
An Assessment of Students' Satisfaction with the Quality of Library Electronic Information Services during COVID-19 Pandemic at Selected Universities, Kenya

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ABSTRACT: *The study assessed students' satisfaction with the quality of library electronic information services during covid 19 pandemic at selected universities in Kenya. The study utilized a quantitative research design. A self-administered questionnaire with a five-point Likert-type scale was used to collect data from 360 undergraduate students from two selected universities in Kenya with a study population of 12000 undergraduate students. Data analyses were done using descriptive statistics, simple linear regression and partial correlation. The hypotheses were tested at 0.05 confidence level. The study findings demonstrate a significant positive relationship between SERVQUAL guided library electronic service delivery and student satisfaction, which means that an increase in electronic service quality will lead to an increase in customer satisfaction. The live chat service received a negative score but overall, electronic library services received a positive score which is an indication that library users appreciate the value of the electronic library services for their academic activities. The study identified smartphone as the most popular device used to access electronic information services with 92% of the respondents using the device, the findings demonstrate the active role that smartphones are playing in formal learning and the various benefits students gain from smartphones. The study recommends design of mobile friendly library websites, transcription of the chat service to identify the frequently asked queries then create Frequently Asked Questions (FAQ) feature on the library website to help respond to the information needs of the users more quickly and incase the FAQ page already exist explore ways in which the FAQ page could be automatically linked to users following each chat request. The study also recommends integration of information literacy training with the regular curriculum. The findings of this study may be used by educational institutions to enhance the role of libraries in distance and online education.*

KEY TERMS: Electronic Information Services, COVID 19 pandemic, customer satisfaction

INTRODUCTION

The year 2019 will remain a remarkable one in human history with the outbreak of corona virus (COVID-19) in china and eventual spread to the rest of the world thus becoming a pandemic

(Jena, 2020). The pandemic has impacted virtually every aspect of our daily life (Nicola, et al. 2020). In bid to mitigate the spread of COVID-19, governments' worldwide banned public gatherings, closed learning institutions and places of worship, while others implemented partial or full lockdowns (Morens, et al. 2020). Consequently academic libraries were completely or partially closed.

In Kenya, the first case of COVID- 19 was registered on 12 March 2020 (Kenya Ministry of Health, 2020). Immediately thereafter, in bid to mitigate the spread of the disease, the Government banned all public gatherings and directed all learning institutions to be closed. Owing to the uncertainty on how long the pandemic would last, many universities reinvented themselves by shifting to e-learning platforms for teaching, examination and research (Mbae, 2020).

In support of e-learning, academic libraries were forced to provide virtual services such as provision of information resources in the form of e-books and e-journals and provision of chat reference services (Jana & Rout, 2021). Offering virtual services was nothing new for many academic libraries since for more than three decades most of them have been building digital content in form of institutional repositories, creating awareness of electronic resources, providing information literacy skills and training librarians in the wake of Distance Learning and increased cloud-based systems (Owusu-Ansah et al. 2019).

Pambayun (2021) notes that due to the changing information environment and rise of new users who do not view libraries as centers for information but rely fully on the internet to obtain information, libraries had put in much effort in building digital libraries that could provide efficient and quality information to this new crop of users. According to Odili (2020) publishers have not been left behind, they have been building online information databases containing millions of e-Journals and e- Books which many academic libraries have subscribed to.

Faced with the pandemic scenario of COVID-19, the investment in digital content has taken the shape of a successful project, with many users turning to e-libraries for their information needs (Parikh and Vyas, 2020). Availability of the digital resources and services is not enough, in today's competitive world, libraries need to evaluate the service quality of the e-library to ensure that they are meeting the user's information needs and expectations (Jameel et al., 2021). Trivedi, (2021) notes that there has been systematic failure by libraries to leave out electronic resources and services in the overall evaluation of library service quality. Failure to evaluate the electronic information services means that libraries lack a true picture of the impact of electronic services to the library users and the quality of these services.

