

# Quality of E-Services of University Libraries in Kerala

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## Abstract

*The purpose of this study is to assess the quality of e-services of university libraries in Kerala. SERVQUAL questionnaire was used to elicit responses on a five-point Likert Scale to measure both the expectations and perceptions of the users of the libraries. The analysis shows that the perceived quality of e-services of the university libraries in Kerala is low. The analysis got negative gap scores. The study concludes that e-services of the university libraries in Kerala are not up to the expectations of their users. This study can be generalized and will be useful for librarians to plan, design and implement e-services in the libraries.*

**Keywords:** E-Services, E-Resources, Library Services, Service Quality, University Libraries, SERVQUAL

## 1. Introduction

Libraries act as centres of knowledge for learning and research by providing access to information. The widespread use of Information and Communication Technology (ICT) has changed the provision of library resources and services. Libraries use ICT for providing many of their traditional services electronically. E-resources and e-services became an integral part of modern libraries. Libraries spend huge amount of money to provide e-resources and e-services. It is important to know the quality of various library services and how well users perceive the services. According to Broady-Preston & Preston (1990) Librarians have struggled for many years with the challenge of demonstrating the quality of services they provide. Assessing service quality constitutes an important field of research in Library and Information Science. Einasto (2014) pointed out that the library professionals and researchers think about new quality criteria and performance indicators for libraries.

Service quality means the ability of a service organization to provide quality services according to the expectations of their customers. It is a key strategic issue in industries. Kotler and Armstrong (2010) defined the term service quality as the ability of a service firm to hang on to its customers. According to Thapisa and Gamini (1999) quality can be seen as relating to the fitness of a service or product to its intended purpose or use, subject to the expectations of the customer, user or public. Parasuraman, et. al. (1998) defined service quality as the delivery of excellent or superior service relative to customer expectation. They identified ten criteria to judge the service quality:

- i. Reliability;
- ii. Responsiveness;
- iii. Competence;
- iv. Credibility;
- v. Access;
- vi. Courtesy;
- vii. Security;
- viii. Communication;
- ix. Understand; and
- x. Tangibles



After extensive research on the same they found that five criteria are enough for judging the service quality. They are:

- i. Tangibles;
- ii. Reliability;
- iii. Responsiveness;
- iv. Assurance; and
- v. Empathy.

Parasuraman et. al. (1991) formulated the gap model with these five dimensions. However, many authors have suggested modifications in these dimensions for assessing the service quality of libraries. Cook and Thompson (2000) suggested three dimensions to apply for library services, namely tangibles, reliability, and affect of service. Hernon and Nitecki (2001) noted that reliability is the most important dimension and tangibles is the least important. Ahmed and Shoeb (2009) suggested that services of the quality of university library consists of four dimensions i.e. affect of service (organizational), collection and access, library as a place, and affect of service (personal).

There is an increasing interest on measuring the service quality of academic institutions. As libraries are service organizations, measuring the service quality is important to provide value added services. The quality of library services is greatly influenced by the performance and competence of library professionals. Qualified and skilled library professionals are essential to provide quality services. Library professionals can enhance the quality of their services by providing right services to the right user at the right time according to the demands of their users. As university libraries in India are providing various types of e-resources and

e-services, there is a growing need to assess the quality of e-services of university libraries in India. This study was an attempt to assess the quality of e-services of the university libraries in Kerala. It provides value added information for designing e-services, setting policies and its future developments.

## **2. Review of Related Literature**

There have been many studies on the service quality in industries. This study has reviewed a number of available literatures published in national and international publications. Nitecki and Hernon (2000) used the modified version of SERVQUAL to assess the service quality of Yale University libraries and found that the libraries were meeting the users' expectations. Hernon and Calvert (2005) investigated e-service quality of libraries and developed an instrument for assessing e-services. They emphasized active listening to users provide two-way communication between the library and its users. Einasto (2014) found that technological and marketing approaches for studying e-service quality may be complemented by a social approach, based on communication, user participation and feedback. Waqar, Soroya and Malik (2015) studied the service quality of library front desk staff in medical colleges of Lahore. They found that the improvements in all the five dimensions of the service quality are required as the expectations found to be higher in all the five dimensions as compared to the perceptions. While comparing the expectations between male and female users, the results indicate that male library users want more responsiveness and reliability from the staff. Haneefa, et. al. (2016) measured the quality of Infonet Digital Library Consortium services of the University of Calicut.

