

## The Influence of LibQUAL+ Service Quality Factors on Customer Satisfaction with University Library: Science and Arts Students' Perspectives


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Article Info	ABSTRACT
<p><b>Article history:</b> Received: 25 July 2023 Revised: 6 August 2023 Accepted: 24 August 2023 Published: 1 September 2023</p>	<p>This study aims to determine the influence of LibQUAL+ service quality factors (affect of service, information control, and library as place) on customer satisfaction with the university library. Questionnaires developed based on LibQUAL+ were distributed to university students using the convenience sampling technique in July 2023. 373 valid responses obtained were analyzed using multiple linear regression analysis. The findings indicate that the regression model explains 69.5% of the total variance in customer satisfaction. Moreover, affect of service, information control, and library as place significantly influence customer satisfaction. Therefore, this study confirms that library customers' satisfaction is subject to the quality of library services, particularly in terms of the library environment, followed by the easiness of retrieving information and staff competency. This study intends to confirm how widely used LibQUAL+ service quality factors could provide insights to guide universities toward more promising outcomes in enhancing customer satisfaction.</p>
<p><b>Keywords:</b> LibQUAL+, customer satisfaction, library, affect of service, information control, library as place</p> <p></p>	

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## INTRODUCTION

University libraries play an important role in Society 5.0 by supporting education, research, and community development. The library is generally known as an information center that provides access to the latest sources of knowledge. It also encourages student, researcher, and community collaboration through learning spaces, educational programs, and research activities. By integrating advanced technologies such as digital search systems, university libraries help create a more intelligent, innovative, and highly competitive Society 5.0. In universities, libraries offer important support to students by providing books, journals, reports, magazines, theses and study space.

Nevertheless, the emergence of various alternative sources, such as e-learning platforms, multimedia apps, and online information, raises questions about the relevance of libraries in this digital age (Kassim, 2017). Giant online search engines such as Google, Bing, and Baidu enable students to surf millions of websites that contain unlimited information. Younger and more tech-savvy visitors now prefer Google, Google Scholar, and Google Books when looking for information (Ćirić & Ćirić, 2021). They can access information from the comfort of their homes in their free time using smartphones and other electronic devices. They do not have to adhere to library operating hours, and searching for digital information is much easier than printed materials. Moreover, disorganized book shelving, poorly maintained books, and outdated reading materials discourage users from visiting libraries (Ilahi et al., 2019).

In Malaysia, smartphone users have increased from 78.0% in 2018 to 84.8% in 2021 (Malaysian Communication and Multimedia Commission, 2021), which also includes university students. The COVID-19 pandemic particularly has further stimulated the change in library users' preference towards digital materials and does not seem to change after the pandemic ends. Table 1 below summarizes the search and download statistics of digital collections in a Malaysian university library in 2019 and 2020. Based on Table 1, library users show an increasing trend to use library digital collections.

Table 1: Search and Download Statistics of Digital Collections in Universiti Sains Islam Malaysia Library

Period	Search		Download	
	2019	2020	2019	2020
January – March	87,816	63,784	10,289	10,216
April – June	65,428	69,078	9,131	9,254
July – September	29,031	98,703	9,538	9,277
October - December	76,860	226,522	3,885	24,477

Source: Momin et al. (2021)

Recently, studies were conducted to understand library users' trends after the pandemic. A study conducted by Syazwani Abdullah et al. (2022) revealed that 10.6% of the respondents had never visited a library that year. In comparison, 12.7% of youth did not visit libraries in a month (Syazwani Abdullah & Adam Zulkarnain Saleng, 2022). Looking at the bigger picture, users' preference to search for digital information increases, which rationally explains why library visits are reduced. Therefore, research should be conducted to justify the investment made by universities to update reading materials in physical libraries.

The reduction in library visits could be linked to their satisfaction with the quality of library services. Previous studies show customer satisfaction depends on the service quality of the library (Ip & Wagner, 2019; Cristobal, 2018). However, only a few studies in the literature assess the influence of library service quality on customer satisfaction using regression analysis (Alam, 2021; Amanullah et al., 2021). Moreover, the current understanding of Malaysian university libraries is scarce except for several studies, e.g., Judi and Mohamed (2019), Afthanorhan et al. (2019), and Momin et al. (2021). Therefore, this study aims to determine the influence of service quality factors on customer satisfaction among students of a Malaysian university using multiple regression analysis.

