and thoughts in the digital domain helps to enhance the attractiveness of service quality. Based on the study done by **Kinya and Muthee (2022)** indicated that the quality of services delivered can only be adjusted with the increasing demand of the users. Although, several commendable services have been developed to bridge the gap between users and service providers. To identify the contribution of SunanKalijaga Yogyakarta library in learning-teaching activities, **Marwiyah et al. (2022)** conducted using the Servqual method to evaluate services delivered, service supporting facilities, and involvement of human resources to satisfy the user's requirements. The findings showed that users were satisfied with the services provided by the SunanKalijaga Yogyakarta library. The library also took advantage of social media sites to make its services more effective. Further, the librarians have meaningfully motivated the users to access the library services.

Objectives of the study

1. To recognize the gap analysis between students' expectations and perceptions of the quality of library services provided by the university libraries of Haryana.
2. To pinpoint the primary attributes of library quality services in which students are more satisfied or dissatisfied in the university libraries of Haryana.

Hypotheses of the study

Hypothesis 1: There is no significant difference between users' expectations and perceptions of the Tangible dimension.

Hypothesis 2: There is no significant difference between users' expectations and perceptions of the Reliability dimension.

Hypothesis 3: There is no significant difference between users' expectations and perceptions of the Responsiveness dimension.

Hypothesis 4: There is no significant difference between users' expectations and perceptions of the Assurance dimension.

Hypothesis 5: There is no significant difference between users' expectations and perceptions of the Empathy dimension.

Scope and limitations of the study

The present study covers libraries of the three state-owned universities of Haryana specializing in Science and Technology. A brief description of the universities is mentioned in Table 1.

Table-1: Brief description of the Universities

S. No	Name of the University	Year of establishment	Place	Questionnaire distributed	Valid questionnaire received
1.	Guru Jambheshwar University of Science and Technology	1995	Hisar	60	59
2.	Deenbandhu Chhotu Ram University of Science and Technology	2006	Sonipat	60	56
3.	YMCA University of Science and Technology,	2009	Faridabad	60	54

Haryana state has many well-renowned universities, but due to time and cost constraints, only libraries of the universities specialized in Science and Technology were covered in the study.

Research Methodology

Research Design - The questionnaire was structured to gather primary data from library users to evaluate user satisfaction with the performance of library services provided by the university libraries. A questionnaire based on the sample survey contains five major Servqual dimensions to attain the research objectives and test the hypothesis of the study.

Population and sample- The population of this study includes students from the three selected universities of Haryana. 'Probability sampling is possible where all the units of the total populations are known, and each of them has an equal chance to be selected (Saunders, Lewis, & Thornhill, 2016).

Data collection instrument- The questionnaire is divided into 32 statements for assessing the user's satisfaction level. The questionnaire is based on 5 Servqual dimensions and contains total 32 statements indicating five dimensions mainly – Tangible (8 elements), Reliability (6 elements), Responsiveness (6 elements), Assurance (6 elements), and Empathy (6 elements) with a 5-point Likert scale was used containing 5= Strongly Satisfied, 4= Satisfied, 3= Neutral, 2= Dissatisfied, and 1= Strongly Unsatisfied. The data has been collected from the Haryana region using a random sampling method. 180 questionnaires were distributed among the target students. A total of 169 (93.89%) valid questionnaires were collected for data analysis.

Data processing and analysis

Collected data were summarized in an excel sheet and calculated using a statistical method. The survey measures the perceptions and expectations of respondents through the 5-point Likert scale on each statement under five dimensions.

