Library Service Quality and Users' Satisfaction: A Correlational Study among UiTM Puncak Perdana Students

Muniratul Husna Mohamad Zaki[1], Hazlin Hasan[2*], Sharifah Norhuda Syed Wahid[3], Mastura Mohamad[4]

[1]Al-Bukhari Library, Universiti Teknologi MARA Cawangan Pahang, Kampus Jengka, 26400 Bandar Tun Abdul Razak Jengka, Pahang, Malaysia

[2,4]Faculty of Business and Management, Universiti Teknologi MARA Cawangan Pahang, Kampus Jengka, 26400 Bandar Tun Abdul Razak Jengka, Pahang, Malaysia

[3]College of Computing, Informatics and Media, Universiti Teknologi MARA Cawangan Pahang, Kampus Jengka, 26400 Bandar Tun Abdul Razak Jengka, Pahang, Malaysia

[1]muniratulhusna@uitm.edu.my, *[2]hazlin665@uitm.edu.my, [3]sha_norhuda@uitm.edu.my, [4]masturamohdd@uitm.edu.my

*Corresponding Author

ABSTRACT

A library is an organization that provides its services and facilities to the community to gain knowledge and eases the users to get the information needed according to their needs. UiTM libraries, belonging to the largest public university in Malaysia, have a tremendous challenge in ensuring that they serve the right resources to their users at the right time and fulfil their users' satisfaction that relies upon the quality of services provided by them. Hence, the objective of this study is to assess the perceived service quality of PTAR UiTM Puncak Perdana services and facilities on users' satisfaction. A total of 397 students of UiTM Puncak Perdana Campus, who use the library services, were randomly selected to participate in a survey using the SERVQUAL questionnaire which was distributed and collected personally by the researchers. A correlational analysis between SERVQUAL dimensions and users' satisfaction was conducted using the IBM-SPSS AMOS version 24.0. This study revealed that there is a moderate positive relationship between all service quality dimensions and user satisfaction. It was concluded that service quality had a significant and positive impact on students' satisfaction. Research has proven that student satisfaction is a good indicator of a university's strengths and weaknesses, and higher learning institutions place a high priority on students' satisfaction. Therefore, it is pertinent for the university to keep track of its library's service quality from the users' perspective regularly and ensure a high-quality service and facilities are available to fulfil its users' satisfaction. More elaborated research on other related perspectives of users' satisfaction with the library's services and facilities may be conducted in the future to ensure that the libraries stay in demand and relevant despite the fast-revolving information technology.

Keywords: *Library Services and Facilities, PTAR, SERVQUAL, Users' Satisfaction*

INTRODUCTION

Libraries are evolving beyond their basic function of reading or borrowing books to become user-centered libraries through complex acts of cultural and recreational utilisation in public libraries such as viewing exhibitions, watching movies and performances, attending cultural lectures, and having new experiences (Noh, 2022). Academic libraries are in a unique position to provide scientific information to the university community, as well as to be at the forefront of ensuring access to precise and relevant information to assist library users (Dube & Jacobs, 2022). Their study also found that academic libraries' services were expanded by librarians using more advanced technology tools, such as providing additional website information, online LibGuide access, and even using Artificial Intelligence tools such as bots to assist and cater to library users' needs. For example, some libraries use cutting-edge technology as part of their library services for patron use, whereas others do not use any technology at all due to budgetary constraints. This demonstrates that each library has its method of attracting patrons or users to increase the number of patrons who come to the library and use it as a knowledge centre.

User satisfaction relies upon the quality of services provided by the libraries. According to Chen et al. (2022), the quality of services provided to library users (primarily students and researchers) is another important factor influencing library performance. Therefore, the quality of the development of university libraries is intrinsically tied to the sustainable and steady development of higher education as a whole. In a library, service quality is defined as providing users with accurate and reliable information as soon as possible. Its assurance can be met by maintaining quality in all areas of library activity such as acquisition, classification, cataloguing, issue, return, renewal, and so on (Sajna & Mohamed Haneefa, 2018). It was also stated that the service quality of libraries is measured by determining whether the information and services provided by the libraries meet the needs and expectations of the users.

