



Service Quality Analysis of Airlangga University Library for Foreign Students

Corry Asmarany*, Dimas Saputra

*Library and Information Science Study Programme, Faculty of Ushuluddin, Adab, and Da'wah, UIN Sayyid Ali Rahmatullah Tulungagung, Indonesia

*Correspondence E-mail: casmarany@gmail.com

ABSTRACT

This study aims to evaluate the perception of foreign students towards the quality of service at Airlangga University Library using six dimensions of LibQual+, namely effect of Service, Reliability, Ubiquity, Ease of Access, Comprehensive Collections, Self-Reliance, and Library as Place. The research method used is descriptive quantitative, with a survey of 65 foreign student respondents meeting the purposive sampling criteria. The results showed that the "Effect of Service" dimension received the highest rating (26.2%), followed by the "Library as Place" (12.96%) and "Self-Reliance" (6.66%). Meanwhile, the "Comprehensive Collections" dimension has the lowest value (4.49%), indicating the need to improve collections that are more complete and relevant for foreign users. This study concludes that although the library has provided good service in terms of room comfort and ease of access to information, significant efforts are still needed to improve the quality of collections to meet the academic needs of foreign students. These findings provide important insights for library managers to optimize services based on user needs.

© 2025 Edulib

ARTICLE INFO

Article History:

Submitted/Received 02 Oct 2024

First Revised 16 Oct 2024

Accepted 16 Nov 2024

First Available Online 28 April 2025

Publication Date 01 May 2025

Keywords:

Affect of Service,
Comprehensive Collections,
Foreign Students,
Library as Place,
Service Quality.

1. INTRODUCTION

Globalization has triggered significant changes in various aspects of life, including education. This change has encouraged many countries to establish bilateral cooperation to strengthen relations in the education sector (Suranto, Annur, & Ibrahim, 2023). One form of this cooperation is the student exchange program between countries, both at the high school and college levels. International students are increasingly choosing universities abroad to continue their studies, whether at undergraduate, master's, or PhD levels. According to data from the Directorate General of Higher Education (DIKTI), in 2016 there were 6,967 Study Permits issued by the Directorate of Higher Education Development (PT). This Study Permit is one of the main requirements for foreign students to obtain immigration documents such as Student Visas and Limited Stay Permits (ITAS) from the Directorate General of Immigration, Ministry of Law and Human Rights.

Airlangga University (UNAIR) is one of the institutions that actively participates in this program. In 2014, there were 122 foreign students actively studying in various faculties at UNAIR. A total of 51 students came from Malaysia, 19 from Brunei Darussalam, and one student from Germany who participated in the AMERTA Short Course program and other programs at UNAIR. Compared to other institutions such as the Sepuluh Nopember Institute of Technology (ITS), which only has 48 foreign students, UNAIR is the institution with the largest number of foreign students in Surabaya (Webometrics, 2023). This phenomenon shows that UNAIR is the main choice for foreign students, especially because of its strong academic reputation and adequate supporting facilities.

One of the important factors that is the main consideration in attracting foreign students is the quality of service offered by educational institutions. Service quality can be defined as the condition of good or bad value of the services provided (Gómez-Cruz, Harari-Betancourt, & Vergara-Mendoza, 2020). In the context of libraries, service quality is a crucial element because the library is one of the main information centers for students. The quality of library services not only affects user satisfaction but also contributes to the achievement of the overall goals of educational institutions (Barfi et al., 2023; Khan et al., 2022).

Airlangga University Library, as an integral part of educational institutions, has a great responsibility to provide services that suit the needs of its users, including foreign students. However, challenges arise when foreign students have different cultural backgrounds, languages, and preferences compared to local students. This makes evaluating the quality of library services very important to ensure that the needs of all users, including foreign students, can be met (Amirtharaj, Raghavan, & Arulappan, 2023).

