ASHA PUBLISHING

Volume 2, Issue 2, 2025



JOURNAL OF EDUCATIONAL DEVELOPMENT AND LEARNING

E-ISSN: 3063-8844
Journal of Educational Development and Learning
https://journal.ashapublishing.co.id/index.php/jedal/index

Development of Student Need-Based Library Facilities to Support Effective Learning

Eritrina
Institut Teknologi dan Bisnis Maritim Balik Diwa
Email: eritrina@itbm.ac.id

ABSTRACT

Academic libraries play a strategic role in supporting learning processes through the provision of learning resources, academic facilities, and information services that meet students' needs. Technological advancements and changes in student learning patterns require libraries to continuously improve their facilities to create effective and adaptive learning environments. This study aimed to analyze students' needs regarding library facilities as a basis for developing facilities that support effective learning at Universitas Negeri Makassar. A quantitative approach with a descriptive research design was employed. The population consisted of all students of Universitas Negeri Makassar, while the sample comprised 100 students selected through purposive sampling. Data were collected using a questionnaire distributed to students who were actively utilizing library facilities during the research period. The data were analyzed using descriptive statistics, including frequencies, percentages, and mean scores. The findings revealed that all library facility indicators were rated in the high to very high categories. Library Layout obtained the highest mean score (4.28), followed by Book Collections (4.25), Internet Access (4.24), Space Capacity (4.22), and Technological Facilities (4.11). These results indicate that the library facilities generally meet students' needs and contribute to effective learning. Nevertheless, the development of technological facilities should be prioritized to enhance library services and respond more effectively to the growing demands of digital learning. This study recommends strengthening technological infrastructure, expanding access to electronic information resources, and conducting regular evaluations of user needs as a foundation for sustainable library facility development.

Keywords: library facilities, student needs, effective learning, academic library, facility development

INTRODUCTION

Academic libraries constitute a strategic component within higher education systems by providing learning resources, academic spaces, and information services that support students' educational activities. In contemporary higher education, where independent learning, critical thinking, and information literacy are increasingly emphasized, libraries are no longer perceived merely as repositories of books and archival materials. Instead, they have evolved into dynamic learning centers that facilitate continuous knowledge construction and academic engagement. Consequently, the quality of library facilities has become a critical factor influencing students' learning experiences and the overall effectiveness of the educational process.

The rapid transformation of education in the digital era has significantly altered students' learning needs and expectations (Lestari et al., 2025; Nasrullah & Arhas, 2025; Okafor, 2025). While the availability of printed collections remains important, students increasingly require

DOI: https://doi.org/10.70188/1dfjat24

access to digital resources, reliable internet connectivity, collaborative discussion spaces, technological facilities, and comfortable learning environments. Modern students utilize libraries not only to obtain academic references but also to conduct group discussions, complete assignments, develop ideas, and access online information resources. These changing patterns suggest that library facility development should be aligned with students' actual needs, preferences, and learning behaviors to maximize its contribution to academic activities.

Previous studies have demonstrated that students' satisfaction with library services is strongly associated with the quality of both physical and digital facilities (Darwis et al., 2024; Nasaruddin et al., 2024; Selmiani et al., 2024). Adequate facilities contribute to the creation of supportive learning environments, enhance user comfort, and encourage greater utilization of library services as learning resources. Conversely, inadequate facilities may reduce students' willingness to engage with library services. Gunarathna (2024) found that students' satisfaction is closely related to the quality of physical and digital facilities provided by academic libraries. This finding indicates that facility development extends beyond issues of convenience and is directly linked to the effectiveness of educational services delivered to students.

Beyond user satisfaction, high-quality library facilities also contribute to students' academic achievement. Libraries that provide extensive access to information resources, information literacy programs, and technological support enable students to obtain relevant learning materials, strengthen research competencies, and enhance problem-solving abilities. Mandrekar (2021) argued that effective literacy programs and library services contribute significantly to academic excellence among undergraduate students. Similarly, Makhmaraimova et al. (2025) emphasized that library information services play a vital role in supporting students' academic development and educational success.