A library is one of the most common public facilities we encounter, and almost every educational institution or school has one (Nugraha et al., 2020). For this study, the researchers focused on an academic library, which is Perpustakaan Tun Abdul Razak (PTAR) in UiTM Puncak Perdana Campus. Like any other academic library worldwide, PTAR library is faced with the challenge of ensuring that quality services are provided to different user groups. In a bid to evaluate library services, the researchers believed that effective evaluation of service quality is ensuring that the perspective of the users is considered. According to Sajna and Mohamed Haneefa (2018), evaluation of the library's performance based on the quality of the assessment helps to evaluate and enhance library performance. The researchers strongly believe that the customer, as the most important factor in service, quality should be advocated. Hence, the objective of this study is to assess the perceived service quality of PTAR services and facilities to users' satisfaction among UiTM Puncak Perdana students. The perceived service quality was assessed based on the SERVQUAL Model (Parasuraman et al., 1988). The study hoped to provide meaningful findings which could further improve the existing services more systematically, thus providing better services and facilities that could in turn attract more patrons to PTAR as well as other academic libraries, online and off-line.

LITERATURE REVIEW

SERVQUAL Model

Parasuraman et al. (1988), as shown in Figure 1, simplified the SERVQUAL model with only five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. Originally, the goal of SERVQUAL was to measure the gap between what customers expected and what they got across 10 dimensions of service quality: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, knowing the customer, and tangibles. In another study proposed

by Cristobal (2018), SERVQUAL is one measurement technique that has been created to gather, monitor, comprehend, and act upon customer feedback on the calibre of services. Many researchers agreed that the SERVQUAL model is one of the best ways to measure service quality because it has many different parts (Shafiq et al., 2019 and Afthanorhan et al., 2019). There have been very few studies on library quality, but in all of them, the SERVQUAL model has been used to measure user satisfaction with the library (Farooq et al., 2019). As an outcome measure, the adapted SERVQUAL instrument for libraries allows librarians to focus attention on service quality. According to Shafiq et al. (2019), SERVQUAL dimensions are strongly related to customer satisfaction and have a significant impact on it. The main goal of this model is to find and measure the service quality gaps between what users expect and what they think about the services they get at different stages of the delivery process (Makoe & Nsamba, 2019).

Figure 1: SERVQUAL Model (Parasuraman et al., 1988)

Responsiveness as a dimension of SERVQUAL

Responsiveness is defined as the willingness to assist customers and provide prompt service (Makoe & Nsamba, 2019). With this research framework, responsiveness is an independent variable that can help figure out how satisfied users are with how willing the librarian is to help them. According to Guillén Perales et al. (2020), determinants of responsiveness include the desire to serve students and the readiness to provide effective learning solutions. To give library users the best service possible, the library's management should try to hire people who are willing to help and serve not only library users but also library staff. Also, if they want to keep the academic library's dignity, they need to care about their users' needs and help them. Guillén Perales et al. (2020) agreed that responsiveness is affected by things like wanting to help students and being ready to give them the right answers about their learning process. In addition, Farooq et al. (2019) agreed that the librarians' role has grown in helping students and scholars find information from reliable journals, books, and other online sources.

Technology as a dimension of SERVQUAL

Information Technology (IT) is the process of getting, processing, storing, and sharing information through computer systems and telecommunication devices. ICT is a longer version of IT that focuses more on telecommunication, wireless, and audio-visual systems (Shastri & Chudasma, 2022). New immersive technologies are being used and adopted by libraries all over the world to improve their users' experiences and learning (Roy et al., 2022). Besides, Roy et al. (2022), agreed that these new technologies are already influencing every industry, including academia (libraries). Technology is another independent variable that has undergone modification to accommodate the requirements of the research that has been carried out. In today's world, most people would rather rely on modern technology to fulfil their requirements. In the context of this study, technological advancements have been made to support the researcher in identifying the most appropriate services for the library to provide to fulfil the requirements of its patrons. According to Shastri and Chudasma

(2022), the study of the use of OPAC, library automation SOUL software, and barcode technology helped libraries change, and library workers realized that they needed to keep learning to do their jobs well in the digital age. A case study on the adaption of ICT technologies and the use of the SERVQUAL instrument to measure service quality has been conducted in nursing homes in Taiwan to quantify service quality in the context of information and communication technologies (Ko & Chou, 2020).