Measurement of Service Quality

Electronic libraries are relatively new developments in the constantly changing information landscape. Customer satisfaction can only be achieved through quality of services which leads to success of any library. Hence, service quality becomes crucial in determining the library user expectations and satisfaction with online library service delivery (Maria Helena, et. al, 2011). The e-library could register a high traffic of users, but erode its long-term value due to decline in service

quality (Yanchun Mao & Jin Wang, 2009). The aim of offering online library services is to satisfy the information needs of library users. Hence, evaluation of e-library service quality is key in ensuring that the library remains relevant to its customers. A service quality evaluation does not only contribute to proper development of e-libraries but also their acceptance by the library users. In addition, e-library service quality evaluation can be a source of ideas for improvements (Nicholson, 2005).

The service industry has relied heavily on adoptions and adaptation of SERVQUAL Model developed by Parasuraman, Zeithaml, & Berry, (1985) to measure service quality. Quality in the context of this model relates to the fitness of a service or product to its intended purpose or use, depending on the customer expectations. Service quality must be viewed from the customer's point of view. The model highlights five dimensions with which customers judge services:

- Reliability: the ability to perform the promised service consistently well.
- Responsiveness: the readiness to respond to customer queries within a reasonable time frame and to provide prompt service.
- Assurance: the ability of employees to inspire trust and confidence through demonstration of technical knowledge and effective communication
- Empathy: responding to customers attentively and provision of individualized services.
- Tangibles: represent the physical facilities, staff appearance, tools and equipment and communication materials.

The SERVQUAL Model has been widely adapted to measure service quality (Nicholson, 2005; Ahmed & Shoeb, 2009 and Farooq et al., 2019). However libraries have also adapted various other approaches to evaluating their services. The ISO 9001 is one of the possible ways of managing quality in libraries. The ISO standards attempt to push libraries to perform to the well-outlined principles of total quality management. In Spain, academic libraries have adapted ISO 9001 and are mandated to conduct at least one formal service quality evaluation every year, which also details the plan to enhance the quality of library services. In Finland, higher education institutions have the mandate by law to ensure quality management in their campuses. Although ISO 9001 is not popular, some institutions have opted to use it to aid in providing quality services (Balagué, & Saarti, 2017).

For centuries, library usage statistics have been widely used as the acceptable management tool to establish service quality especially in developing world. Librarians have always used this measure to showcase their contributions to the institutional mission. This method involved analyzing the size of library collection, number of users, circulation statistics, total number of successful downloads of subscribed e-books and e-journals, size of library budget and staff numbers and their qualifications (Asogwa et al., 2014). These measures have been in use in academic libraries as far back as the beginning of the 20th century. The measures provided data that help librarians to benchmark with other institutions and demonstrate their contribution to the parent institution.

In Kenya, assessing the quality of services is based on the national standards set by the Commission for University Education (CUE) with which academic libraries should comply. The CUE standards make use of library usage statistics such as circulation statistics, daily library visitors, and number successful downloads for online resources (Gathoni & Van der Walt, 2019). In the contemporary world, new ways to measure library service quality have emerged and changed the emphasis of libraries from library quality to service quality.

A Review of Kenyatta University and Its Library Setup

Chartered in 1985, Kenyatta University is a public university with its main campus in Kiambu County, Kenya. The university has diverse programmes at Certificate & Diploma, Undergraduate, Masters and Ph.D with a student population of 57,000 (Commission for University Education, 2019). The university library (Post-Modern Library) is a five (5) storey building equipped with cutting edge information and knowledge resources for quality services. It has a seating capacity of over 6,000. The e-library boasts of over forty (40) databases providing a wide range of full text e-books and e-journals. The e-library is equipped with five (5) computer labs with each lab containing fifty (50) computers. The institutional repository which is part of the e-library contains thousands of digital resources including thesis and dissertations, past papers, workshop proceedings, magazines, graduation booklets among others (Kenyatta University, 2022). The e-library offers a wide range of services which includes: Off-campus access to subscribed databases, reference services, orientation and information literacy training, current awareness services, online book reservation system, self-registration, internet access among others. The Library has 10,000 students registered for off-campus access facility which enables them access the subscribed databases remotely (Kenyatta University 2022).

A Review of Gretsas University and its Library Setup

Gretsas University is a private university located in Thika town, Kiambu County, Kenya. It was established in 2006 and is accredited by the commission for university education. The Vision of the university is to provide quality and relevant education to individual and society. Its mission is to promote high standards of teaching, learning and research services. The university offers bachelor degree, diploma and certificate courses in Education, Business, Computer Science, Hospitality and Community Development among others. It has alumni of over 7,000, with the current student population of 2000 (Gretsas University, 2021). The University Library came into existence with the establishment of Gretsas University in the year 2006. The library has a physical collection of 11,000 volumes of books as well as an e-library collection made up of 24 databases hosting millions of e-journals and e-books. The e-library offers a wide range of services which includes: Off-campus access to subscribed databases, reference services, orientation and information literacy training, current awareness services, online book reservation system, self-registration, internet access among others (Gretsas University, 2021).