P= Perception, E= Expectation, DR= Dimension Rank and OR= Overall Rank

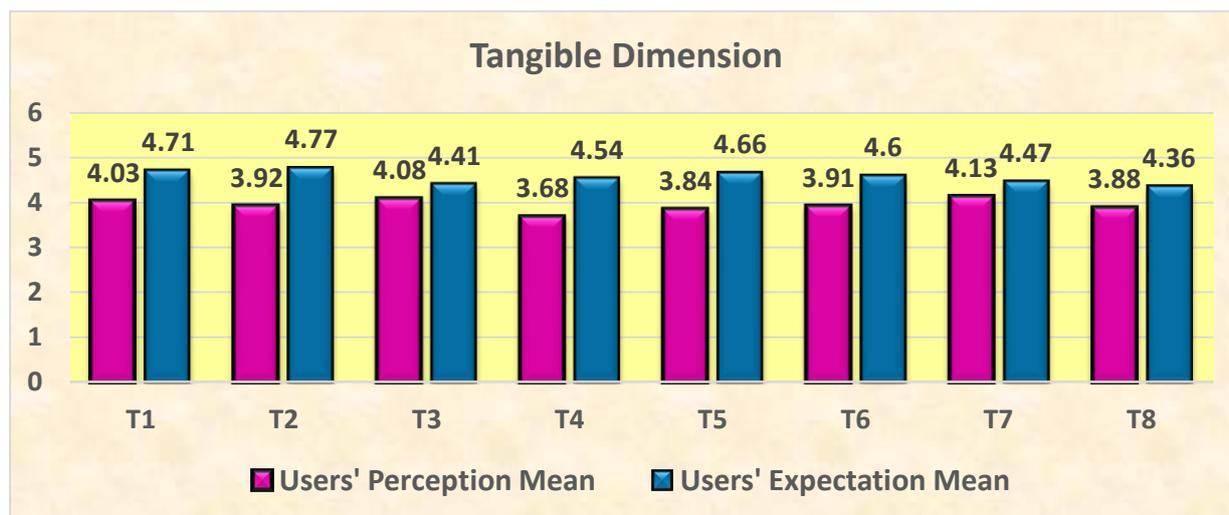
Tangible dimension

Table1: Servqual Score within Tangible Dimension

S. No	Tangible - Statement	P	E	Gap Score	D R	O R
		Mean	Mean			
T1	The library building is convenient and easily accessible	4.03	4.71	-0.68	4	16
T2	The library environment is calm, safe, and salient for reading	3.92	4.77	-0.85	7	26
T3	Lay out plan of the library is well prepared	4.08	4.41	-0.33	1	5
T4	Provision of proper ventilation and lighting	3.68	4.54	-0.86	8	27

T5	The library uses modern communication technology	3.84	4.66	-0.82	6	23
T6	The library has well-designed and modernized equipment that allows manageable access to information	3.91	4.6	-0.69	5	17
T7	Comfortable and adequate seating arrangement	4.13	4.47	-0.34	2	6
T8	Clean, tidy, and hygienic environment	3.88	4.36	-0.48	3	10
	Average	31.47	36.52	-5.05		

Figure 1: Graphical Representation of Servqual Score within Tangible Dimension



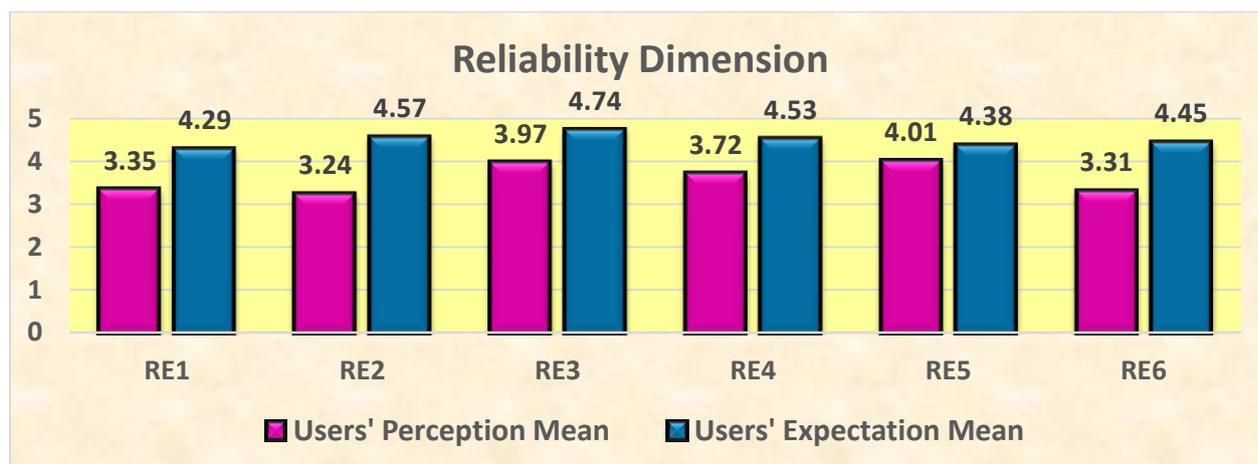
The data in Table 1 and Graphical representation 1 illustrate the Tangible dimension with eight statements. The average gap score was calculated (-5.05), which means users' expectation mean score (36.52) was more than users' perception mean score (31.47) at their respective universities. The highest gap score in T4 statement 'Provision of proper ventilation and lighting with (-0.86), and the lowest gap score in T3 statement 'Layout plan of the library is well prepared' with (-0.33).