At the same time, advances in information technology have created new opportunities for libraries to improve service quality through digital integration. The implementation of library automation systems, electronic books, online catalogs, and remote access services enables students to obtain information more efficiently and flexibly. Such technological innovations have become increasingly important as contemporary learning activities are no longer restricted by physical location or specific time schedules. Wajdi et al. (2018) reported that automation systems and digital learning resources expand access to information and improve service efficiency within academic libraries. Therefore, library facility development should encompass not only physical infrastructure but also digital readiness capable of supporting twenty-first-century learning demands.

Despite these developments, many academic libraries continue to face challenges in providing facilities that fully meet users' expectations. Limited access to updated collections, insufficient study spaces, inadequate technological infrastructure, and suboptimal learning support services remain common concerns. Bhatti & Jumani (2012) highlighted that barriers to library access and service limitations can negatively affect students' utilization of library resources. These challenges underscore the importance of continuously evaluating existing facilities to ensure that future development initiatives genuinely reflect students' needs and expectations.

Based on these considerations, the development of student-centered library facilities has become increasingly important. A needs-based approach enables higher education institutions to identify the facilities most required by students to support their learning activities. Such information can serve as a foundation for designing more responsive library development policies, enhancing academic service quality, and creating more effective learning

DOI: https://doi.org/10.70188/1dfjat24

environments. Therefore, this study seeks to analyze students' needs regarding library facilities as a basis for developing library services and infrastructure that effectively support learning processes in higher education institutions.

METHODS

This study employed a quantitative approach with a descriptive research design to analyze students' needs regarding library facilities as a basis for developing facilities that support effective learning at Universitas Negeri Makassar. The study was conducted at the Universitas Negeri Makassar Library from October 6 to October 10, 2025.

The population consisted of all Universitas Negeri Makassar students who visited and utilized library facilities during the research period. Since the number of visitors varied daily and could not be determined precisely, a purposive sampling technique was applied. The selection criteria included active students who were using library services during the data collection period. Based on these criteria, a total of 100 students participated in the study.

Data were collected through a questionnaire based on a five-point Likert scale consisting of Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). The instrument covered five indicators of library facilities: book collections, internet access, library layout, space capacity, and technological facilities. Each indicator was measured through two statements designed to assess the extent to which library facilities met students' learning needs.

Data analysis employed descriptive statistics, including frequencies, percentages, and mean scores. The percentage of each response category was calculated using the following formula:

$$P = \frac{f}{N} \times 100\%$$

where:

P= Percentage
f= Frequency of responses
N= Total number of respondents

The mean score for each indicator was calculated using the following formula:

$$\bar{X} = \frac{\sum(f \times x)}{N}$$

where:

$\bar{X}$= Mean score
f= Frequency of responses
x= Weight assigned to each response category
N= Total number of respondents

Volume 2, Issue 2, 2025
DOI: https://doi.org/10.70188/1dfjat24

Table 1: The resulting mean scores were interpreted using the following criteria:

Mean Interval	Category
4.21–5.00	Very High
3.41–4.20	High
2.61–3.40	Moderate
1.81–2.60	Low
1.00–1.80	Very Low

The results were presented through tables, graphs, and descriptive explanations to provide a comprehensive overview of students' perceptions of library facilities and identify priority areas for future facility development.

RESULT AND DISCUSSION

Book Collections

The Book Collections indicator was measured using two statements, namely: (1) The book collections available in the library are relevant to my academic needs, and (2) The library provides a sufficient variety of books to support coursework and academic assignments.

Based on the survey results, the distribution of responses was as follows:

Strongly Agree (5): 77 responses (38.5%)
Agree (4): 96 responses (48.0%)
Neutral (3): 27 responses (13.5%)
Disagree (2): 0 responses (0%)

- Strongly Disagree (1): 0 responses (0%)

Based on the distribution, the average score of the indicator can be calculated as follows:

$$\frac{(77 \times 5) + (96 \times 4) + (27 \times 3)}{200}$$
$$= \frac{385 + 384 + 81}{200}$$
$$= \frac{850}{200}$$
$$= 4{,}25$$

The mean score for this indicator was calculated at **4.25**, which falls within the **very high** category. This result indicates that students generally perceive the library's book collections as adequate and supportive of their academic activities.