Tangibles as a dimension of SERVQUAL

The concept of tangibility refers to the presence of actual, physically present, and operationally capable facilities and equipment (Farooq et al., 2019). The Tun Abdul Razak (PTAR) library's facilities, equipment, and services such as learning centres, study spaces and reference desk services that are currently provided have been investigated to determine the level of satisfaction that the library's patrons feel they receive from them. According to Makoe and Nsamba (2019), education professionals believe that adequate and high-quality support services are essential for students' academic success. The physical facilities or services provided by the library include sufficient learning materials, a clean computer lab, and printing facilities. The enhancement of services will bring lighter to library patronage, which will have a beneficial effect on those who use the library (Farooq et al., 2019). In addition, the library's environment and services have a positive impact on user satisfaction (Brown, 2017).

Empathy as a dimension of SERVQUAL

Another SERVQUAL dimension that has been modified is empathy, which measures the librarian's ability to be approached by their users. Empathy is defined as the ability to communicate with sympathy and provide individualized attention in order to make classes more engaging while developing a receptive attitude that aids in adequate student comprehension and improved participation (Guillén Perales et al., 2020). Most library users hope that librarians can assist them, particularly when they can immediately answer users' questions via Live Chat, guide users in searching for reliable information, and clear out users' late fee payments for their convocation day. According to Farooq et al. (2019), empathy is a part of the services, and it includes things like building trust, recommending books, sending targeted and personalized emails, and giving a free account for a personalized e-library. Based on this independent variable, empathy measures how customers feel about being cared for when their needs can be met (Farooq et al., 2019).

Reliability as a dimension of SERVQUAL

Reliability determinants indicate the actual capacity to fully meet expectations regarding certain proposed and delivered services through the content organization, well-defined suggested criteria, and class preparation (Guillén Perales et al., 2020). For hundreds of years, libraries have been the best places to learn new skills and understand complicated things. As more resources become available, libraries have become more important (Farooq et al., 2019). It was further added that the library has made a firm commitment to meeting the needs of its customers in a timely manner while also demonstrating a genuine interest in resolving customer issues. Some of these issues are helping users find reliable information and using reference software for research. Brown (2017) agreed that library use improves student achievement, and library research consultations improve student learning.

Assurance as a dimension of SERVQUAL

Assurance determinants show what the teachers know, how they act, and how well they can make their students feel safe and trusting (Guillén Perales et al., 2020). In this study, librarians play an important role in making their patrons feel at ease and ensuring the validity of the information that is provided to them. According to Sajna and Mohamed Haneefa (2018), the knowledge and courtesy of the service provider are evaluated to determine the level of assurance. The role of librarians in helping students and scholars find information in reputable journals, books, and other online sources has grown

(Farooq et al., 2019). In addition, Sajna and Mohamed Haneefa (2018) agreed that students are able to continue their studies in a setting that is conducive to their health and safety thanks to the quality assurance practices that are implemented in libraries.

User Satisfaction

One way to describe satisfaction is the feeling of enjoying yourself because of something you have done in your life. According to Evelyn and Lydia (2019), satisfaction is a subjective term that refers to the extent to which users are pleased with the library's services, the attitudes of the staff, and the environment provided by the library in meeting their requirements and prerequisites. Users can be satisfied with library services if they get the right information for their research, get quick answers to their questions, and are directed to reliable sources. In academic institutions, librarians and library staff work hard to accommodate patrons' requests (Mawia, 2021). Besides, Machendranath (2021) also agreed that the users' level of satisfaction with the various information services provided by the library and the types of information sources. On the other hand, Sharif et al. (2021) stated that user satisfaction is a predictor of service quality.

Library Service Quality and User Satisfaction among University Students

University students rely heavily on library resources to help them succeed academically. To create and maintain library services that meet the needs of their patrons in a dynamic information landscape, it is crucial to conduct regular research into the degree to which patrons' experiences with library services measure up to their expectations. Because of this, it is expected that a model for evaluating the quality of academic library services needs to be created and validated (Alam & Mezbah-ul-Islam, 2020). Twum et al. (2020) and Chandra et al., (2019) stated that all service quality dimensions have a positive relationship with library user satisfaction. The library services that have been given included both offline and online facilities, as well as library staff members who are directly involved in meeting the requirements of library users. Farooq et al. (2019) agreed that service and technology improvements will increase library usage and have a positive impact on users. Furthermore, staff behavior has a significant impact on the quality of library services. According to Shahzad (2019), most users are pleased with the library's resources and services. In addition, library quality assessment aids in evaluating and improving library performance (Sajna & Mohamed Haneefa, 2018).