Reliability Dimension

Table 2: Servqual Score with in Tangible Dimension

S. No	Reliability - Statement	P	E	Gap Score	D R	O R
		Mean	Mean			
RE1	The library has access tools facilitates user to locate resources on their own	3.35	4.29	-0.94		29
RE2	Library performs services right at the first time.	3.24	4.57	-1.33	6	32
RE3	Data base of library catalogue is updated.	3.97	4.74	-0.77	2	20
RE4	The library makes relevant information available. -	3.72	4.53	-0.81	3	21
RE5	The library staff is dependable in handling user's service problems.	4.01	4.38	-0.37	1	7
RE6	Library provides promised services.	3.31	4.45	-1.14	5	31
	Average	21.6	26.96	-5.36		

Figure 1: Graphical Representation of Servqual Score within Reliability Dimension



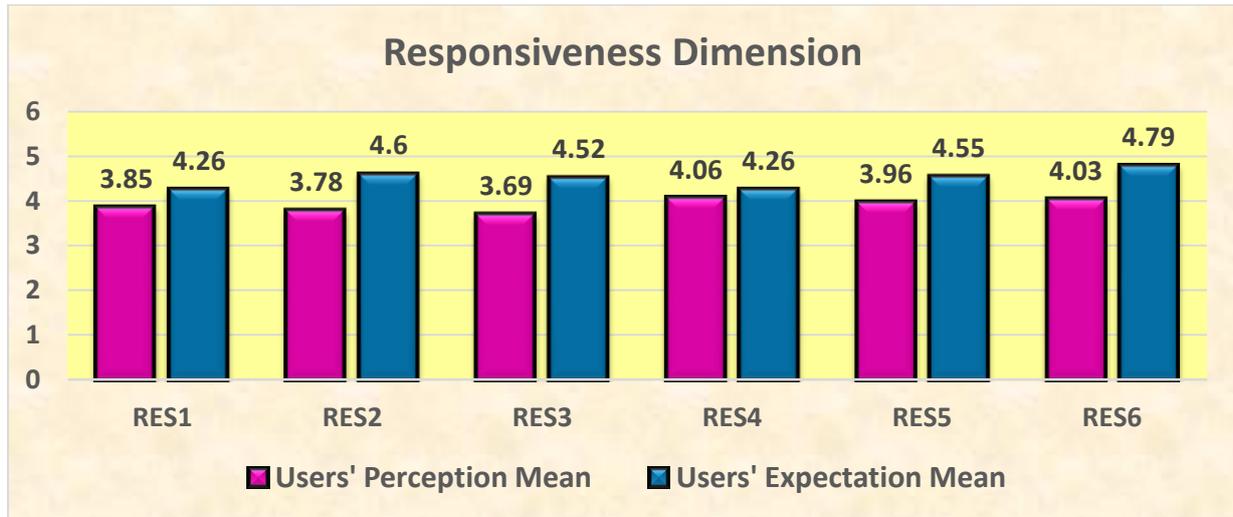
The data in Table and Graphical representation 2 illustrates the Reliability dimension with six statements. The average gap score was calculated (-5.36), which means users' expectation mean score (26.96) was more than users' perception mean score (21.6) at their respective universities. The highest gap score in RE2 statement 'Library performs services right at the first time' with (-1.33), and the lowest gap score in RE5 statement 'The library staff is dependable in handling user's service problems' with (-0.37).