Objectives

The study was guided by the following Objectives:

1. To determine user's perception of electronic information service quality using the SERVQUAL Model

2. To assess the influence of the library electronic information service quality on student satisfaction at the selected universities during COVID-19 pandemic
3. To establish the moderating effect of individual student factors on the relationship between library electronic information service quality and students' satisfaction during COVID-19 Pandemic.

Research Questions

1. What is the perception of students towards the quality of electronic information services?
2. To what extent does the library electronic information service quality affect student satisfaction at selected universities?
3. Do individual student factors moderate the relationship between library electronic information services and students' satisfaction?

Hypotheses

Ho1: There is no significant difference in the perception of users on the SERVQUAL service quality dimensions

Ho2: There is no relationship between the library electronic information service quality and student satisfaction at the selected universities

Ho3: Individual student factors do not moderate the relationship between the library electronic information service quality and student satisfaction at the selected universities

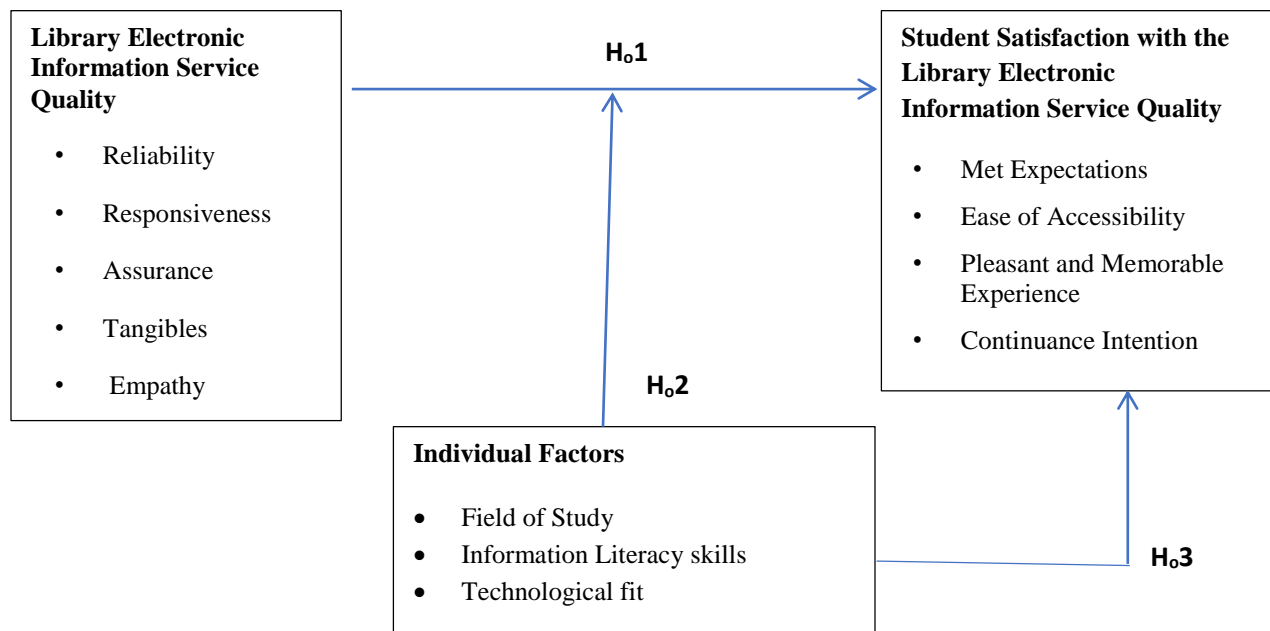


Fig 1: Conceptual Framework of Electronic Information Service Quality and Student Satisfaction at Selected University Library

METHODOLOGY

The study utilized the descriptive study design which is deemed appropriate when collecting information on people's opinions, expectations, contributions and perceptions (Lambert & Lambert 2012). The target population is 12000 students who have registered for off-campus access, a facility that enables library users to remotely access the subscribed databases. A self-administered questionnaire with a five-point Likert-type scale was used to collect data from a sample size of 315 students. The sample size was calculated using the Fisher's formula; $N = Z^2 p / d^2$ (Fisher et al., 1998) where,

N= Desired sample size (where population is more than 10,000)

Z= Standard normal deviate set at 95% confidence level

p= proportion in the target population that have characteristics being measured estimated at 70%

d= level of accuracy set at 0.05

Data analysis was done using descriptive statistics, simple linear regression and partial correlation. The hypotheses will be tested at 0.05 confidence level.