## LITERATURE REVIEW

### Customer Satisfaction

Customer satisfaction refers to the feeling of pleasure or disappointment formed by the customer's actual service experience compared to the expected value. Customer satisfaction can be measured based on the quality of the service perceived by the customer, the psychological expectation of the service, and the customer's perception of the cost of the service. Prior studies used multiple measurements to collect customer satisfaction data in the context of library services. First, Evelyn and Lydia (2019) argued that customer satisfaction should be measured based on the behavior of staff, information sources, and the library environment. On the other hand, Twum et al. (2020) used three general customer satisfaction items to measure library customer satisfaction. Afthanorhan et al. (2019) measured library customer satisfaction using seven items related to the library's collection, facilities, environment, and customer behavior. This study used the measurement proposed by Afthanorhan et al. (2019) because it offers a more comprehensive view of customer satisfaction.

### Service Quality Factors

According to Parasuraman, Zeithaml, and Berry (1985), perceived service quality is determined by contrasting customer expectations with the actual service delivered. They believe it is more challenging to evaluate service quality than product quality. The evaluation of service quality covers not only the outcome of such services but also how the services are delivered to the customers.

According to Afthanorhan et al. (2019), library service quality comprises six dimensions, i.e., general services, search for materials, library staff, library collection, facilities, and library environment. However, Zainan et al. (2018) argued that (1) library services, (2) library employees, (3) library environment, and (4) library contents made up the dimensions of library service quality. According to Syazwani Abdullah et al. (2022), service quality may be evaluated based on the quality of staff, collection, ICT facilities, and library environment. However, Nurul Madihah Abu Bakar and Nurazwa Ahmad (2019) utilized different dimensions, namely tangible factors, reliability, responsiveness, and assurance, to measure library service quality.

LibQUAL+ is a library service quality measurement used widely in library research. LibQUAL+ was developed based on the SERVQUAL instrument of Parasuraman et al. (1988). LibQUAL consists of 22 items that are divided into three dimensions, namely (1) affect of service, (2) information control, and (3) library as place (Ip & Wagner, 2019). Affect of service assesses the knowledge and competence of library staff, while information control refers to the assessment of library resources and the extent to which the library facilitates users to find information on their own. Meanwhile, the library as place evaluates how good the space and conduciveness of the library are, based on the users' point of view.

Although many kinds of measurements were used in previous studies to evaluate library service quality, the instruments proposed showed similarities. Overall, library service quality was measured based on three factors related to the staff, materials or collections, and the library's physical environment. On that note, this study adopted LibQUAL+ to measure the quality of university library services because it is a widely accepted service quality instrument used repeatedly in prior research.

### The Influence of Service Quality Factors on Customer Satisfaction

Ip and Wagner (2019) conducted a study in one of the public universities in Hong Kong. During a month-period of data collection, they obtained 7,407 responses from both students and staff of the university. Through the CBSEM analysis, Ip and Wagner (2019) found that affect of service, information control, and library as place have significant direct effects on customer satisfaction.

Besides, another study was conducted in India by Mallya and Payini (2018) among students of a hospitality institute. 95 students provided valid responses to the survey, and the data were analyzed using

regression analysis. The findings show that the model explained 45 % of the variance in overall satisfaction relating to quality of library services (Mallya & Payini, 2018). In addition, the study confirmed the significant influence of affect of service ( $\beta=0.488$ ,  $p<0.01$ ) and information control ( $\beta=0.285$ ,  $p<0.05$ ) on customer satisfaction. However, library as place did not significantly influence customer satisfaction due to the changing nature of library users, from visiting the library to accessing information to using digital library sources at home or hostel.

Alam and Mezbah-ul-Islam (2023) surveyed 437 students, 52 researchers, and 32 teachers who used nine public university libraries in Bangladesh. The responses were analyzed using SEM. The results indicated that the model, which contains five independent variables (resources of the libraries, competent service of library staff, responsiveness of library staff, demeanor approach of library staff, and tangible facilities), explained 58% of the total variation of the dependent variable, user satisfaction. Moreover, the libraries' resources, staff competence, demeanor approach, and tangible facilities of the public university libraries significantly impacted user satisfaction.