Volume 2, Issue 2, 2025
DOI: https://doi.org/10.70188/1dfjat24

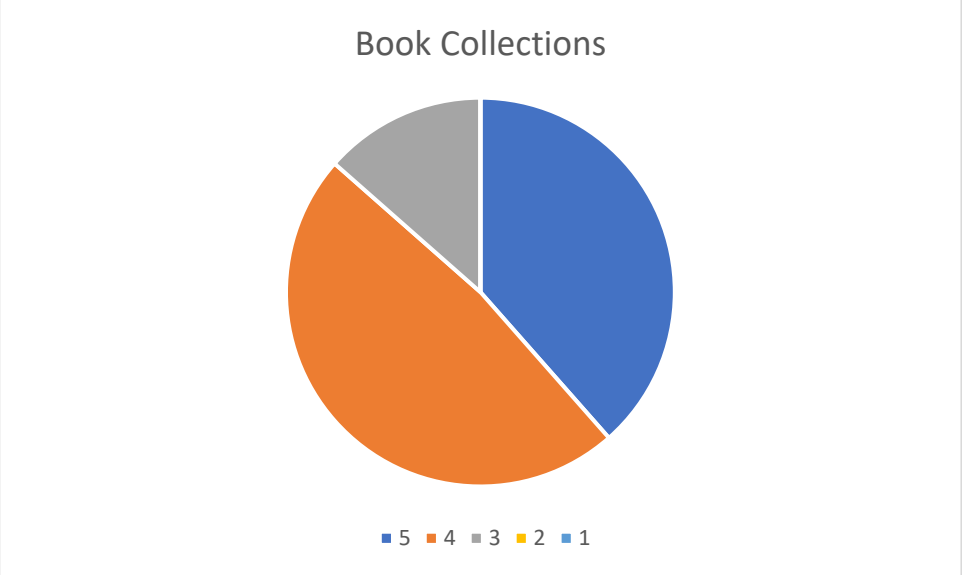


Figure 1: Book Collection Perception Graph

The predominance of responses in the agree and strongly agree categories (86.5%) suggests that the majority of students believe that the available collections meet their learning needs. This finding demonstrates that the library has effectively fulfilled its role as an academic information center by providing learning resources that support classroom activities, independent study, and assignment completion. The availability of relevant and accessible books contributes significantly to students' ability to acquire knowledge, deepen their understanding of course materials, and engage in scholarly activities.

Furthermore, the positive evaluation of book collections reflects the alignment between library resources and the academic disciplines offered at the university. Access to appropriate references is an essential component of effective learning because it enables students to obtain reliable information and develop evidence-based understanding. Adequate collections also encourage students to utilize library services more frequently, thereby strengthening the library's role in supporting educational outcomes.

Despite the generally favorable assessment, 13.5% of responses were categorized as neutral. This proportion suggests that some students may still experience difficulties in locating specific references or perceive gaps in the availability of certain academic materials. Such responses indicate the need for continuous collection development, particularly through the acquisition of up-to-date textbooks, specialized references, and digital resources that reflect current developments in various fields of study.

These findings support previous research emphasizing that the quality and relevance of library collections are among the primary determinants of user satisfaction and library utilization. Libraries that maintain diverse, current, and academically relevant collections are more likely to enhance students' learning experiences and contribute positively to academic success. Therefore, continuous investment in collection development remains essential for ensuring that library services effectively respond to evolving student needs and educational demands.

Table 2: Summary of Results

Indicator	Mean	Category
Book Collections	4.25	Very High

DOI: https://doi.org/10.70188/1dfjat24

The findings indicate that students perceive the library's book collections very positively. Nevertheless, ongoing efforts to enrich and update the collection are necessary to ensure that library resources remain relevant, comprehensive, and responsive to the changing academic needs of students.

Internet Access

The Internet Access indicator was assessed based on students' perceptions of the availability and adequacy of internet services provided by the library. The distribution of responses showed that 76 responses (38.0%) were categorized as strongly agree, 96 responses (48.0%) as agree, and 28 responses (14.0%) as neutral. No responses were recorded in the disagree or strongly disagree categories.

The mean score for this indicator was calculated using the following formula:

$$= \frac{(76\ x\ 5) + (96\ x\ 4) + (28x3)}{200}$$

$$= \frac{380 + 384 + 84}{200}$$

$$= \frac{848}{200}$$

$$= 4.24$$

The Internet Access indicator obtained a mean score of 4.24, which is categorized as very high. The distribution of responses revealed that 38.0% of responses were classified as strongly agree, 48.0% as agree, and 14.0% as neutral. No respondents selected either the disagree or strongly disagree categories. These findings indicate that students generally perceive the internet access provided by the library as adequate for supporting their academic activities.