Hypotheses Tests and Statistical Models

Hypothesis statement	Hypothesis Test	Simple Linear Regression Model
H₀1: There is no significant difference in the perception of users on the SERVQUAL service quality dimensions	$H_0: r_{xy.z} = 0$ $H_A: r_{xy.z} \neq 0$ Reject H_0 if p-value $\leq \alpha$, otherwise fail to reject H_0 if p-value is $> \alpha$	$r_{xy.z} = \frac{r_{xy} - (r_{xz})(r_{yz})}{\sqrt{1 - r_{xz}^2} \sqrt{1 - r_{yz}^2}}$ Where $r_{xy.z}$ = Partial correlation coefficient of variable x and y controlling for variable z Y= Aggregate mean score of student satisfaction with the library service quality X = Aggregate mean score of the library service quality Z= Individual student factors

H02: There is no relationship between the library electronic information service quality and student satisfaction at selected University

$$H_0: \beta_1 = 0$$

$$H_A: \beta_1 \neq 0$$

-Conduct a t test to determine individual significance of the relationship

-Reject H_0 if p-value ≤ 0.05 , otherwise fail to reject H_0 if p-value is >0.05

$$Y = \beta_0 + \beta_1 X + \varepsilon$$

where

Y= Aggregate mean score of student satisfaction with the library service quality

X = Aggregate mean score of the library service quality

β_0 = y-intercept/constant

β_1 = Regression coefficient (beta)

ε = error term-random variation due to other unmeasured factors

H03: Individual student factors do not moderate the relationship between the library electronic information service quality and student satisfaction at selected University

$$H_0: r_{xy.z} = 0$$

$$H_A: r_{xy.z} \neq 0$$

Reject H_0 if p-value $\leq \alpha$, otherwise fail to reject H_0 if p-value is $>\alpha$

$$r_{xy.z} = \frac{r_{xy} - (r_{xz})(r_{yz})}{\sqrt{1 - r_{xz}^2} \sqrt{1 - r_{yz}^2}}$$

$$\frac{r_{xy} - (r_{xz})(r_{yz})}{\sqrt{1 - r_{xz}^2} \sqrt{1 - r_{yz}^2}}$$

Where

$r_{xy.z}$ = Partial correlation coefficient of variable x and y controlling for variable z

Y= Aggregate mean score of student satisfaction with the library service quality

X = Aggregate mean score of the library service quality

Z= Individual student factors

RESULTS AND DISCUSSIONS

Descriptive Findings of the Study

The key areas of interest in this study were electronic library service quality, student satisfaction and the moderating effect of individual student factors on student satisfaction with the electronic library service quality during COVID-19. The following section highlights the study findings on these areas.

Response rate

The target population was 12000 students who had registered for off-campus access, a facility that enables library users to remotely access the subscribed databases. Out of the 360 questionnaires administered, 315 questionnaires were properly filled and returned translating to 88% response rate.

Gender Distribution of the Respondents

Table 1: Gender Distribution of the Respondents

	Frequency	Percent	Valid Percent
Male	182	57.8	57.8
Female	133	42.2	42.2
Total	315	100.0	100.0

Source: Research Data (2022)

From the findings as illustrate in Table 1, the male respondents were slightly higher at 58% compared to female respondents at 42%. The finding is fairly proportional to the statistics report by Commission for University Education (2019) on enrolment by gender in universities in Kenya which show that 59% of students enrolled in universities are male while 41% are female.

Year of Study

The distribution of respondents according to the year of study is illustrated in Figure 1.



Fig 2: Year of Study

Source: Research Data (2022)

The findings of the study indicate that majority of the respondents are in their 4th year of study 129(40%) followed by those in 2nd year 88 (28%), 1st year 62 (20%) while the least are in 3rd year at 40 (13%).