Oqlu and Qurbanov (2021) surveyed users of ten university libraries and five public libraries in Azerbaijan. The study verified that the library environment, information, and staff were identified as the primary factors affecting customer satisfaction with library service quality. Meanwhile, Mahmood et al. (2023) measured customers' expectations for excellent college library service quality. Data were collected from 998 respondents who were students and university staff. Respondents rated the highest expectation for library as place dimension, whereas information control dimension was given the lowest expectations. The study concluded by stating the need to focus on the library environment to meet customers' expectations of library services.

Based on the studies discussed above, the influence of the three service quality dimensions (affect of service, information control, and library as place) on customer satisfaction is generally significant except for a few studies. However, insignificant influence has been typically associated with the contextual nature of the library users, such as their preferences. In that sense, this study proposes the following research framework and hypotheses:

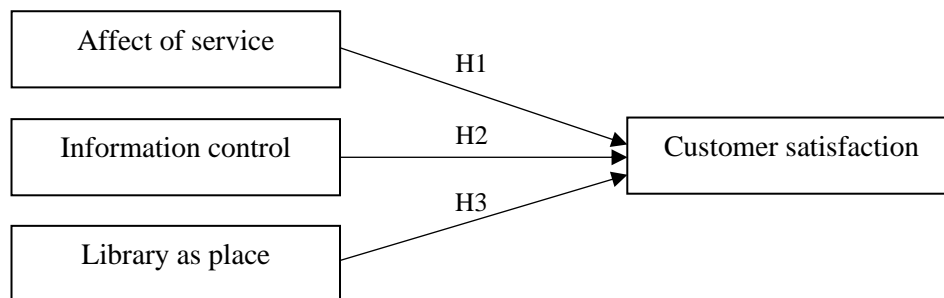


Figure 1: Research framework

- H1: Affect of service has a significant influence on customer satisfaction.
- H1: Information control has a significant influence on customer satisfaction.
- H1: Library as place has a significant influence on customer satisfaction.

## METHODOLOGY

### Study Location

The study was conducted at Universiti Pendidikan Sultan Idris, Malaysia. The university has two campuses separated by about 10KM. The first campus has a conventional library, where all physical books, theses, and other collections are stored in a 4-level building. Apart from the general study area, the conventional library also has carrel rooms, a discussion room, a media room, indoor and outdoor café, and a prayer room.

A digital library is located on the other campus. The digital library has two levels and does not have any physical books. The ground floor was designed for a reading lounge and equipped with several free tablets for lending. The upper floor is a computer lab and a private discussion room.

### Measurement

The study used LibQUAL+ measurement containing 22 items to assess the service quality of a Malaysian public university library. The 22 items represented three dimensions of library service quality, i.e., affect of service, information control, and library as place. This study also used seven items from Afthanorhan et al. (2019) for customer satisfaction. All items were anchored on a 5-point Likert scale ranging from 1-strongly disagree to 5-strongly agree. No pilot study was performed due to many prior validations of LibQUAL+ instrument (Ip & Wagner, 2019).

### Data Collection and Analysis

Data were collected from the students of Universiti Pendidikan Sultan Idris, who were selected using the convenience sampling technique. These students studied in two main faculties at the university: the Faculty of Music and Performing Arts and the Faculty of Science and Mathematics. These faculties were selected because they have the highest number of students. Moreover, the faculties are located on different campuses. The selection of these faculties is expected to increase responses about both libraries. Based on Cohen (1992) sample size determination, a model containing three independent variables requires a minimum of 108 data for medium effect size. A self-administered questionnaire was distributed in July 2023 to students until the minimum sample size was achieved. The responses were recorded anonymously for research purposes. Data were then analyzed using multiple regression analysis in Jamovi 1.6.6.

## FINDINGS

373 responses were collected in July 2023, comprised of 38.6 % male and 61.4 % female from the Faculty of Music and Performing Arts (78.6 %) and Faculty of Science and Mathematics (21.4 %). Most respondents are bachelor degree students (51.2%), followed by diploma students (46.4%).