However, the authors employed only responsiveness, technology, tangibles, and empathy in this study and excluded reliability and assurance for various reasons (Figure 2). In the context of this study, some library patrons have the impression that the services offered by the library do not cater to their individual requirements or interests. According to Nyakweba et al. (2022), for reliability dimensions, users may assume that the library's services do not meet their specific needs or interests. If they do not perceive the value or relevance of the offered services, they may not utilise them to their full potential. Users' preferences and standards can be very different, and it can be hard for libraries to meet all their needs. People who use the library may have different ideas about the services, tools, and technologies they expect from it (Garnar & Tonyan, 2021). In addition, for assurance dimensions, patrons of libraries usually fail to understand that the institution provides the services they use for free. The researchers also agreed that library users may not fully value the expertise and courtesy of the services provided by the library.
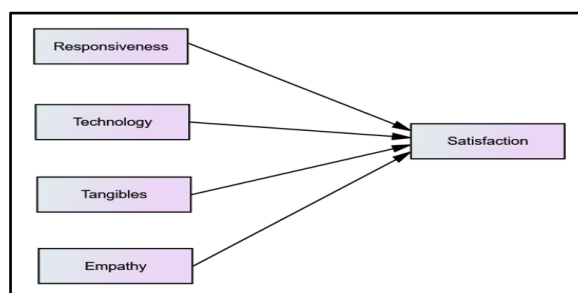
Figure 2: Theoretical Framework (Modified SERVQUAL Model)

METHODOLOGY

A total of 3,636 registered students in UiTM Puncak Perdana Campus (Faculty of Film, Theatre and Animation (FiTA) = 1900 and Faculty of Information Management (FIM) = 1,736) who use the library services and facilities in Perpustakaan Tun Abdul Razak (PTAR) was classified as the population of this study. The researchers need at least 397 samples based on previous study recommendations (Krejcie & Morgan, 1970).

The instrument used in this study was divided into six sections; Part A consisted of questions on respondent background, Part B consisted of questions on responsiveness (five items), Part C consisted of questions on technology (five items), Part D consisted of question on tangibles (five items), Part E consisted of questions on empathy (five items) and Part F consisted of questions on users' satisfaction (five items). This instrument is structured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items for parts B, C, D and E have been adopted and adapted from the SERVQUAL questionnaire (Parasuraman et al., 1988). The data was collected personally through the distribution of questionnaires to UiTM Puncak Perdana Campus students who use the library services and facilities at PTAR.

A pilot study involving 30 randomly selected respondents was conducted to test the reliability of the instrument. All items of responsiveness, technology, tangibles, empathy, and user satisfaction were tested for internal reliability and consistency that should exceed the required level of at least 0.7 (Salkind, 2015). The reliability showed that it has excellent Cronbach's Alpha values for all subscales (responsiveness = 0.877, technology = 0.807, tangibles = 0.872, empathy = 0.890 and users' satisfaction= 0.889), which indicates that all the variables of interest were found to have excellent reliabilities, internal consistency, discriminatory and convergent validities.

The data was then analysed using IBM-SPSS AMOS version 24 software which included descriptive analysis and correlational analysis to achieve the research objectives. The correlational analysis has been used to show some indication of how two or more variables are connected, or more specifically, what the variables share or have in common, as well as how effectively one or more pieces of information may be able to anticipate a certain result (Posamentier & Salkind, 2012; Schober, Boer & Schwarte, 2018).

FINDINGS AND DISCUSSIONS

The sample comprised 397 students aged between 18 to 26 years old from UiTM Puncak Perdana Campus with 72.8% female respondents and 27.2% male respondents. 326 (82.1%) of the respondents were from the Faculty of Information Management and the remaining 71 respondents (17.9%) were from the Faculty of Film, Theatre and Animation. In addition, 304 (76.6%) of them were from undergraduate degree programs, 55 (13.8%) from postgraduate programs and 38 (9.6%) from diploma programs. Most of the respondents (43.3%) were second-year students, while 34.3% were third-year students, 20.9% were from the first year and 1.5% were from others. This study found that the majority of respondents (137, 34.5%) chose to study in groups as their purpose for using the library, followed by

86 (21.7%) respondents who chose to use library materials, 67 (16.9%) respondents who chose to study individually, 43 (10.8%) respondents chose to use computers, 40 (10.1%) respondents chose normal learning, and 24 (6.0%) respondents chose other purposes.