They found that the students' perceptions are lower than that of their expectations and the services provided by the University of Calicut are not meeting the quality expectations of the students.

Nejati and Nejati (2008) found that although the University of Tehran Central Library has conducted several programs for improving its services, because of the lack of identifying the most important aspects of service quality in their users' ideas, the efforts for providing user satisfaction has failed to a great extent. Ahmed and Shoeb (2009) examined the service quality of Dhaka University Library. They found that the library services are lagging far behind what is expected by its users. Arshad and Ameen (2010) measured the service quality of University of the Punjab's academic libraries with modified SERVQUAL questionnaire. They found that users' expectations were high as compared to their perceptions, and a discrepancy was found between expectations and perceptions of all 22 SERVQUAL statements. Kiran(2010) assessed the service quality and customer satisfaction in academic libraries perspectives from a Malaysian University. The survey instrument was a questionnaire adopted from a quality impact survey based on SERVQUAL dimensions. The results revealed that the library services received a satisfactory rating. In another study, Hossain and Islam(2012) measured the perceived service quality associated with user satisfaction of Dhaka University Library. The study revealed that 'library hours' was the only item which got the exclusive acceptance and ensured optimum satisfaction of the users, while other items fall short of meeting the users' needs. Rehman and Sabir(2012) assessed the individual differences in library service quality across user type, gender, and academic disciplines. The data were collected through

LIBQUAL survey from 1473 users of 22 university libraries of Pakistan. The study results did not find significant difference on the basis of gender and users types except on effect of service dimension. Jackson(2015) studied about university rankings and how well the universities measure library service quality. The study suggested that some indicators used to rank universities favor libraries with more highly rated physical facilities, while largely ignoring the impact that other services had on library quality.

In another study, Sahu (2007) emphasizes that to achieve total quality in information services, the JNU library should provide a comprehensive information programme that is predicated on the needs and activities of the users. Kumar (2012) attempted to evaluate the service quality and the extent of user satisfaction of the university libraries in Kerala from the perspective of respondents from different user groups. The study found that the quality of services rendered by the university libraries was moderately good. Haneefa, et. al. (2014) measured the service quality of Calicut University library in Kerala. A modified version of SERVQUAL scale was used as an instrument for measuring the service quality. The gap score between the expectations and perceptions was negative; it indicates that the users perceptions was lower than their expectations. Mohindra and Kumar (2015) assessed the library service quality associated with user satisfaction of AC Joshi Library, Punjab University, Chandigarh. It was found that library environment and library services significantly predict the user satisfaction. The level of quality of different attributes, i.e., library environment, collection, staff, and services were significantly different across academic discipline of respondents.

Pitt, et. al. (1995) evaluate commonly used measures of information system effectiveness focus on the

products, rather than the services of the information systems function. The suitability of SERVQUAL was assessed in three different types of organizations in three countries. The study concludes that SERVQUAL is an appropriate instrument for researchers seeking a measure of service quality. Cook and Thompson (2000) conducted a study on higher-order factor analytic perspectives on users' perceptions of library service quality. The study explored SERVQUAL score validity in the library service context using data from 596 users representing three user groups and measurement at three times over six years. Second-order factor analysis provided mixed results as regards the psychometric integrity of SERVQUAL scores applied within the library service context. Awan and Mahmood (2011) conducted a study to develop a model for the measurement of library service quality and provide a framework for researchers to develop further library service quality scale. Ahmad and Abawajy (2013) also proposed a new model suitable for evaluating the performance of digital library services. Asogwa, et. al.(2014) assessed the quality of services to users in academic libraries in developing countries using SERVQUAL model. The study revealed that in developing countries all the service indicators evaluated were negatively marked. There was significant difference between the perceptions and expectations of library users and the academic libraries were not satisfying users' expectations.