Responsiveness Dimension

Table 3: Servqual Score with in Responsiveness Dimension

S. No	Responsiveness - Statement	P	E	Gap Score	D R	O R
		Mean	Mean			
RES1	The library keeps users informed when services are performed.	3.85	4.26	-0.41	2	8
RES2	The library has functional facilities that motivates study and learning	3.78	4.6	-0.82	5	22
RES3	The library staff makes current and new Information available to the users.	3.69	4.52	-0.83	6	24
RES4	The library staff are well conversant with the equipment they use in the library	4.06	4.26	-0.2	1	3
RES5	The library staff are always ready to respond users queries	3.96	4.55	-0.59	3	12
RES6	The library staff are always willing to help users	4.03	4.79	-0.76	4	19
	Average	23.37	26.98	-3.61		

Figure 3: Graphical Representation of Servqual Score within Responsiveness Dimension



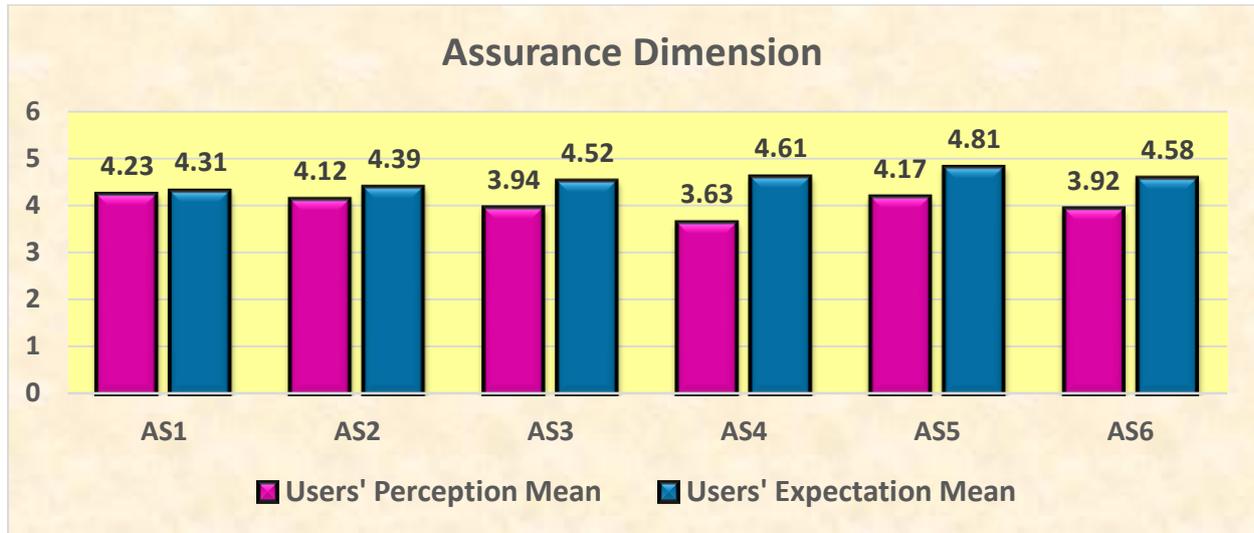
The data in Table and Graphical representation 3 illustrates the Responsiveness dimension with six statements. The average gap score was calculated (-3.61), which means users' expectation mean score (26.98) was more than users' perception mean score (23.37) at their respective universities. The highest gap score in RES3 statement 'The library staff makes current and new Information available to the users with (-0.83) and the lowest gap score in RES4 statement 'The library staff are well conversant with the equipment they use in the library' with (-0.2).

Assurance Dimension

Table 4: Servqual score with in Assurance Dimension

S. No	Assurance - Statement	P	E	Gap Score	D R	O R
		Mean	Mean			
AS1	The library staff has respect for all class of users	4.23	4.31	-0.08	1	1
AS2	Library staff are knowledgeable, supportive and have good communication skill	4.12	4.39	-0.27	2	4
AS3	Library staff are polite,encouraging and have positive attitude	3.94	4.52	-0.58	3	11
AS4	The employees of library instill confidence in users	3.63	4.61	-0.98	6	30
AS5	Library staff assured records of personal Information be safe from unauthorized use	4.17	4.81	-0.64	4	14
AS6	Librarians are competence in solving user’s problems.	3.92	4.58	-0.66	5	15
	Average	24.01	27.22	-3.21		