The assumptions of parametric analysis have been met because all the variables of interest are at least approximately normally distributed (-1 < skewness < 1) and there is no problem of multicollinearity (r< 0.85) as recommended by Awang (2018). The following Figure 3 shows the correlational analysis between SERVQUAL dimensions, responsiveness, technology, tangibles and empathy towards the library users' satisfaction.
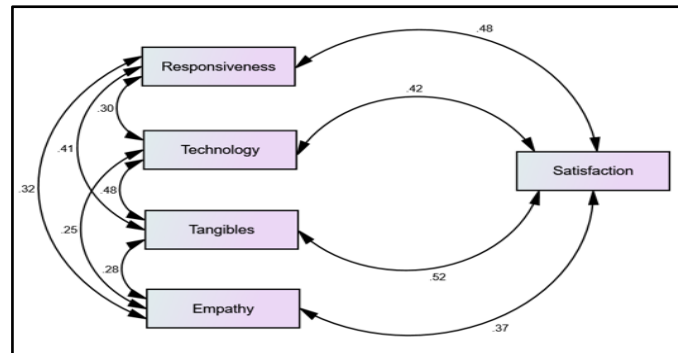

Figure 3: Correlational Analysis between SERVQUAL Dimensions and Users' Satisfaction

This study revealed that there is a moderate positive relationship between responsiveness and satisfaction (r = 0.48), a moderate positive relationship between technology and satisfaction (r = 0.42), a moderate positive relationship between tangibles and satisfaction (r = 0.52), and a moderate positive relationship between empathy and satisfaction (r = 0.37). Farooq et al. (2019) mentioned that technology has a positive effect on determining library users' satisfaction which is the same scenario that occurred in this study. The result is also in line with Brown (2017) who found that tangibles have a positive impact on user satisfaction. In addition, the researchers were also interested in investigating the relationship between all dimensions of service quality with library user satisfaction as shown in Figure 4. The result found that there is a strong positive relationship between the two variables (r = 0.63) which is consistent with the previous studies (Twum et al., 2020). The results were also congruent with those reported by Chandra et al., (2019) and Afthanorhan et al. (2019), who discovered that service quality had a positive impact on students' satisfaction and higher learning institutions place a high priority on students' satisfaction. Besides, student satisfaction is a good indicator of a university's strengths and weaknesses (Omar et al., 2021). Students often visit libraries with a variety of informational needs and expectations, therefore, providing high-quality service to fulfil their satisfaction is very important for the institution.
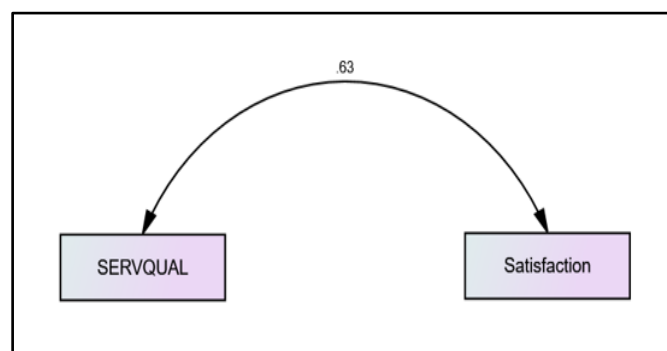

Figure 4: Correlational Analysis between SERVQUAL and Users' Satisfaction

In another study proposed by Sharif et al., (2021), it was reported that all the dimensions of service quality based on the SERVQUAL model that consist of reliability, responsiveness, assurance, and empathy have a significant and positive effect on students' satisfaction. In the context of library services, quality of service is viewed as managing user expectations of service, and satisfaction is viewed as the customer's emotional response to their overall experience with the service provider (Cristobal, 2018). Hence, according to the findings, the higher education institution has therefore rendered the services in the best possible way, and students have reciprocated by expressing their degree of satisfaction. As suggested, library administration should strengthen all the dimensions under the SERVQUAL model to increase the level of user satisfaction.

CONCLUSION

In conclusion, the study revealed that for conventional library services and facilities to be continuously relevant in this consistently evolving technological era that sees the adoption of the Internet of things (IoT), artificial intelligence (AI) as well as other similar advanced information-searching apps used by students, it is suggested that PTAR's management to keep on identifying its strengths and weaknesses by conducting periodical surveys and customer service programmes and activities to get feedback and recommendations directly from the users. The findings are expected to suggest priority areas which have problems that PTAR needs to address and by identifying service quality gaps which may be arising from staff assumptions of what users like as well as identifying services offered in a manner that does not meet users' needs.