### **3. Research Design**

Quantitative research method was adopted for this study. The study was confined to the university libraries of three prominent state universities located in the north, middle and south of Kerala. The

investigators selected the University of Kerala, Mahatma Gandhi University Kottayam, and the University of Calicut for the study. SERVQUAL questionnaires were used to collect data. SERVQUAL is a survey instrument to measure the gap between customers' expectations for excellence and their perceptions of actual service delivered. The questionnaire with 22 items was developed by Zeithaml, et. al. to measure the gap. The instrument offers service organizations a framework that explores customer expectations in service delivery and how well organizations meet those expectations (1990).

However, as the similar studies of Nitecki (1996), Long and McMellon(2004), Nagata et. al. (2004) and Sahu (2007), this study also adopted a modified version of the SERVQUAL questionnaire for data collection. The questionnaire was pre-tested before its distribution. One Hundred and Fifty questionnaires were distributed among the users of each university library and a total of 450 questionnaires were distributed among the users of all the selected university libraries. A total of 381 users were responded positively and returned back the questionnaires. Among the returned questionnaires, 18 questionnaires were rejected due to incomplete and incorrect information and finally 363 questionnaires were selected for the study with a response rate of 80.6 per cent. Simple statistical techniques like average/mean score, standard deviation and one way ANOVA were used to analyze the data and derive necessary conclusions.

### **4. Results And Discussions**

#### **4.1 Users' Expectations about E-Services**

Library users have expectations and these can be used to evaluate the performance of a library. Users'

involvement in the design and development of information systems and services will enhance the use of libraries. Information and Communication Technology has increased the capacity of libraries not only to meet their users' information needs but also to exceed their expectations about their libraries. According to Thapisa & Gamini, (1999) service quality is an ongoing process where the user is paramount for decision making. Quality of library should be measured from the user point of view, because users are the core component of a library. The users should be permanently consulted and their satisfaction should be a permanent ground of concern so as to yield a competition based system. Libraries should establish a consistent channel for interaction with their users. The users were asked to indicate their expectations about the e-services of their university library and the responses are presented in the table 1.

Physical facilities have a profound impact on the effective use of libraries. Without adequate physical facilities, it is difficult to provide value added resources and services. University libraries in Kerala lack 21<sup>st</sup> century facilities in the form of infrastructure. The university libraries should have good layout, sufficient browsing/computer cabins and full-fledged Internet connection, good lighting and ventilation, air-conditioning, neat and clean atmosphere to work, etc. The analysis shows that about half of the users agree that they have high expectations about the visual appearance of their library. They indicated that the library should have proper furniture and browsing/computer cabins and should be properly air-conditioned. A good number of the users said that they need proper ventilation and lighting in the library. Users' expectations about the statement there should have proper furniture

and browsing/computer cabins in the library have a mean value of 4.19 with Standard Deviation 0.836, and the statement the library should be properly air-conditioned have a mean value of 3.78 with Standard Deviation 1.011.

Good domain knowledge and skills are very essential for library professionals. Library professionals should have the knowledge to manage e-resources for providing e-services using computers and other electronic equipments. It is found that about half of the users agree that library professionals or staff should have the competency and skills to serve their users, should perform all requests as promised and should give individual attention to their users. A good number of users agree with the statement that the staff should be approachable. Users expectations about the statement library professionals/staff should be approachable have a mean value of 4.20 with Standard Deviation 0.807 and the statement library professionals/staff should give individual attention to their users have a mean value of 3.87 with Standard Deviation 0.908.