Table 2: Respondents' profiles

Demographic factors		Freq.	Percentage
<i>Gender</i>	Male	144	38.6 %
	Female	229	61.4 %
<i>Faculty</i>	Music & Performing Arts	293	78.6 %
	Science and Mathematics	80	21.4 %
<i>Study level</i>	Diploma	174	46.6 %
	Bachelor degree	191	51.2 %
	Master degree	6	1.6 %
	Doctorate	2	0.5 %

Most students in the sample visited the library 1-3 times a month (60.1%) while 24.4% visited the library 4-6 times a month. 46.4% of the respondents spent 30 minutes to 1 hour and 59 minutes per visit, and 35.7% spent 2 to 3 hours and 59 minutes in the library. In terms of the favourite aspects of library service, 62.5 % of students admitted that they liked the serene environment of the library. The next most favored aspect is easy-to-obtained reading materials (18.0 %), and adequate facilities (12.9 %). Adequate reading materials, and friendly and knowledgeable staff are not the main attraction of the library.

Table 3: Frequency of library visits per month

Number of visits	Freq.	Percentage
1-3 times	224	60.1 %
4-6 times	91	24.4 %
7-9 times	19	5.1 %
More than 10 times	26	7.0 %
Others	13	3.5 %

Table 4: Estimated time spent in the library for each visit

Time spent	Freq.	Percentage
Less than 30 minutes	27	7.2 %
30 minutes - 1 hour 59 minutes	173	46.4 %
2 hours - 3 hours 59 minutes	133	35.7 %
4 hours - 5 hours 59 minutes	32	8.6 %
6 hours or longer	8	2.1 %

Table 5: Favorite aspects of the library

Favorite aspects of the library	Freq.	Percentage
Serene environment	233	62.5 %
Easy-to-obtained reading materials	67	18.0 %
Adequate facilities	48	12.9 %
Adequate reading materials	18	4.8 %
Friendly and knowledgeable staff	6	1.6 %
Others	1	0.3 %

A multiple regression analysis was conducted on the dataset. As shown in Table 6, the  $R^2$  of the model is 0.695. It indicates that 69.5% of the total variation in customer satisfaction with library service could be explained by the dependent variables. Overall, the model is significant at  $p$ -value  $< 0.001$ . Table 7 shows that affect of service, information control, and library as place are significant predictors of customer satisfaction at  $p$ -value  $< 0.05$ . This finding bolstered previous studies, such as Ip and Wagner (2019). Similarly, Mallya and Payini (2018) found a significant influence of affect of service and information control on customer satisfaction.

However, this study also confirmed that library as place has the largest  $\beta=0.368$ , followed by information control ( $\beta=0.282$ ), and affect of service ( $\beta=0.189$ ), which indicates that library as place has the greatest effect on customer satisfaction. In contrast, affect of service has the least influence on customer satisfaction. This result could be explained by the adoption of various technology to support library users' experience. For instance, students could easily use WebOPAC to locate books on the shelves using computers provided in the library lobby. By having WebOPAC, students do not need to interact with the librarians to locate books. Moreover, the library also uses lending and returning machines to keep minimum interaction between students and the librarians. The indoor café is also self-serviced; thus, the presence of librarians is less important to students.

Table 6: Model fit measures

Model	R	R <sup>2</sup>	Overall Model Test			
			F	df1	df2	p
1	0.834	0.695	280	3	369	<.001

Table 7: Multiple regression results

Predictor	Estimate	SE	t	p
Intercept	0.806	0.1244	6.48	< .001
Affect of Service	0.189	0.0744	2.54	0.012
Information Control	0.282	0.0905	3.12	0.002
Library as Place	0.368	0.0873	4.21	< .001