In the literature, there are several models used to evaluate the quality of library services. One of the most popular models is LibQUAL+, which includes six dimensions: Effect of Service, Reliability, Ubiquity, and Ease of Access, Comprehensive Collections, Self-Reliance, and Library as Place (Mamta & Kumar, 2023; Shahzadi & Khalid, 2025; Wang, Yuan, & Shi, 2022). This model is designed to measure users' perceptions of library service quality based on their expectations and actual experiences (Devi & Bhatt, 2024). There has been a lot of research on library service quality, but there are still some gaps that need to be explained. First, most previous studies have focused more on local students than international students (Chan et al., 2022; Nurlaila, 2016). Second, although some studies use the LibQUAL+ model, the analysis of certain dimensions such as Comprehensive Collections is often lacking in depth (Mamta & Kumar, 2023; Zulfiqar & Khalid, 2024). Third, research on the quality of library services in Indonesia, especially at Airlangga University, is still limited. Therefore, this study

aims to fill this gap by focusing on evaluating the quality of library services among foreign students at Airlangga University. The novelty of this study lies in the approach used, namely by comprehensively analyzing the six dimensions of LibQUAL+ to identify the strengths and weaknesses of library services. In addition, this study also provides new insights into how libraries can improve their services to be more inclusive and responsive to the needs of foreign students. The results of this study are expected to be the basis for strategic decision-making by library managers in improving the quality of their services.

Modern libraries are not only places to read physical books but also centers of digital information that can be accessed widely (Afiyah & Muthoifin, 2024; Majidah & Rullyana, 2024). One growing trend is the use of e-books and electronic journals, which are increasingly in demand by students, including foreign students (Amirtharaj et al., 2023; Chen et al., 2021). E-books offer greater ease of access and mobility compared to traditional printed books. However, user preferences for certain types of collections can affect their satisfaction with library services. Therefore, libraries need to ensure that the collections provided are relevant to the needs of users, including foreign students who may have different preferences compared to local students. In addition, the technological aspect is also an important factor in improving the quality of library services. Modern libraries must utilize technology to provide more efficient and effective services (Kumar, 2022; Nugroho et al., 2025). For example, the OPAC (Online Public Access Catalog) system and web-based library applications can help users search for information independently. However, the implementation of this technology must be supported by adequate training to ensure that users, including foreign students, can use it comfortably (Almakky, 2025; Shahzad, Xu, & Baheer, 2024).

The sustainability of library services is also influenced by its physical environment. The Library as Place dimension emphasizes the importance of designing a library space that is comfortable, clean, and supports learning activities (Cha & Kim, 2015). A well-designed library space can increase learning motivation and user comfort. However, previous studies have shown that this aspect is often overlooked in evaluating the quality of library services (Gathoni & Van der Walt, 2019).

Therefore, this study aims to examine how foreign students perceive the comfort of the library space at Airlangga University. Specifically, it seeks to analyze their perceptions of service quality based on the six dimensions of the LibQUAL+ framework, identify which dimensions are considered most satisfactory and which require improvement, and provide practical recommendations to enhance the overall quality of library services in alignment with the needs of international users. The findings of this research are expected to offer valuable insights for library administrators in formulating strategies to improve service delivery. Furthermore, this study may serve as a useful reference for future research focusing on the assessment of library service quality for foreign students in the Indonesian higher education context.

2. METHODS

This study uses a quantitative descriptive design to analyze foreign students' perceptions of service quality at the Airlangga University Library. The descriptive approach was chosen because it aims to describe existing phenomena systematically and factually (Mohajan, 2020). This study also uses a survey as the main data collection tool to obtain direct information from respondents. The population in this study were all foreign students who visited the Airlangga University Library. Given the large population, the researcher used a purposive sampling technique to determine the sample. The sample was selected based on certain criteria,

namely foreign students who had accessed library services at least 3 times during the research period. The sample size calculation uses the following formula:

$$n = \frac{N}{N(d)^2 + 1}$$

Figure 1. Sample calculation formula.

With a value of N=190 (population) and d=0.1 (precision level), a sample size of 65 respondents was obtained. This sample is considered representative enough to represent the population. The research instrument used was a Likert-based questionnaire. The questionnaire was designed based on six dimensions of LibQUAL+ to measure foreign students' perceptions of service quality at Airlangga University Library. The following are the details of the research instrument.

Table 1. Details of dimensions and indicators in the research instrument.