**Table 1: Users' Expectations about E-Services**

Sl. No.	Statements	Strongly Disagree	Disagree	Neither AgreeNor Disagree	Agree	Strongly Agree	Mean	SD
1	The library should be visually appealing.	7(1.9%)	25(6.9%)	46(12.7%)	181(49.9%)	104(28.7%)	3.96	.929
2	There should have proper ventilation and lighting in the library.	4(1.1%)	22(6.1%)	8(2.2%)	217(59.8%)	112(30.9%)	4.13	.810
3	There should have proper furniture and browsing/ computer cabins in the library.	4(1.1%)	20(5.5%)	15(4.9%)	189(52.1%)	135(37.2%)	4.19	.836
4	The library should be properly air-conditioned.	8(2.2%)	11(3.0%)	28(7.7%)	188(51.8%)	128(35.3%)	3.78	1.011
5	Library professionals/staff should have the competency and skills to serve their users.	8(2.2%)	11(3.0%)	28(7.7%)	188(51.8%)	128(35.3%)	4.15	.854
6	Library professionals/staff should perform all requests as promised.	2(0.6%)	22(6.1%)	37(10.2%)	169(46.6%)	133(36.6%)	4.13	.864
7	Library professionals/staff should be approachable.	3(0.8%)	14(3.9%)	29(8.0%)	179(49.3%)	138(38.0%)	4.20	.807
8	Library professionals/staff should give individual attention to their users.	4(1.1%)	33(9.1%)	52(14.3%)	190(52.3%)	84(23.1%)	3.87	.908
9	The library should provide value added e-services.	19(5.2%)	23(6.3%)	32(8.8%)	194(53.4%)	95(26.2%)	3.89	1.032
10	The library should give orientation/ training to users.	19(5.2%)	38(10.5%)	48(13.2%)	163(44.9%)	95(26.2%)	3.76	1.110
11	The library should perform the services to the right user at the right time.	13(3.6%)	36(9.9%)	20(5.5%)	215(59.2%)	79(21.8%)	3.86	.987
12	The library should provide information about latest arrivals and e-services.	16(4.4%)	35(9.6%)	24(6.6%)	154(42.4%)	134(36.9%)	3.98	1.105

Sl.	Statements	Strongly Disagree	Disagree	Neither AgreeNor Disagree	Agree	Strongly Agree	Mean	SD
13	The library should have convenient operating hours	13(3.6%)	9(2.5%)	26(7.2%)	203(55.9%)	112(30.9%)	4.08	.893
14	The library should provide adequate e-resources like e-journals, e-books and databases in all subjects.	9(2.5%)	41(11.3%)	27(7.4%)	134(36.9%)	152(41.9%)	4.04	1.081
15	The library should provide digital archive facility.	4(1.1%)	12(3.3%)	33(9.1%)	209(57.6%)	105(28.9%)	4.10	0.777
16	The library should provide user-friendly interface (portal) which are convenient to users.	8(2.2%)	19(5.2%)	36(9.9%)	215(59.2%)	85(23.4%)	3.96	0.861
17	The library should subscribe full-text e-resources and participate in library consortia.	10(2.8%)	29(8.0%)	35(9.6%)	171(47.1%)	118(32.5%)	3.99	0.996
18	The library should have adequate number of computers.	7(1.9%)	40(11.0%)	16(4.4%)	161(44.4%)	139(38.3%)	4.06	1.020
19	The library should have high speed Internet connection.	6(1.7%)	31(8.5%)	14(3.9%)	146(40.2%)	166(45.7%)	4.20	.974
20	The library should have error free computer network.	5(1.4%)	25(6.9%)	14(3.9%)	190(52.3%)	129(35.5%)	4.14	.881
21	The library should have CD/DVD writing and printing facility.	12(3.3%)	39(10.7%)	25(6.9%)	164(45.2%)	123(33.9%)	3.96	1.066
22	The library should provide access to e-resources and e-services throughout the university campus.	11(3.0%)	24(6.6%)	17(4.7%)	188(51.8%)	123(33.9%)	4.07	.960

Information and Communication Technology has changed the expectations of library users. Libraries are expected to add value to their resources and

services. The university libraries should provide orientation/training to their users about how to use e-resources and e-services offered by the library.

The operating hours of the libraries should be convenient to the user community. It is found that a good number of users agree with the statements that, the library should give orientation to users and should provide information about latest arrivals and e-services. Majority of the users agreed that they are expecting that the library should have convenient operating hours. Users' expectations about the statement the library should have convenient operating hours have a mean value of 4.08 with Standard Deviation 0.893 and the statement the library should give orientation/ training to users have a mean value of 3.76 with Standard Deviation 1.110.

Libraries are becoming less important for the documents they collect and more important for the documents they can obtain in response to their users' requests. The libraries should provide full-text e-resources and user friendly interfaces to access e-journals, e-books and databases in all subjects offered by the university. It is found that a good number of the users strongly agree with the statement that the library should provide adequate e-resources. Majority of the users agree with the statement the library should provide digital archive facility. A good number of the users agree with the statement that the library should provide user friendly interfaces which are convenient to users. Users' expectations about the statement library should provide digital archive facility have a mean value of 4.10 with Standard Deviation 0.777 and the statement the library should provide user-friendly interface (portal) which are convenient to users have a mean value of 3.96 with Standard Deviation 0.861.