Field of study of the Respondents

On the field of study, distribution of respondents is illustrated in Figure 2.

The findings of the study indicate that majority of the respondents are in the field of education at 33% followed by the field of Business 12% while the list are from the field of creative arts and Hospitality both at 0.3%. Previous studies (Adeniran, 2011 and Gakibayo et al. 2013;) have reported a strong relationship between field of study and use of library with students in science based field of study using library up to 6.2 times more than those in Humanities and Arts. However

Adeniran (2011) noted other factors such as year of study, library orientation and mode of study also affect student's library utilization and satisfaction.

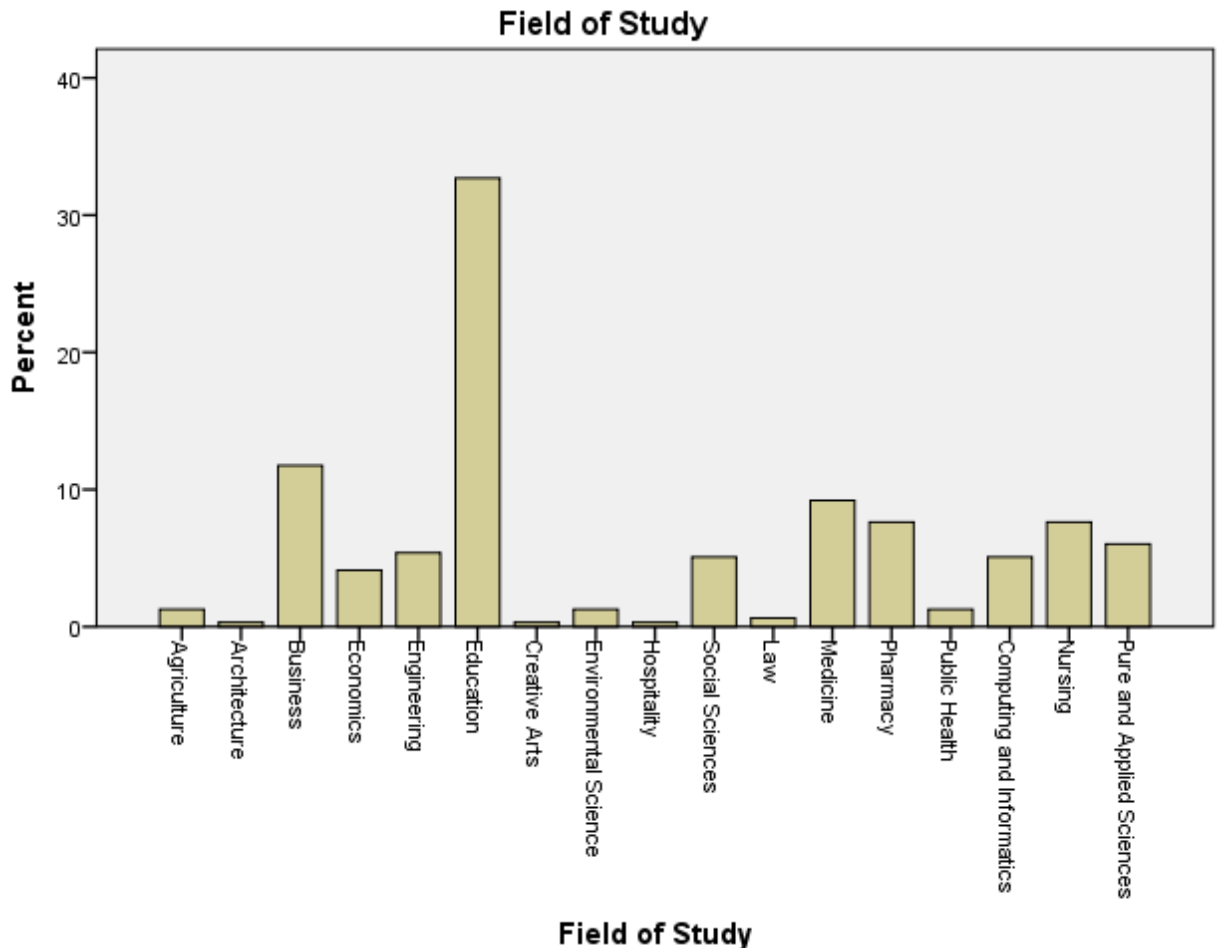


Fig 3: Field of Study Distribution of the Respondents

Source: Research Data (2022)