With the growth in the number of students as well as academic programs through UiTM's mission of being a globally renowned university (GRU), PTAR will need to align itself to the quality expectations, for both its services and facilities, and ensure that it provides services that meet the expectations of the library users to stay relevant. As the study only focused on finding the correlation between SERVQUAL dimensions and users' satisfaction, further research could be conducted in the form of a qualitative research approach whereby in-depth data can be collected using open-ended questionnaires or interviews to gain a deeper understanding of users' expectations which is related to their satisfaction in using the services offered by the library.

ACKNOWLEDGEMENTS

FUNDING

AUTHORS' CONTRIBUTION

Mohamad Zaki, M. H. conceived and planned the study. Mohamad Zaki, M. H., Syed Wahid, S. H. and Hasan, H. carried out the study and data preparation. Syed Wahid, S. H. contributed to the interpretation of the results. Mohamad Zaki, M. H., Hasan, H and Mohamad, M. collaborated in writing the manuscript. All authors provided critical feedback and helped shape the research, analysis and manuscript.

CONFLICT OF INTEREST DECLARATION

We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This manuscript has not been submitted for publication nor has it been published in whole or in part elsewhere. We testify to the fact that all Authors have contributed significantly to the work, validity and legitimacy of the data and its interpretation for submission to Jurnal Intelek.

REFERENCES

Afthanorhan, A., Awang, Z., Rashid, N., Foziah, H., & Ghazali, P. (2019). Assessing the effects of service quality on customer satisfaction. *Management Science Letters*, 9(1), 13-24.

Alam, M. J., & Mezbah-ul-Islam, M. (2020). Service quality assessment model for academic libraries. *Global Knowledge, Memory and Communication*, 70(4–5), 325–338. https://doi.org/10.1108/GKMC-03-2020- 0027.

Awang, Z., Lim, S. H., & Zainudin, N. F. S. (2018). *Simple approach SEM- structural equation modeling*. MPWS Rich Resources.

Brown, K. (2017). Academic library impact on student learning and success Association of College & Research Libraries, (April), 28. Retrieved from www.acrl.ala.org/value.

Chandra, T., Hafni, L., Chandra, S., Purwati, A. A., & Chandra, J. (2019). The influence of service quality, university image on student satisfaction and student loyalty. *Benchmarking: An International Journal*, 26(5), 1533-1549.

Chen, Y. C., Ho, C. C., & Kuo, S. M. (2022). Service quality of and user satisfaction with non-state-owned academic libraries in China: Integrating the fuzzy Delphi Method with the Kano Approach. Sustainability (Switzerland), 14(14). https://doi.org/10.3390/su14148506.

Cristobal, A. S. (2018). Expectations on library services, library quality (LibQual) dimension and library customer satisfaction: Relationship to customer loyalty. *Library Philosophy and Practice*, 1706, 1-24.

Dube, T. V., & Jacobs, L. (2022). Academic library services extension during the COVID-19 pandemic: Considerations in higher education institutions in the Gauteng Province, South Africa. *Library Management*, 44(1), 17–39. https://doi.org/10.1108/LM-04-2022-0039.

Evelyn, O. A. T., & Lydia, N.-B. (2019). Library value through user satisfaction: The case of academic libraries in Ghana. *International Journal of Library and Information Science*, 11(5), 44–57. https://doi.org/10.5897/ijlis2019.0886.

Farooq, M., Khalil-ur-, F., Tijjani, D., Younas, W., Sajjad, S., & Zreen, A. (2019). Service quality analysis of private universities libraries in Malaysia in the era of transformative marketing. *International Journal for Quality Research*, 13(2), 269-284.

Garnar, M., & Tonyan, J. (2021). Library as place: Understanding contradicting user expectations. *Journal of Academic Librarianship*, 47(5), 102391. https://doi.org/10.1016/j.acalib.2021.102391.

Guillén Perales, A., Liébana-Cabanillas, F., Sánchez-Fernández, J., & Herrera, L. J. (2020). Assessing university students' perception of academic quality using machine learning. *Applied Computing and Informatics*. https://doi.org/10.1108/aci-06-2020-0003.

Ko, C. H., & Chou, C. M. (2020). Apply the servqual instrument to measure service quality for the adaptation of ict technologies: A case study of nursing homes in taiwan. *Healthcare* (Switzerland), 8(2). https://doi.org/10.3390/healthcare8020108.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.