Information and Communication Technology has enabled libraries to access a variety of resources and to provide a variety of services to their users. However, the university libraries lack state-of-the-

art ICT infrastructure for their operations and services. Library should have all the ICT facilities including adequate numbers of computers and high speed Internet connection. It is found that a good number of the users agree with the statement the library should have adequate number of computers with high speed Internet connection. About half of the users agree with the statements the library should have CD/DVD writing and printing facility and should provide access to the e-resources and e-services throughout the university campus. Users expectations about the statement the library should have high speed Internet connection have a mean value of 4.20 with Standard Deviation 0.974 and the statement the library should have CD/DVD writing and printing facility have a mean value of 3.96 with Standard Deviation 1.066.

#### **4.2 Users' Perceptions of E-Services**

Library users' perception is the most neglected component while taking managerial decisions in libraries. Libraries should be able to understand the information requirements and expectations of their users. Libraries use Information and Communication Technology for converting existing services into e-services. However, library professionals should understand users' perceptions from specific services. It will help them to make improvement in the design and development of information systems and services. The table 2 indicates the users' perceptions of e-services in university libraries in Kerala.



**Table 2: Users' Perceptions of E-Services**

Sl. No.	Statements	Strongly Disagree	Disagree	Neither AgreeNor Disagree	Agree	Strongly Agree	Mean	SD
1	The library is visually appealing.	20(5.5%)	65(17.9%)	79(21.8%)	160(44.1%)	39(10.7%)	3.37	1.067
2	The library has proper ventilation and lighting.	9(2.5%)	34(9.4%)	45(12.4%)	206(56.7%)	69(19.0%)	3.80	.936
3	The library has proper furniture and browsing/ computer cabins.	26(7.2%)	82(22.6%)	31(8.5%)	139(38.3%)	85(23.4%)	3.48	1.266
4	The library is properly air conditioned.	27(7.4%)	109(30.0%)	57(15.7%)	107(29.5%)	63(17.4%)	3.19	1.247
5	Library professionals/ staff have the competency and skills to serve their users.	13(3.6%)	69(19.0%)	50(13.8%)	188(51.8%)	43(11.8%)	3.49	1.042
6	Library professionals/ staff perform all requests as promised.	22(6.1%)	80(22.0%)	51(14.0%)	189(52.1%)	21(5.8%)	3.29	1.064
7	Library professionals/staff are approachable.	15(4.1%)	66(18.2%)	41(11.3%)	202(55.6%)	39(10.7%)	3.51	1.039
8	The library professionals/ staff give individual attention to users.	15(4.1%)	116(32.0%)	38(10.5%)	171(47.1%)	23(6.3%)	3.20	1.084
9	The library provides value added e-services.	12(3.3%)	81(22.3%)	53(14.6%)	180(49.6%)	37(10.2%)	3.41	1.046
10	The library gives orientation/ training to users.	31(8.5%)	118(32.5%)	76(20.9%)	113(31.1%)	25(6.9%)	2.95	1.120
11	The library performs the services to the right user at the right time.	6(1.7%)	108(29.8%)	45(12.4%)	178(49.0%)	26(7.2%)	3.30	1.025
12	The library provides information about latest arrivals and e-services.	21(5.8%)	73(20.1%)	30(8.3%)	198(54.5%)	41(11.3%)	3.45	1.107
13	The library has convenient operating hours.	9(2.5%)	63(17.4%)	39(10.7%)	202(55.6%)	50(13.8%)	3.61	1.006