Dimension	Indicator	Answer Scale
Effect of Service	Empathy: The ability of staff to understand user needs.	SD = 1 (Strongly Disagree) to SA = 5 (Strongly Agree)
	Responsiveness: Speed of staff in responding to user needs.	
	Assurance: Professionalism and confidence displayed by staff.	
Reliability	Ability of staff to provide fast, accurate, and satisfactory services.	
Ubiquity and Ease Access	Formats: Ease of accessing information in digital or physical formats.	
	Timely Access to Resources: Availability of resources at any time.	
Comprehensive Collections	Physical Location: Strategic placement of collections for easy access.	
	Completeness and relevance of up-to-date collections.	
Self Reliance	Instructions for users to independently access services, such as OPAC and book catalogs.	
Library as Place	Utilitarian Space: Comfortable spaces for studying, discussions, and other activities.	
	Symbol: Image of the library as an educational and informational hub.	
	Refuge: Clean, comfortable, and productive environment.	

The validity and reliability of the instrument were tested using statistical tests. The results of the validity test showed that all questions had a Pearson correlation coefficient value > 0.3, while the results of the reliability test showed a Cronbach's Alpha value > 0.7, which indicated that the instrument had a good level of reliability (Gómez-Cruz et al., 2020).

The research procedure consists of several stages:

- i. Preparation Stage: The researcher conducted initial observations at the Airlangga University Library to understand field conditions and determine sample criteria.
- ii. Data Collection Stage: The questionnaire was distributed to 65 respondents who met the criteria through two methods. First through Google Forms to facilitate distribution to foreign students. Second, direct distribution of questionnaires in the library area.
- iii. Data Processing Stage: The data obtained was processed using statistical software such as Microsoft Excel and SPSS for descriptive analysis.

The data analysis technique used was quantitative descriptive analysis. The collected data were analyzed based on the six dimensions of LibQUAL+ with the following steps:

- i. Calculation of Average Score: Each dimension is calculated based on the average score of the respondents' answers.
- ii. Categorization of Answers: Respondents' answers are categorized into three levels based on class intervals with high: 3.36–3.86, medium: 2.56–3.36 and low: 1.76–2.56.
- iii. Interpretation of Results: The results of the analysis were compared with the respondents' minimum and ideal expectations to determine the level of service adaptation and service superiority.

This technique allows researchers to provide a clear picture of the strengths and weaknesses of library services based on the perceptions of foreign students (Wang et al., 2023).

3. RESULTS AND DISCUSSION

3.1 General Information on Respondents

This part gives a clear overview of the people who took part in the study. The information was gathered using a questionnaire that asked about their gender, year of study, country they come from, how often they visit the library, and why they visit. Knowing these details helps researchers understand the profile of library users and gives researchers a better idea of their preferences and how they use the library services.

The data shows that female international students tend to use library services at Airlangga University more often than male students. According to the numbers, about 72.3% (which is 47 students) are female, while 27.7% (18 students) are male. This pattern matches earlier research indicating that female students usually engage more with academic resources (Ivanec, 2022). The higher number of female respondents might also mean they rely more on the library for their studies and group work.

Table 2. Gender distribution.

Gender	Frequency (F)	Percentage (%)
Male	18	27.7%
Female	47	72.3%
Total	65	100%

Most students participating in the survey were in their second semester, making up about 54%, with those in the sixth semester accounting for around 43%. This kind of pattern suggests that international students tend to use the library more during essential times in their studies, especially when they're working on the basics or preparing for their thesis. This matches what Bakermans & Plotke (2018) found, showing that students in the middle and later semesters often depend on the library for research and project work.

Table 3. Semester distribution.

Semester	Frequency (F)	Percentage (%)
2	35	53.8%
6	28	43.1%
Total	65	100%

Students from all over the world participate, showing how diverse Airlangga University's student community is. The country with the most students was Brunei Darussalam (26.2%), followed by Malaysia, Tanzania, the Philippines, Sudan, Madagascar, Japan, Cambodia, Thailand, Germany, France, Hungary, China, and the Netherlands. This variety really emphasizes how important it is to design library services that cater to an international crowd. As Bodaghi, Cheong, & Zainab (2016) point out, libraries that serve people from many different backgrounds need to focus on being comprehensive and culturally aware to keep users happy and comfortable.

Table 4. Country of origin.