Machendranath, S. (2021). Evaluation of information sources and services of University Library, Uas Raichur: A Study. Library Philosophy and Practice. Retrieved from https://digitalcommons.unl.edu/libphilprac/6503/.

Makoe, M., & Nsamba, A. (2019). The gap between student perceptions and expectations of quality support services at the University of South Africa. *American Journal of Distance Education*, 33(2), 132–141. https://doi.org/10.1080/08923647.2019.1583028.

Mawia, F. C. (2021). Utilization and user's satisfaction on library resources and services by school of engineering and technology, Mizoram University. *Library Philosophy & Practice*, 2021(December), 1–17. Retrieved from https://digitalcommons.unl.edu/libphilprac/6503/.

Noh, Y. (2022). The analytic study of librarian-user and importance-satisfaction on the use factor of complex cultural space in library. *Library Hi Tech*, 40(6), 1532–1566. https://doi.org/10.1108/LHT-06-2020-0135.

Nugraha, E., Ardiansyah, T., Junaeti, E., & Riza, L. S. (2020). Enhanced digital library with book recommendations based on collaborative filtering. *Journal of Engineering Education Transformations*, 34(Special Issue), 147–152. https://doi.org/10.16920/JEET/2020/V34I0/157882.

Nyakweba, I., Bukirwa, J. M., Sendikadiwa, E., & Ratanya, F. C. (2022). Users' needs and expectations on information services provided in libraries: Case of four public university libraries from the western region of Kenya. *Library Management*, 43(1/2), 1–14. https://doi.org/10.1108/LM-12-2020-0178.

Omar, M. S., Salleh, N. M., & Arshad, N. J. (2021). The influence of library service quality on student satisfaction: A case study of Politeknik Tuanku Syed Sirajuddin. *International Journal of Advanced Research in Education and Society*, 3(2), 74-81.

Parasuraman, A. B. L. L., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.

Posamentier, A. S., & Salkind, C. T. (2012). *Challenging problems in geometry*. Courier Corporation.

Roy, S. G., Kanjilal, U., Sutradhar, B., & Jalal, S. K. (2022). Building immersive library environment to access virtual reality content. -A proposed framework model. *DESIDOC Journal of Library and Information Technology*, 42(3), 178–184. https://doi.org/10.14429/djlit.42.3.17719.

Sajna, K. P., & Mohamed Haneefa, K. (2018). Service quality of libraries of Indian Council of Agricultural Research Institutes of Kerala, India. *DESIDOC Journal of Library and Information Technology*, 38(3), 156–161. https://doi.org/10.14429/djlit.38.3.12215.

Salkind, N. J. (2015). Excel statistics: A quick guide. 147. Retrieved July 13, 2023, from https://books.google.com/books/about/Excel_Statistics.html?id=w7LdCQAAQBAJ.

Schober, P., Bossers, S. M., & Schwarte, L. A. (2018). Special article: Statistical significance versus clinical importance of observed effect sizes: What do P values and confidence intervals really represent? *Anesthesia and Analgesia*, 126(3), 1068. https://doi.org/10.1213/ANE.0000000000002798.

Shafiq, A., Mostafiz, M. I., & Taniguchi, M. (2019). Using SERVQUAL to determine Generation Y's satisfaction towards hoteling industry in Malaysia. *Journal of Tourism Futures*, 5(1), 62–74. https://doi.org/10.1108/JTF-01-2018-0004.

Shahzad, K. (2019). Users' satisfaction with information resources and services: A survey of GC University Library Lahore. *Library Philosophy and Practice* (ejournal), 3603.

Sharif, S., Lodhi, R. N., Siddique, F., & Munir, M. A. (2021). Service quality of higher education digital library (DL) and loyalty behaviors: Testing the mediating role of student satisfaction. *Library Philosophy and Practice*, 1-22.

Shastri, D. K., & Chudasma, P. (2022). The perception of ICT skills and challenges of usage of technologies among the library professionals of the Gujarat State during the COVID 19: A comprehensive study. *Quality and Quantity*, 56(3), 1093–1120. https://doi.org/10.1007/s11135-021-01167-x.

Twum, K. K., Adams, M., Budu, S., & Budu, R. A. A. (2020). Achieving university libraries user loyalty through user satisfaction: The role of service quality. *Journal of Marketing for Higher Education*, 32(1), 54–72. https://doi.org/10.1080/08841241.2020.1825030.