Information Literacy Training

Table 2: Status of Information Literacy Training

	Frequency	Percent
Valid Yes	217	68.9
Valid No	98	31.1
Total	315	100.0

Source: Research Data (2022)

A question was posed to the respondents whether they had been trained on information literacy skills. A total of 217 (69%) had undergone the training while 98 (31%) had not. Students need

information literacy skills to be able to access, retrieve and evaluate information in their area of specialization. The high number of students 98 (31%) who had not received information literacy training can be attributed to lack of integration of information literacy training with the regular academic programs. In a study done by Mungwabi, (2019) on the effectiveness of library information literacy instructions given to undergraduate students at the University of Dar es Salaam, lack of information literacy skills was identified as one of the barriers towards effective utilization of electronic resources.

Devices used to access the Electronic Library Services

The study sought to establish the devices used to access the electronic library services. Majority of the respondents 289 (92%) use smartphones followed by 62 (20%) Laptop while Desktop is used by 8(3%) and Smart TV 3(1%). The percentage does not add up to 100% because some of the respondents use more than one device. The findings demonstrate the active role that smartphones are playing in formal learning and the various benefits students gain from smartphones.

Service Quality

The respondents were asked to rate the service quality of electronic library services at their library on a Likert scale of 1-5 where 5-Very satisfactory, 4- Satisfactory, 3-Moderately satisfactory, 2-Unsatisfactory and 1- Very unsatisfactory. Table 3 show the rating of service quality among the respondents.

When evaluating service quality, five measures are used, that is; Reliability, Responsiveness, Assurance, Tangibles and Empathy (Farooq et al., 2019). Dependability is synonymous to reliability. The findings represented in table 3 revealed that four measures that is; assurance, responsiveness, tangibles and empathy received positive scores. However one service quality measure that is reliability received mixed score. The study utilized two statements to measure reliability, the first statement was; ‘The library website is always available’ this statement received a positive score of 3.64 while the second statement which was “The live chat is always available” received a negative mean score of 1.90 which is way below the criterion mean of 2.50. The verbal qualifier assigned for 1 on the Likert Scale was the term “Not at all” while the verbal qualifier assigned for 2 was the term “To a small extent”. Therefore based on the mean value of 1.90, it is clear that majority of the library users consider this service as not meeting their expectations.

The findings of the study agree with those of Belanger et al. (2016) on assessment of the provision of chat reference services at the University of Washington Libraries found out that the provision of chat services was poorly rated by the library users. Some of the possible explanation for this occurrence can be attributed to the fact that many library users expect the live chat service to be always available 24 hours a day 7days a week and they expect to receive a prompt response even at night and on weekends. Belanger et al. (2016) also noted that some of the library users expected to be able to chat with a particular librarian and not just any librarian available at the time of request. A study by Kathuria (2021) on ‘Library support in times of crisis: An analysis of chat transcripts during COVID-19 at Auburn University Libraries’ noted that there was a spike in use

of live chat services by up to 15 times in the first month of lockdown due to COVID-19 that is March 2020 compared to March 2019 and the number doubled by April 2020. However, there was high spike in usage of live chat; library users rated the service poorly. Kathuria (2021) also noted that more chat request were received on weekends compared to weekdays yet there were fewer library staff working on weekends leading to delay in response.

Table 3: Service quality aspects

Service Quality Aspects	N	Mean	Std. Deviation	Variance
Availability of Library website	315	3.64	1.080	1.166
The Website loads quickly	315	3.48	1.075	1.155
Information at the website is organized	315	3.79	1.011	1.021
The website is easy to use	315	3.83	.987	.975
Library Employees are willing to help	315	3.92	.984	.968
The knowledge and courtesy of library employees inspire trust	315	3.76	1.043	1.088
The live chat is always available	315	1.90	.920	.847
Valid N (listwise)	315			

Source: Research Data (2022)

Highest perceived service qualities provided by the selected libraries were as follows: ‘Library Employees are willing to help’ (3.92), ‘The website is easy to use’ (3.83), ‘Information at the website is organized’ (3.79), ‘The knowledge and courtesy of library employees inspire trust’ (3.76), ‘Availability of Library website’ (3.64) and ‘The Website loads quickly’ (3.48). Although there was negative score in provision of live chat service, the overall mean for service quality aspects was 3.47. The verbal qualifier assigned for 3 on the Likert Scale was the term “To a moderate extent”. Therefore based on the overall mean value of 3.47, it is clear that majority of the library users to a moderate extent agree that the libraries offer quality electronic services.