Country	Frequency (F)	Percentage (%)
Brunei Darussalam	17	26.2%
Malaysia	7	10.8%
Tanzania	7	10.8%
Philippines	7	10.8%
Sudan	6	9.2%
Madagascar	4	6.2%
Japan	3	4.6%
Cambodia	3	4.6%
Thailand	3	4.6%
Germany	3	4.6%
France	2	3.1%
Hungary	1	1.5%
China	1	1.5%
Netherlands	1	1.5%
Total	65	100%

The frequency of library visits varied significantly among respondents. The majority visited the library 2-3 times (47.7%), while only 13.8% visited 3-4 times. Notably, no respondents reported visiting the library more than four times. This trend suggests that international students prefer accessing digital resources such as e-books and journals rather than physically visiting the library (Amirtharaj et al., 2023). Additionally, this preference for digital access aligns with the findings of Adetayo (2023), who emphasized the growing reliance on virtual libraries in the post-pandemic era.

Table 5. Frequency of visits.

Frequency of Visits	Frequency (F)	Percentage (%)
> 4 times	0	0%
3-4 times	9	13.8%
2-3 times	31	47.7%
1-2 times	25	38.5%
Total	65	100%

The primary purpose of visiting the library was for group discussions (49.2%), followed by other activities (46.2%) such as studying or using library facilities. Only 4.6% of respondents visited the library to consult with reference officers or complete tasks. This indicates that the library serves not only as an academic resource but also as a social and collaborative space. According to Zamiri & Esmaeili (2024), modern libraries are increasingly designed to foster both individual and group learning environments.

Table 6. Purpose of visit.

Purpose	Frequency (F)	Percentage (%)
Consult with reference officer	0	0%
Study or carry out a task	3	4.6%
Discussion	32	49.2%
Others	30	46.2%
Total	65	100%

3.2 Analysis of Service Quality Dimensions

This study looks at what international students think about the quality of services at the Airlangga University Library. It uses six key areas from the LibQUAL+ framework: how the service makes students feel, reliability, easy access everywhere, the breadth of collections, independence in using the library, and the library as a physical space. We gathered data through a survey of 65 international students who fit specific criteria. The results show that students rated the 'Affect of Service' highest at 26.2%, while the 'Comprehensive Collections' scored the lowest at 4.49%. Overall, the average of all six areas was about 8.74%, with a total score of roughly 52.4%. This suggests that while the library does a good job in terms of friendliness, responsiveness, and confidence, there's still a lot of room to improve the collections to make them more complete and usefull for international students.

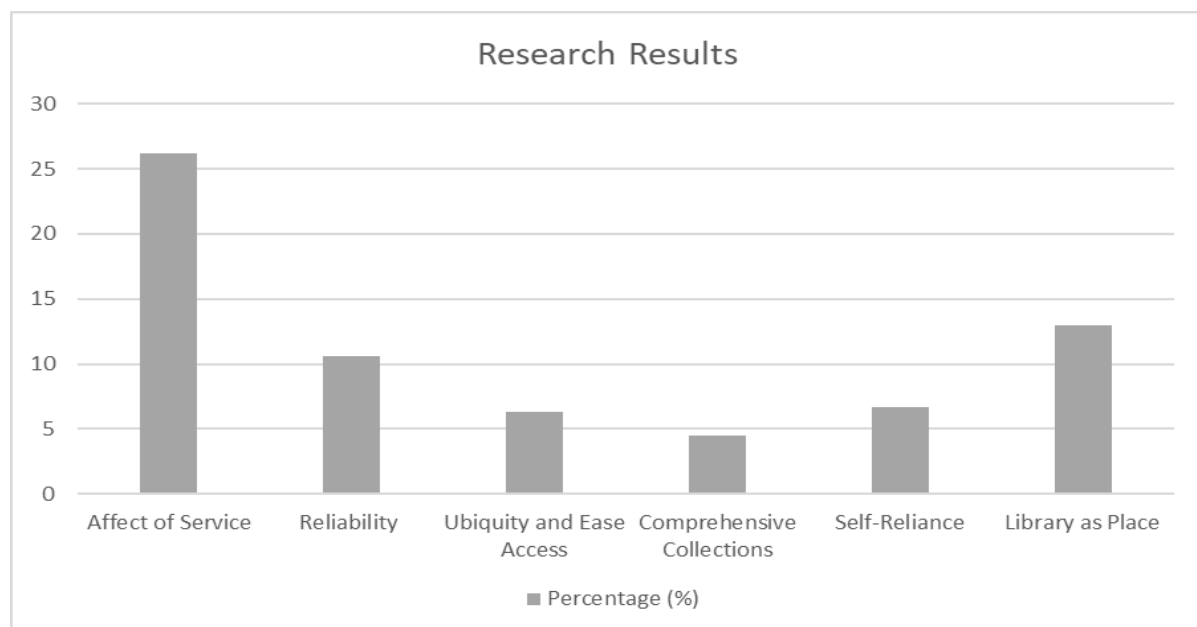


Figure 2. Visual representation of research results in the form of a bar chart.