Figure 4: Graphical Representation of Servquql Score within Assurance Dimension



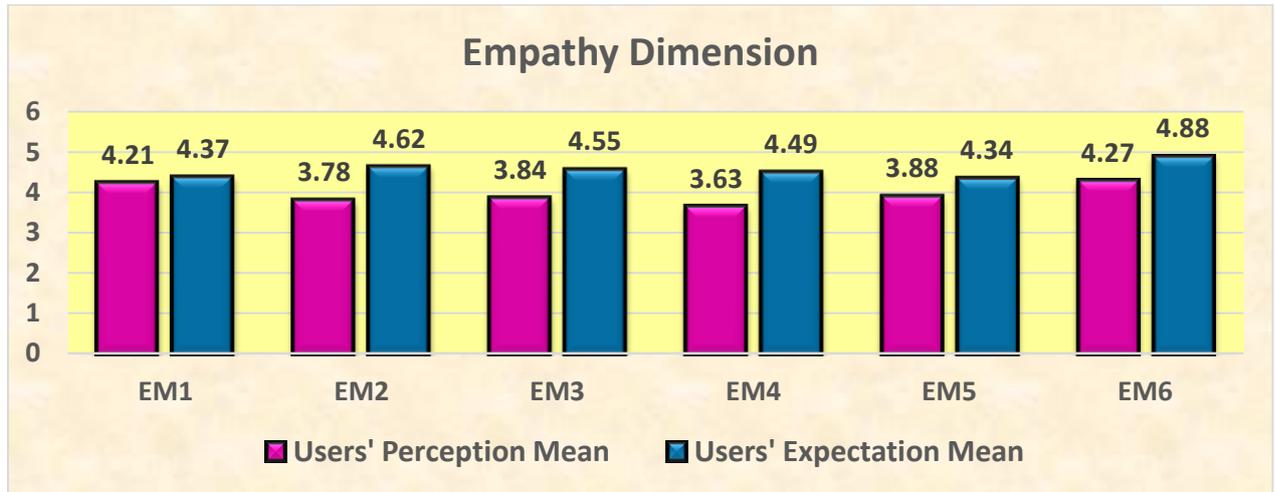
The data in Table and Graphical representation 4 illustrates the Responsiveness dimension with six statements. The average gap score was calculated (-3.21), which means users' expectation mean score (27.22) was more than users' perception mean score (24.01) at their respective universities. The highest gap score in AS4 statement 'The employees of library instill confidence in users' with (-0.83), and the lowest gap score in AS1 statement 'The library staff has respect for all classes of users with (-0.08).

Empathy Dimension

Table 5: Servqual Score with in Empathy Dimension

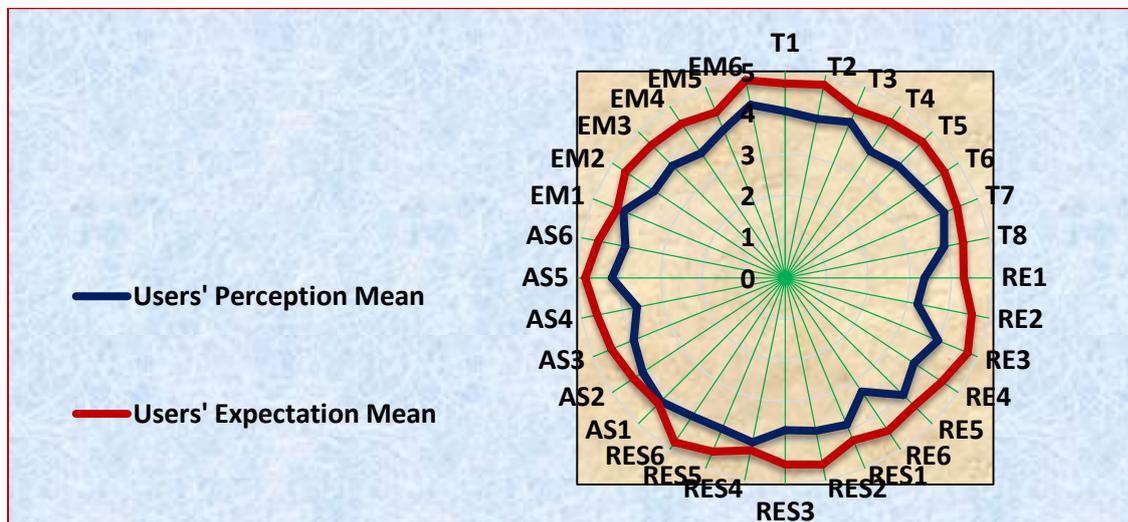
S. No	Empathy - Statement	P	E	Gap Score	D R	O R
		Mean	Mean			
EM1	The library has convenient opening hours.	4.21	4.37	-0.16	1	2
EM2	The library makes efforts to know their users and their needs.	3.78	4.62	-0.84	5	25
EM3	The library has adequate and quite place for Individual activity	3.84	4.55	-0.71	4	18
EM4	The library provides prompt services.	3.63	4.49	-0.86	6	28
EM5	The library staff gives individual attention to users.	3.88	4.34	-0.46	2	9
EM6	The library staff have the readers' best interest at heart	4.27	4.88	-0.61	3	13
	Average	23.61	27.25	-3.64		