The findings are consistent with those of Alokuk & Al-Amri (2021) who in their study on ‘Evaluation of a digital library: an experimental study of Taibah University’ found out that digital library service received a positive score during the COVID-19 lockdowns with 60% of the 206 respondents agreeing that they received quality library digital services during COVID-19 lockdown.

Customer Satisfaction Aspects

In addition to service quality the study sought to determine customer satisfaction with the electronic library services provided by the selected libraries. A Likert scale of 1-5 was used where 5-Very satisfactory, 4- Satisfactory, 3-Moderately satisfactory, 2-Unsatisfactory and 1- Very unsatisfactory. Table 4 shows the rating of customer satisfaction among the respondents. The findings in table 4 review that all customer satisfaction aspects received a positive score with all the aspects receiving a score above the criterion mean of 2.50. The findings also show that the overall mean of customer satisfaction aspects was 3.64. Based on the findings, there is an indication that, to a great extent, the library users at the selected university libraries were satisfied with the electronic library services provided during COVID-19 period.

While libraries were physically closed, electronic library services made it possible for students to continue accessing services. Fortunately, most of the respondents indicated that they were satisfied with the library services provided electronically. The findings are in agreement with those of Aguilera et al. (2022) who in their study on ‘Measuring user satisfaction with library collections and services during COVID-19 at the University of Colorado Boulder Libraries found out that 93% of the 330 respondents were “extremely” or “somewhat satisfactory” with the digital library services provided during COVID-19 period.

The findings of the study are also in agreement with those of Deo (2016) who in his study on user satisfaction in academic libraries: A case study of the Fiji National University Library also found out that 68% of the 690 respondents rated their satisfaction with electronic library services as either ‘excellent’ or good.

Table 4 Customer Satisfaction

Customer Satisfaction	N	Mean	Std. Deviation
The library website provides me with information I expect	315	3.60	1.125
The e-library provides information in a timely manner	315	3.61	1.084
I am likely to promote the e-library to a friend	315	3.70	1.103
I will keep using the e-library in the coming months	315	3.71	1.144
My general experience with the e-library is pleasantly memorable	315	3.59	1.176
Valid N (listwise)	315		

Source: Research Data (2022)

Hypothesis Tests

Differences in the perception of users on the SERVQUAL service quality dimensions

H₀₁ was testing the difference in the perception of users on the SERVQUAL service quality dimensions at the selected university libraries. It stated that there is no significant difference in the perception of users on the SERVQUAL service quality dimensions. The H₀₁ would be rejected if the p-value $\leq \alpha$.

Table 5: Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha on Standardized Items	N of Items Based
.805	.802	7

Source: Research Data (2022)

Table 6: t-test

One-Sample Test

	Test Value = 2.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
SQ	25.092	314	.000	.97483	.8984	1.0513

Source: Research Data (2022)

Based on the findings in table 5 and table 6, H₀₁ was rejected and the study adopted the alternative hypothesis. The p value = 0.00 which was less than $\alpha = 0.80$. There was significant difference in the perception of users on the SERVQUAL service quality dimensions.

Relationship between the Library Electronic Information Service Quality and Student Satisfaction

H₀₂ was testing relationship between electronic library service quality and customer satisfaction at the selected libraries. It stated that there was no relationship between the library electronic information service quality and student satisfaction at selected University. The H₀₂ would be rejected if the significant value was ≤ 0.05 . To test the relationship between service quality and user satisfaction, a simple regression analysis was performed. The results are displayed in table 7.