Figure 2. Visual representation of research results in the form of a bar chart.

The 'Affect of Service' was clearly the library's strongest point, scoring around 26%. This shows that the staff does a great job connecting with users through empathy, quick responses, and building confidence. Experts like [Murray, Elms, & Curran \(2019\)](#) say these qualities are really important for keeping users happy and coming back. Still, there's room to grow, especially in training staff in foreign languages so they can better communicate with international students. The 'Comprehensive Collections' area scored the lowest at just 4.49%, showing many users aren't happy. Scholars like [Abubakar & Akor \(2017\)](#) stress that having a

wide range of materials is key for meeting different information needs. Users are concerned about missing cross-cultural and multilingual resources. Adding books and materials from various countries would help make the collection more useful for international students and more relevant overall (Merga & Roni, 2025; Wang et al., 2023).

The 'Library as Place' scored high at 12.96%, which means users like the environment. Seal (2015) points out that libraries today should be flexible spaces for studying, teamwork, and relaxing. People liked the clean, comfy design and the facilities like toilets and good lighting. To make it even better, adding more interactive features and cultural activities might bring in more engagement (Scholz & Smith, 2016; Rullyana & Emilzoli, 2024).

The 'Self-Reliance' score was at 6.66%, showing moderate satisfaction. Users feel okay about tools like the online catalog but find technical help unclear, especially for newcomers (Morley et al., 2021). Offering easy tutorials or workshops could help users learn to navigate resources more confidently (Hess & Hristova, 2016). The 'Ubiquity and Ease of Access' scored 6.35%, reflecting mixed feelings. Users like the e-resources but find navigating physical collections tricky. Improving search tools and website navigation could make access easier (Arndt et al., 2016; Cox et al., 2025).

The 'Reliability' score was 10.56%, meaning people generally find the services dependable and accurate. To boost this, extending hours and ensuring resources are consistently available would help even more. Additional Ideas and Tips To really improve overall service quality, libraries should approach things holistically, blending physical spaces, digital tools, and friendly staff. For example, AI chatbots could offer users help anytime, reducing wait times (Ghosh et al., 2024 ; Majidah, Rullyana & Triandari, 2025). Also, working with publishers and cultural groups could grow the collection and bring in unique resources for international students.

To improve the quality of library services even more, they should take a well-rounded approach that combines physical spaces, digital tools, and helpful staff. For example, adding AI-powered chatbots could give users around-the-clock help, making support available whenever they need it (Durach & Gutierrez, 2024). Also, teaming up with publishers and cultural groups could grow the library's collection and bring in special resources that really help international students (Pedersen & Netter, 2015). Overall, this study shows that mixing traditional library services with new technology is key to meeting what users need today. By fixing gaps and exploring new tech, libraries can become more welcoming and focused on their users.

4. CONCLUSION

This study emphasizes how essential it is for academic libraries to focus on user-centered services. For Airlangga University Library, improving the variety of its collections, especially by including materials from different countries, could really boost its relevance for international students. Plus, keeping the library's physical space nice and enhancing its digital resources will likely make users even happier. These steps align with the library's role as an essential support system for academic success and cultural integration among foreign students. This research adds to our understanding of service quality in academic libraries, especially in diverse settings. Using the LibQUAL+ framework helps show how both tangible factors (like collections and spaces) and intangible factors (like empathy and reliability) influence user experiences. These insights also contribute to the existing knowledge on library service quality by focusing on the specific needs of foreign students, which might be different from local users.

While this study offers valuable insights, it does have some limitations. First, the sample size was relatively small (only 65 respondents), which might affect how broadly we can apply these findings. Second, it mainly looked at foreign students at Airlangga University, possibly leaving out the views of other user groups. Lastly, the research relied a lot on self-reported data, which can sometimes lead to biased responses from users. Future research could broaden the scope by including larger and more varied groups, like local students or faculty members, to get a fuller picture of library service quality. Also, using mixed methods, like interviews or focus groups, could provide deeper insights into user experiences and preferences. It would be interesting to explore how new technologies, like artificial intelligence and virtual reality, could affect library services and user satisfaction.