Dependent variable: Customer satisfaction

## CONCLUSION AND RECOMMENDATION

This study uses multiple regression analysis to determine the influence of library service quality factors (affect of service, information control, and library as place) that were driven by LibQUAL+ instrument on customer satisfaction among Malaysian university students. Based on the multiple linear regression analysis performed on 373 responses, a significant influence of all predictors on customer satisfaction was verified. Despite that, library as place showed the greatest influence on customer satisfaction compared to affect of service and information control. Affect of service has the least influence on customer satisfaction because libraries in Universiti Pendidikan Sultan Idris adopted various technologies that help minimize the interaction between students and librarians and increase students' self-dependency to obtain the service. Accordingly, university libraries should allocate more significant investments to improving the library's environment to increase the number of satisfied customers without ignoring the improvement in reading materials and staff competency. Although this study is limited to only one university in Malaysia, it covers two types of libraries (conventional and digital) that contribute to the current library research literature. Future researchers are recommended to extend this study by investigating the effect of customer satisfaction with the library on customer behavior. Moreover, new research on the return on investment model of library service will expand the existing knowledge of which type of libraries, conventional or digital, are much more worthy of being developed.

## ACKNOWLEDGEMENT

The researchers would like to extend their gratitude to Universiti Pendidikan Sultan Idris for funding this study through a university research grant entitled The Mediating Effect of Customer Satisfaction on the Relationship Between Library Service Quality and the Impact of Student and Lecturer Achievement to Increase the University's Return on Investment (Research code: 2023-0031-106-01).

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## APPENDIX

### Questionnaire Items based on LibQUAL+

#### Demographic Factors

Gender

*Male*

*Female*

Faculty

*Faculty of Music and Performing Arts*

*Faculty of Science and Mathematics*

Study level

*Diploma*

*Bachelor degree*

*Master degree*

*Doctorate*

#### Usage Trend

Frequency of visits in a month

*1-3 times*

*4-6 times*

*7-9 times*

*More than 10 times*

*Others*

Estimated time spent in the library for each visit

*Less than 30 minutes*

*30 minutes - 1 hour 59 minutes*

*2 hours - 3 hours 59 minutes*

*4 hours - 5 hours 59 minutes*

*6 hours or longer*

Favorite aspects of the library

*Serene environment*

*Easy-to-obtained reading materials*

*Adequate facilities*

*Adequate reading materials*

*Friendly and knowledgeable staff*

*Others*

## **Library Service Quality**

### **(A) Affect of Service**

- UPSI Library staff instill confidence in users.*
- UPSI Library staff give individual attention to users.*
- PTB staff are always courteous.*
- UPSI Library staff are always ready to answer users' questions.*
- UPSI Library staff are knowledgeable in answering users' questions.*
- UPSI Library staff deal with users in a caring fashion.*
- UPSI Library staff understand the needs of their users.*
- UPSI Library staff are willing to help users.*
- UPSI Library staff handle users' service problems.*

### **(B) Information Control**

- UPSI Library makes electronic resources available.*
- UPSI Library WebOPAC enables me to locate information on my own.*
- UPSI Library provides printed library materials I need for my work.*
- UPSI Library provides the electronic information resources I need.*
- UPSI Library provides modern equipment that enables me to access needed information easily.*
- UPSI Library provides easy-to-use access tools that allow me to find things independently.*
- UPSI Library makes information easily accessible for independent use.*
- UPSI Library provides print and/or electronic journal collections I require for my work.*
- UPSI Library provides latest collection of information.*
- UPSI Library provides leisure reading materials suitable to my preference.*

### **(C) Library as Place**

- UPSI Library opens at convenient hours.*
- UPSI Library provides space that inspires study and learning.*
- UPSI Library provides a quiet space for individual activities.*
- UPSI Library has a comfortable and inviting location.*
- UPSI Library is a gateway for study, learning, or research.*
- UPSI Library provides a community space for group learning.*
- UPSI Library provides an adequate praying area.*
- UPSI Library provides a comfortable praying area.*
- UPSI Library provides sufficient cafes.*

## **Customer Satisfaction**

- I am satisfied with the quality of service provided by UPSI Library.*
- I am satisfied with the collection provided by UPSI Library.*
- I am satisfied with the facilities provided by UPSI Library.*
- I am satisfied with the environment provided by UPSI Library.*
- I will continue using UPSI Library.*
- I will recommend my friends make full use of the UPSI Library.*
- In general, I am satisfied with UPSI Library.*