Figure 1: Graphical Representation of Servqual Score with in Tangible Dimension



The data in Table and Graphical representation 5 illustrates the Empathy dimension with six statements. The average gap score was calculated (-3.64), which means users' expectation mean score (27.25) was more than users' perception mean score (23.61) at their respective universities. The highest gap score in EM4 statement 'The library provides prompt services' with (-0.86), and the lowest gap score in EM1 statement 'The library has convenient opening hours' with (-0.16). The data drawn from Tables 1 to 5 is additionally placed on a radar chart to show the aggregate results for the mentioned survey questions.

Figure 6: Radar Diagram of Servqual Dimensions



Each axis represents one statement. On each axis, respondents' perceptions and expectations of quality library services are plotted, and the resulting gaps between these two lines (the Brown line shows users' expectations and the Blue line shows users' perceptions) and Green lines denote all 32 attributes.

Table 6: Servqual Dimension analysis

Servqual Dimension	Gap Score	Rank
Average Gap Score for Tangible	-5.05	4
Average Gap Score for Reliability	-5.36	5
Average Gap Score for Responsiveness	-3.61	2
Average Gap Score for Assurance	-3.21	1
Average Gap Score for Empathy	-3.64	3

Data derived from Table 6, demonstrated that the highest gap score exists for the Reliability Dimension with an average gap score (-5.36), and the least comes for the Assurance Dimension with an average gap score (-3.21).

Testing of the Hypotheses

Table 7: Mean, Standard deviation and significance level of Servqual Dimensions evaluate using z-test

S. No	Servqual Dimensions	Average Perception		Average Expectation		Z-test Value	Decision
1	Tangible	3.933	0.144	4.565	0.146	-40.065	Significant
2	Reliability	3.60	0.345	4.493	0.158	-30.594	Significant
3	Responsiveness	3.895	0.146	4.497	0.206	-30.995	Significant
4	Assurance	4.00	0.220	4.537	0.176	-24.778	Significant
5	Empathy	3.935	0.252	4.542	0.1967	-24.684	Significant

Tangible Dimension:

Hypothesis 1- There is no significant difference between users’ expectations and perceptions of the Tangible Dimension.

Since it is observed that the test statistic Z equals **-40.065180**, is not in the 95% critical value accepted range: [-1.9600 : 1.9600]. $X_1 - X_2 = -0.63$, is not in the 95% accepted range: [-0.03100 : 0.9600].

P-value

p-value equals **0.00000**, ($p(x \leq Z) = 0.00000$). This means that the chance of type1 error (rejecting a correct H_0) is small: 0.000 (0.0%).

The smaller the p-value the more it supports H_1 .

Reliability Dimension:

Hypothesis 2- There is no significant difference between users’ expectations and perceptions of the Reliability Dimension.

Since it is observed that the test statistic Z equals **-30.593570**, is not in the 95% critical value accepted range: [-1.9600 : 1.9600]. $X_1 - X_2 = -0.89$, is not in the 95% accepted range: [-0.05700 : 0.9600].

P-value

p-value equals **0.00000**, ($p(x \leq Z) = 0.00000$). This means that the chance of type1 error (rejecting a correct H_0) is small: 0.000 (0.0%).

The smaller the p-value the more it supports H_1 .

Responsiveness Dimension:

Hypothesis 3- There is no significant difference between users' expectations and perceptions of the Responsiveness Dimension.