5. AUTHORS' NOTE

The authors want to clarify that they have no conflicts of interest related to this research. They conducted the study honestly, following ethical guidelines and academic standards to make sure the results are trustworthy. The authors also confirm that they have no financial, personal, or professional ties that could affect how they interpret or present the findings. They assure that this manuscript is original and hasn't been published anywhere else, fully or in part. All sources of information, data, and ideas are properly cited to respect intellectual property rights. They made a strong effort to avoid plagiarism and to meet high academic honesty standards, using plagiarism detection tools during the writing process to check for originality. The authors also thank everyone who helped with the research, including participants, library staff, and advisors, though the final responsibility for the content, analysis, and conclusions rests solely with them. This study aims to add to what we know about library and information science, especially around evaluating service quality in academic libraries.

6. REFERENCES

- Abubakar, M. S., & Akor, P. U. (2017). Availability and utilization of electronic information databases for research by agricultural scientists in federal university libraries in North Central Nigeria. *Library Philosophy and Practice (e-journal)*, 1600, 1-34. <http://digitalcommons.unl.edu/libphilprac/1600>
- Adetayo, A. J. (2023). Post Covid-19 pandemic and library users' education: Impact on examination and survey. *The Journal of Academic Librarianship*, 49(3), 102695. <https://doi.org/10.1016/j.acalib.2023.102695>
- Afiyah, I., & Muthoifin, M. (2024). The existence of library literacy in Indonesia in the millennial era: Strategies for improving the quality of education to support the Sustainable Development Goals (SDG's). *Solo International Collaboration and Publication of Social Sciences and Humanities*, 3(1), 41-52. <https://doi.org/10.61455/sicopus.v3i01.229>
- Almakky, H. G. (2025). Fostering empathy and social-emotional learning in students with learning disabilities through HCI and Augmented Reality. *International Journal of Interactive Mobile Technologies (IJIM)*, 19(05), 79-97. <https://doi.org/10.3991/ijim.v19i05.51321>
- Amirtharaj, A. D., Raghavan, D., & Arulappan, J. (2023). Preferences for printed books versus

- E– books among university students in a Middle Eastern country. *Heliyon*, 9(6), 1-10. <https://doi.org/10.1016/j.heliyon.2023.e16776>
- Arndt, D., Grant, J. R., Marcu, A., Sajed, T., Pon, A., Liang, Y., & Wishart, D. S. (2016). PHASTER: a better, faster version of the PHAST phage search tool. *Nucleic acids research*, 44(W1), W16-W21. <https://doi.org/10.1093/nar/gkw387>
- Bakermans, M. H., & Plotke, R. Z. (2018). Assessing information literacy instruction in interdisciplinary first year project-based courses with STEM students. *Library & Information Science Research*, 40(2), 98-105. <https://doi.org/10.1016/j.lisr.2018.05.003>
- Barfi, K. A., Parbie, S. K., Filson, C. K., Teye, M. V., Kodua-Ntim, K., & Ayensu, E. (2023). Assessing the quality of services at an academic library. *Heliyon*, 9(12), 1-9. <https://doi.org/10.1016/j.heliyon.2023.e22449>
- Bodaghi, N. B., Cheong, L. S., & Zainab, A. N. (2016). Librarians empathy: visually impaired students' experiences towards inclusion and sense of belonging in an academic library. *The Journal of Academic Librarianship*, 42(1), 87-96. <https://doi.org/10.1016/j.acalib.2015.11.003>
- Cha, S. H., & Kim, T. W. (2015). What matters for students' use of physical library space?. *The Journal of Academic Librarianship*, 41(3), 274-279. <https://doi.org/10.1016/j.acalib.2015.03.014>
- Chan, V. H. Y., Chiu, D. K., & Ho, K. K. (2022). Mediating effects on the relationship between perceived service quality and public library app loyalty during the COVID-19 era. *Journal of Retailing and Consumer Services*, 67, 102960. <https://doi.org/10.1016/j.jretconser.2022.102960>
- Chen, M. A., Hwang, G., Majumdar, R., Toyokawa, Y., & Ogata, H. (2021). Research trends in the use of E-books in English as a foreign language (EFL) education from 2011 to 2020: a bibliometric and content analysis. *Interactive Learning Environments*, 31(4), 2411–2427. <https://doi.org/10.1080/10494820.2021.1888755>
- Cox, E., Tsuchiya, M. T. N., Ciufo, S., Torcivia, J., Falk, R., Anderson, W. R., Holmes, J. B., Hem, V., Breen, L., & Davis, E. (2025). NCBI taxonomy: enhanced access via NCBI datasets. *Nucleic Acids Research*, 53(D1), D1711–D1715. <https://doi.org/10.1093/nar/gkae967>
- Devi, G. R., & Bhatt, D. (2024). A comprehensive study on library service quality: Bridging user perception gaps and implementing effective improvement strategies. *Library of Progress-Library Science, Information Technology & Computer*, 44(3), 304-315.
- Durach, C. F., & Gutierrez, L. (2024). “Hello, this is your AI co-pilot”—operational implications of artificial intelligence chatbots. *International Journal of Physical Distribution & Logistics Management*, 54(3), 229-246. <https://doi.org/10.1108/IJPDLM-01-2024-0031>
- Gathoni, N., & Van der Walt, T. (2019). Evaluating library service quality at the Aga Khan University library: Application of a total quality management approach. *Journal of Librarianship and Information Science*, 51(1), 123–136. <https://doi.org/10.1177/0961000616679725>
- Ghosh, S., Ness, S., & Salunkhe, S. (2024). The role of AI enabled chatbots in omnichannel customer service. *Journal of Engineering Research and Reports*, 26(6), 327-345. <https://doi.org/10.9734/jerr/2024/v26i61184>