Sl. No.	Statements	Strongly Disagree	Disagree	Neither AgreeNor Disagree	Agree	Strongly Agree	Mean	SD
14	The library provides adequate e-resources like e-journals, e-books and databases in all subjects.	23(6.3%)	54(14.9%)	67(18.5%)	149(41.0%)	70(19.3%)	3.52	1.147
15	The library provides digital archive facility.	22(6.1%)	60(16.5%)	73(20.1%)	145(39.9%)	63(17.4%)	3.46	1.137
16	The library provides user-friendly interface (portal) which are convenient to users.	11(3.0%)	59(16.3%)	31(8.5%)	207(57.0%)	55(15.2%)	3.65	1.020
17	The library subscribes full-text e-resources and participates in library consortia.	27(7.4%)	79(21.8%)	66(18.2%)	128(35.3%)	63(17.4%)	3.33	1.206
18	The library has adequate number of computers.	22(6.1%)	90(24.8%)	46(12.7%)	159(43.8%)	46(12.7%)	3.32	1.155
19	The library has high speed Internet connection.	18(5.0%)	84(23.1%)	35(9.6%)	170(46.8%)	56(15.4%)	3.45	1.149
20	The library has error free computer network.	12(3.3%)	96(26.4%)	82(22.6%)	126(34.7%)	47(12.9%)	3.28	1.090
21	The library has CD/DVD writing and printing facility.	7(1.9%)	116(32.0%)	48(13.2%)	146(40.2%)	46(12.7%)	3.30	1.105
22	The library provides access to e-resources and e-services throughout the university campus.	5(1.4%)	92(25.3%)	62(17.1%)	165(45.5%)	39(10.7%)	3.39	1.022

Physical facilities are considered one of the important quality dimensions of libraries. Physical facility means easily accessible location, good layout, lighting and ventilation, space for work, etc. It is found that a good number of the users agree with the statement library is visually appealing with proper furniture, browsing cabin and air-conditioned. Majority of the users agree that their library has proper ventilation and lighting. Users'

perceptions of the statement the library has proper ventilation and lighting have a mean value of 3.80 with Standard Deviation 0.936 and the statement the library is properly air conditioned have a mean value of 3.19 with Standard Deviation 1.247.

Library professionals should be able to meet the information requirement of their users by providing an array of resources and services. They should be able to design, develop and implement state-of-the-

art ICT based systems and services. Competent library professionals are important for the effective and efficient functioning of a library. It is found that about half of the users agree that the library professionals or staff have the competency and skills to serve their users, fulfills all requests as promised and give individual attention to users. Majority of the users agree with the statement that the staffs are approachable. Users' perceptions of the statement library professionals/staff are approachable have a mean value of 3.51 with Standard Deviation 1.039 and the statement the library professionals/staff give individual attention to users have a mean value of 3.20 with Standard Deviation 1.084.

Modern libraries provide different types of e-services. It is duty of libraries to provide value added e-services according to the information requirements of their users. About half of the users agree that their library provides services to the right user at right time.. About half of the users agree that the working hours of their library is convenient for them. Users' perceptions for statement the library has convenient operating hours have a mean value of 3.61 with the Standard Deviation 1.006 and the statement library gives orientation/training to users have a mean value of 2.95 with Standard Deviation 1.120.

University libraries in India provide different types of e-resources to their users. It is found that a good number of the users agree with the statements that the library subscribe full-text e-resources and provides access to e-resources such as e-journals, e-books and databases in subjects they offer.. Majority of the users agree with the statement library provides user-friendly interface (portal) which are

convenient to users. Perception of the users about the statement library provides user-friendly interface (portal) which is convenient to users have a mean value of 3.65 with Standard Deviation 1.020 and the statement library subscribes full-text e-resources have a mean value of 3.33 with the Standard Deviation 1.206.

Information Technology encompasses an array of hardware and software including devices like computers, computer networks, Internet connection, printing, etc. It is found that a good number of the users agree that their library has adequate number of computers with high speed Internet connection and error free computer network. A good number of users agree that the library has CD/DVD writing and printing facility and provides access to e-resources throughout the university campus. Users' perceptions of the statement library has high speed Internet connection have a mean value of 3.45 with Standard Deviation 1.149 and the statement the library has error free network services have a mean value of 3.28 with Standard Deviation 1.090.

#### 4.3 Quality of E-Services

The service quality is derived by finding the difference between users' perceptions and their expectations. The idea is that the service quality is good if perceptions meet or exceeds expectations and problematic if perceptions fall below expectations. It can be determined by the formula  $Q=P-E$ . Where Q is the perceived quality and P and E are the corresponding ratings of perceptions and expectations. The table 3 shows the item wise analysis of the quality of the e-services of the university libraries in Kerala.