Since it is observed that the test statistic Z equals **-30.995092**, is not in the 95% critical value accepted range: [-1.9600 : 1.9600]. $X_1 - X_2 = -0.60$, is not in the 95% accepted range: [-0.03800 : 0.9600].

P-value

p-value equals **0.00000**, ($p(x \leq Z) = 0.00000$). This means that the chance of type1 error (rejecting a correct H_0) is small: 0.000 (0.0%).

The smaller the p-value the more it supports H_1 .

Assurance Dimension

Hypothesis 4- There is no significant difference between users' expectations and perceptions of the Assurance Dimension

Since it is observed that the test statistic Z equals **-24.778387**, is not in the 95% critical value accepted range: [-1.9600 : 1.9600]. $X_1 - X_2 = -0.54$, is not in the 95% accepted range: [-0.04200 : 0.9600].

P-value

p-value equals **0.00000**, ($p(x \leq Z) = 0.00000$). This means that the chance of type1 error (rejecting a correct H_0) is small: 0.000 (0.0%).

The smaller the p-value the more it supports H_1 .

Empathy Dimension

Hypothesis 5- There is no significant difference between users' expectations and perceptions of the Empathy Dimension

Since it is observed that the test statistic Z equals **-24.684109**, is not in the 95% critical value accepted range: [-1.9600 : 1.9600]. $X_1 - X_2 = -0.61$, is not in the 95% accepted range: [-0.04800 : 0.9600].

P-value

P-value equals 0.00000, ($p(x \leq Z) = 0.00000$). This means that the chance of type 1 error (rejecting a correct H_0) is small: 0.000 (0.0%).

The smaller the p-value the more it supports H_1

Findings of the study

1. All the five dimensions of the Servqual model are measured, and found that all dimensions show a lack of service quality offered by the university libraries.
2. The study shows users' an expectation does not match with the users' perceptions of these services delivered by the university libraries.
3. The statement's higher levels of dissatisfaction are- Library performs services right at the first time (-1.33), followed by Library provides promised services (-1.14), The employees of the Library installs confidence in users (-0.98).
4. The statements show a very negligible gap are- Library staff has respect for all classes of users with a gap score (-0.08), The library staff is well conversant with the equipment they use in the Library (-0.16), The library staff is well conversant with the equipment they use in the Library (-0.2).
5. Reliability dimensions got the maximum gap of (-5.36) which means the Reliability dimension falls short of quality and does not meet the user expectations.
6. Library staff has respect for all classes of users with a gap score (-0.08) showed very negligible gap score, which means the majority of users were satisfied.

7. Library performs services right at the first time with a gap score (-1.33) showing the highest gap score, which means the majority of users were unsatisfied.

Findings of the study revealed users expected better service than they perceived, resulting in dissatisfaction among library users. The State owned university libraries need to improve all five dimensions of the Servqual instrument to achieve higher perceived service quality and user satisfaction.

Suggestions to improve quality of library services

1. State-owned university libraries should invest more in the development of Human Resources and Information and Communication Technology (ICT) infrastructure. The state government should take initiatives to conduct training programs, workshops, seminars, etc., from time to time to excel the skills and expertise of library staff to deliver their services and performance to library users more effectively.
2. Libraries must prepare and arrange user education programs to guide the library users on the appropriate use of available library resources and electronic resources.
3. Librarians should develop confidence among the users to resolve the problems while accessing the Library.
4. Libraries should develop more online and electronic resources.
5. Libraries should develop alert services to make the users well informed about the new resources and services.
- 6 Libraries should provide adequate and quiet space for individual activities.
7. Library staff should be more prompt and user-friendly in delivering quality services to library users.
8. Libraries should have modern and well-designed equipment that allows effortless access to information.
9. Librarians should conduct periodic feedback from users in terms of resources, infrastructure, and services to make the library resources and services more user-centric.

Conclusion

The present study only emphasizes the quality elements. The librarians should need to manage resources and services most efficient manner to provide the highest perceived quality services to university library users. Meeting service quality is an important criterion in the field of Library and information science. Efforts to be taken to modernize the library infrastructure to develop a rich collection of both books and electronic resources and provide value-added services will result in improved service quality and user satisfaction. Furthermore, the State government should take initiatives to conduct training programs, workshops, seminars, etc., from time to time to excel the skills and expertise of library personnel to deliver their services and performance to library users more effectively.

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