- Gómez-Cruz, M. E., Harari-Betancourt, V., & Vergara-Mendoza, G. (2020). Quality indicators and user satisfaction in university libraries. *The Journal of academic librarianship*, 46(6), 102230. <https://doi.org/10.1016/j.acalib.2020.102230>
- Hess, A. N., & Hristova, M. (2016). To search or to browse: How users navigate a new interface for online library tutorials. *College & Undergraduate Libraries*, 23(2), 168-183. <https://doi.org/10.1080/10691316.2014.963274>
- Ivanec, T. P. (2022). The lack of academic social interactions and students' learning difficulties during COVID-19 faculty lockdowns in Croatia: the mediating role of the perceived sense of life disruption caused by the pandemic and the adjustment to online studying. *Social Sciences*, 11(2), 1-11. <https://doi.org/10.3390/socsci11020042>
- Khan, A. U., Rafi, M., Zhang, Z., & Khan, A. (2022). Determining the impact of technological modernization and management capabilities on user satisfaction and trust in library services. *Global Knowledge, Memory and Communication*, 72(6/7), 593-611. <https://doi.org/10.1108/gkmc-06-2021-0095>
- Kumar, V. (2022). Library service quality: A comparison between SERVQUAL and LibQUAL model. *Library Waves*, 8(1), 46-52.
- Webometrics. (2023). *Ranking Web of Universities*. Webometrics Info. Accessed from <https://www.webometrics.info/en/Asia/Indonesia>
- Majidah & Rullyana, G. (2024). The digital odyssey: Mapping science and research in digital libraries (1984-2023). In *6th Open Society Conference (OSC 2024)* (pp. 228-247). Atlantis Press. https://doi.org/10.2991/978-2-38476-340-5_20
- Majidah, M., Rullyana, G., & Triandari, R. (2025). Google Gemini as a learning assistant: Exploring student perceptions. *Jurnal PAJAR (Pendidikan dan Pengajaran)*, 9(2), 163-172. <https://doi.org/10.33578/pjr.v9i2.10008>
- Mamta, & Kumar, V. (2023). A systematic review of library service quality studies: Models, dimensions, research populations and methods. *Journal of Librarianship and Information Science*, 56(2), 534-546. <https://doi.org/10.1177/09610006221148190>
- Merga, M. K., & Roni, S. M. (2025). "An uphill battle": school library professionals fostering student reading engagement. *English in Education*, 1-20. <https://doi.org/10.1080/04250494.2025.2456718>
- Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of economic development, environment and people*, 9(4), 50-79.
- Morley, J., Elhalal, A., Garcia, F., Kinsey, L., Mökander, J., & Floridi, L. (2021). Ethics as a service: A pragmatic operationalisation of AI ethics. *Minds and Machines*, 31(2), 239-256. <https://doi.org/10.1007/s11023-021-09563-w>
- Murray, J., Elms, J., & Curran, M. (2019). Examining empathy and responsiveness in a high-service context. *International Journal of Retail & Distribution Management*, 47(12), 1364-1378. <https://doi.org/10.1108/IJRDM-01-2019-0016>
- Nugroho, A., Anggraini, H., Azzahra, K., & Marlini, N. (2025). The role of Information and Communication in supporting Digital Services at Universitas Negeri Padang Library. *International Journal of Applied Research and Sustainable Sciences*, 3(1), 1-10.