The SERVQUAL instrument identifies service quality from the user perspective. It can be used to understand the users' expectations and perceptions of specific services. The perceived quality is calculated by finding the difference between the perceptions and expectations of the users. The item wise analysis of e-services of offered by libraries shows low perceived quality as compared to their expectations. The analysis shows negative point of service quality gap in all the 22 stated components.

It is found that the users' perception about physical facilities is low compared to their expectation. The users' expectation about library professionals/staff is high as compared to their perception. Users' perception about the e-service is low compared to their expectation. The e-resources show a low perception and high expectation. The users' expectation about Information Technology is high compared to their perception. It can be inferred that the e-services of university libraries in Kerala are not meeting the users' expectations.

**Table 3: Quality of E-Services**

Sl. No.	Items	Perceptions (P)	Expectations (E)	Quality (Q=P-E)
1	Library should be visually appealing.	3.37	3.96	-0.59
2	Library should have proper ventilation and lighting.	3.80	4.13	-0.33
3	Library should have proper furniture and browsing cabins.	3.48	4.19	-0.71
4	Library should be properly air-conditioned.	3.19	3.78	-0.59
5	The staff should have the competency and skills to serve their users.	3.49	4.15	-0.66
6	The staff should perform all requests as promised.	3.29	4.13	-0.84
7	The staff should be approachable.	3.51	4.20	-0.69
8	The staff should give individual attention to users.	3.20	3.87	-0.67
9	The staff should give orientation/ training to users.	2.95	3.76	-0.81
10	The staff should perform the services to the right user at the right time.	3.30	3.86	-0.56
11	Library should provide information about latest arrivals and e-services.	3.45	3.98	-0.53
12	Library should have convenient operating hours.	3.61	4.08	-0.47
13	Library should provide value added e-services.	3.41	3.89	-0.48
14	Library should provide adequate e-resources like e-journals, e-books and databases in all subjects.	3.52	4.04	-0.52
15	Library should provide digital archive facility.	3.46	4.10	-0.64

Sl. No.	Items	Perceptions (P)	Expectations (E)	Quality (Q=P-E)
16	Library should provide user-friendly interface (portal) which are convenient to users.	3.65	3.96	-0.31
17	Library should subscribe full-text e-resources.	3.33	3.99	-0.66
18	Library should have adequate number of computers.	3.32	4.06	-0.74
19	Library should have high speed Internet connection.	3.45	4.20	-0.75
20	Library should have error free computer network.	3.28	4.14	-0.86
21	Library should have CD/DVD writing and printing facility.	3.30	3.96	-0.66
22	Library should provide access to e-resources and e-services throughout the university campus.	3.39	4.07	-0.68

## 5. Conclusion

The study gathered useful data about the quality of e-services of university libraries in Kerala. As a service institution, it is slight difficult to measure the quality of library services. However, there are different methods and tools to evaluate the quality of services. This study was confined to three prominent state universities in Kerala. SERVQUAL instrument was used to assess the expectations and perceptions of the users. The instrument identifies service quality from the user perspective. It is not an instrument for measuring satisfaction, it is used to measure the gap between ideal expectations and actual service performance. It is found that the perceived quality of e-services of the university libraries in Kerala is low and the analysis got negative gap scores. As such e-services in the libraries are not up to the expectations of their users. The university libraries should improve their physical facilities, staff, e-resources, e-services and Information Technology to improve the quality of their services.

The quality of library services is greatly influenced by the performance, skills and expertise of library professionals. The proper management of resources including e-resources and ICT infrastructure are very essential to provide value added services. Full fledged Internet connection and access to the resources are vital to provide quality services. The library professionals should examine the quality of their services according to the views and expectations of their users. According to Nitecki and Hennon (2000) libraries should understand the importance of service quality and demonstrate the continuous procedure to assess the expectations and perceptions of their users(. Users are paramount in the judgment of quality; as such libraries should develop a systematic communication channel between the library professionals and their users. Assessment of service quality is a continuous process and it should be repeated at a regular intervals. Keeping in view the difference of the expectations and perceptions, the libraries will be in a better position to improve their services.

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