Table 7: Regression analysis of service quality dimensions and Customer Satisfaction Dimensions Coefficients^a

Model	Unstandardized Coefficients		Standardizedt Coefficients	Sig.	95.0% Confidence Interval for B		
	B	Std. Error	Beta		Lower Bound	Upper Bound	
1	(Constant)	.501	.213	2.352	.019	.082	.920
	SQ	.904	.060	.647	15.029	.000	.786

Service Quality: Customer Satisfaction

Source: Research Data (2022)

The findings of hypothesis test as presented in table 7 show that library service quality has a positive and statistically significant effect on customer satisfaction. The p value = 0.00 which is less than 0.05 ($t = 2.35$). The strength of the relationship is moderate ($r^2 = 0.42$) as demonstrated in Table 8. Based on these findings, the null hypothesis was rejected and the study adopted the alternative hypothesis. This means that an increase in library service quality will increase student satisfaction level.

Table 8: Strength of the relationship between Service Quality and Customer Satisfaction

Model Summary^b

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.647 ^a	.419	.417	.73482	1.927

a. Predictors: (Constant), Service Quality

b. Dependent Variable: Customer Satisfaction

Source: Research Data (2022)

Moderating effect of Individual student factors

H₀₃ states that Individual student factors do not moderate the relationship between the library electronic information service quality and student satisfaction at the selected universities. Null hypothesis would be rejected if the p value $\leq \alpha$.

To test the moderating effect of individual student factors, partial correlation was performed. The test results for hypothesis are presented in table 9.

Table 9: Partial Correlation between Service Quality and Customer Satisfaction while controlling for Individual Students Factors

Correlations			
Control Variables		SQ	CS
SQ	Correlation	1.000	.648
	Significance (2-tailed)	(2-. .	.000
	Df	0	312
ISF	Correlation	.648	1.000
	Significance (2-tailed)	(2-.000	.
	Df	312	0

Source: Research Data (2022)

There was no significant evidence to reject the null hypothesis. The study concluded that individual student factors do not moderate the relationship between perceived electronic library service quality and customer satisfaction. When controlling for individual student factors $r = 0.648$, $p = 0.000$. Normal partial correlation between electronic service quality and customer satisfaction without controlling for individual student factors $r = 0.648$, $p = 0.000$ thus individual student factors had very little influence on the strength of the relationship between the two variables. The p value of 0.00 was also greater than the α value of -0.29 (Table 10) therefore the study failed to reject the null hypothesis that: Individual student factors do not moderate the relationship between the library electronic information service quality and student satisfaction at the selected universities.

Table 10: Inter Item Correlation between Service Quality and Customer Satisfaction while controlling for Individual Students Factors

Correlation Matrix			
	SQ	CS	ISF
SQ	1.000	.647	-.029
CS	.647	1.000	.020
ISF	-.029	.020	1.000

Source: Research Data (2022)

CONCLUSION

The study sought to determine students' satisfaction with the quality of library electronic information services during COVID 19 period at selected universities in Kenya. The findings of the study demonstrate a significant positive relationship between SERVQUAL guided library service score and student satisfaction with the electronic library services. This means that an

increase in electronic service quality will lead to an increase in customer satisfaction. The findings also established that individual student factors do not moderate the relationship between electronic library service quality and student satisfaction at the selected universities. In addition, the study revealed that electronic library services are priority source of academic information. The study also demonstrated that COVID 19 pandemic unveiled the potential of electronic library services in distance and online education thus the findings of this study may be used by educational institutions to enhance the role of libraries in distance and online education. Overall, library users indicated that they appreciate the value of the electronic library services to their academic activities and this indicates that prior investment in digitization efforts by libraries have already delivered benefits in terms of enhanced access to information and knowledge.

Recommendations

Feedback from the study was purposed to inform library administrations on areas that needed improvement. Based on the study findings, delivery of live chat service received a negative mean score of 1.90 which means that majority of the students do not view the quality of this service as satisfactory. The study recommends transcription of the chat service to identify the frequently asked queries. Librarians can also educate the students on the identified queries or create Frequently Asked Questions (FAQ) feature on the library website to help respond to their information needs more quickly and incase the FAQ page already exist they should explore ways of automatically linking the FAQ page with the patrons chat request.

The study findings revealed that up to 31% of the respondents had not received information literacy training. Considering the important role of information literacy skills in the access and utilization of electronic information, the study recommends that library administrators explore more effective ways of delivering information literacy training including integration of information literacy training with the regular academic programs.

Smartphone was identified as the most popular devise used to access electronic information services with 92% of the respondents using the device. The study recommends that institutions of learning strive to design mobile-friendly websites and encourage the development of custom made mobile applications for electronic libraries.

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