<https://doi.org/10.59890/ijarss.v3i1.122>

- Nurlaila, S. (2016). Persepsi mahasiswa terhadap kualitas pelayanan perpustakaan (survei di Universitas Muhammadiyah Metro). *Jurnal Lentera Pendidikan Pusat Penelitian LPPM UM METRO*, 1(2), 112-124. <http://dx.doi.org/10.24127/jlplppm.v1i2.296>
- Pedersen, E. R. G., & Netter, S. (2015). Collaborative consumption: Business model opportunities and barriers for fashion libraries. *Journal of Fashion Marketing and Management*, 19(3), 258-273. <https://doi.org/10.1108/JFMM-05-2013-0073>
- Rullyana, G., & Emilzoli, M. (2024). 5HP-Based Interactive Video Development: Creating Smart Learning Objects for Effective Learning. *E-Tech: Jurnal Ilmiah Teknologi Pendidikan*, 12(2), 1-15. <https://doi.org/10.24036/et.v11i2.126040>
- Scholz, J., & Smith, A. N. (2016). Augmented reality: Designing immersive experiences that maximize consumer engagement. *Business Horizons*, 59(2), 149-161. <https://doi.org/10.1016/j.bushor.2015.10.003>
- Seal, R. A. (2015). Library spaces in the 21st century: Meeting the challenges of user needs for information, technology, and expertise. *Library Management*, 36(8/9), 558-569. <https://doi.org/10.1108/LM-11-2014-0136>
- Shahzad, M. F., Xu, S., & Baheer, R. (2024). Assessing the factors influencing the intention to use information and communication technology implementation and acceptance in China's education sector. *Humanities and Social Sciences Communications*, 11(1), 1-15. <https://doi.org/10.1057/s41599-024-02777-0>
- Shahzadi, S., & Khalid, A. (2025). Deciphering Library Experience of Rural Gen-Z Women: Insights from the LibQUAL Survey. *Journal of Information & Knowledge Management*. <https://doi.org/10.1142/s0219649225500236>
- Suranto, D. I., Annur, S., & Ibrahim, D. (2023). The impact of globalization on educational change. In *Proceedings of the International Conference on Education, Society and Humanity (ICESH)* (Vol. 1, No. 2, pp. 415-421).
- Wang, J., Yuan, R., & Shi, H. (2022). Quantitative representation of perception and evaluation method for service quality in university library under 4-D space. *Library hi tech*, 40(1), 3-17. <https://doi.org/10.1108/LHT-09-2018-0121>
- Wang, T., Lund, B. D., Marengo, A., Pagano, A., Mannuru, N. R., Teel, Z. A., & Pange, J. (2023). Exploring the potential impact of artificial intelligence (AI) on international students in higher education: Generative AI, chatbots, analytics, and international student success. *Applied Sciences*, 13(11), 1-15. <https://doi.org/10.3390/app13116716>
- Zamiri, M., & Esmaeili, A. (2024). Methods and technologies for supporting knowledge sharing within learning communities: A systematic literature review. *Administrative Sciences*, 14(1), 1-34. <https://doi.org/10.3390/admsci14010017>
- Zulfiqar, A., & Khalid, A. (2024). When library cares: Mining insights from LibQUAL+ to determine university students' priorities. *Performance Measurement and Metrics*. *Performance Measurement and Metrics*, 25(34), 143-161. <https://doi.org/10.1108/pmm-11-2022-0037>