The predominance of positive responses demonstrates that internet connectivity has become an essential component of contemporary library services. In the current digital learning environment, students rely heavily on internet access to obtain academic information, access electronic journals, utilize digital learning platforms, communicate with lecturers and peers, and complete various academic tasks. Consequently, the availability of reliable internet access significantly contributes to the effectiveness of learning activities conducted within the library.

The high evaluation of this indicator suggests that the library has successfully provided digital infrastructure that supports students' information needs. Adequate internet access not only facilitates the retrieval of learning resources but also enables students to engage in independent learning and collaborative academic activities. This condition strengthens the role of the library as a modern learning environment that integrates traditional information resources with digital technologies.

Although the overall assessment was highly positive, the presence of neutral responses indicates that some students may still encounter limitations related to internet accessibility or performance. Differences in usage intensity, connection stability, or expectations regarding internet services may contribute to these perceptions. Therefore, continuous monitoring and improvement of internet infrastructure remain important to ensure that students can access digital resources efficiently and without interruption.

Overall, the findings suggest that internet access is one of the strengths of the library in supporting effective learning. The availability of stable and accessible internet services contributes to students' academic engagement and enhances the library's capacity to meet the demands of technology-driven higher education.

DOI: https://doi.org/10.70188/1dfjat24

Technological Facilities

The Technological Facilities indicator obtained a mean score of 4.11, indicating a high level of student agreement regarding the adequacy of technological resources provided by the library. The distribution of responses showed that 29.0% of responses were categorized as strongly agree, 52.5% as agree, and 18.5% as neutral, while no respondents selected the disagree or strongly disagree categories. These findings suggest that students generally perceive the technological facilities available in the library positively.

The mean score for this indicator was calculated using the following formula:

$$= \frac{(58\ x\ 5) + (105\ x\ 4) + (37\ x\ 3)}{200}$$
$$= \frac{290 + 420 + 111}{200}$$
$$= \frac{821}{200}$$
$$= 4.11$$

The predominance of positive responses indicates that the technological infrastructure provided by the library has been able to support students' academic activities. In the context of contemporary higher education, technological facilities have become an essential component of library services because students increasingly rely on digital tools to access information, conduct academic searches, complete assignments, and support independent learning. The availability of such facilities enables students to access information more efficiently and enhances the overall learning experience within the library environment.

Although the overall assessment was positive, this indicator recorded a lower mean score than several other facility indicators assessed in the study. The relatively high proportion of neutral responses (18.5%) suggests that some students may not have fully experienced the benefits of the available technological facilities or may perceive that existing resources have not completely met their academic needs. Differences in technological expectations, frequency of use, and familiarity with digital resources may contribute to variations in students' evaluations.

This finding indicates that technological facilities remain an area that requires continuous improvement. As learning activities become increasingly dependent on digital resources, libraries are expected to provide not only internet access but also integrated technological support, including computer workstations, access to digital databases, electronic resources, charging facilities, and other technology-enhanced learning services (Pathak, 2021). Strengthening these facilities can improve students' ability to access academic information and support more effective learning processes.

Overall, the results demonstrate that technological facilities constitute an important supporting element within the library. While students generally view these facilities favorably, continued investment in technological infrastructure is necessary to ensure that library services remain aligned with the evolving demands of digital learning and higher education development.

Library Layout

The Library Layout indicator obtained a mean score of 4.28, indicating a very high level of student satisfaction with the arrangement and organization of the library space. The response distribution showed that 86 responses (43.0%) were categorized as strongly agree, 83 responses

Volume 2, Issue 2, 2025
DOI: https://doi.org/10.70188/1dfjat24

(41.5%) as agree, and 31 responses (15.5%) as neutral. No respondents selected either the disagree or strongly disagree categories.

The mean score was calculated as follows:

$$= \frac{(86 \times 5) + (83 \times 4) + (31 \times 3)}{200}$$
$$= \frac{430 + 332 + 93}{200}$$
$$= \frac{855}{200}$$
$$= 4.275$$
$$= 4.28$$

The findings indicate that students generally perceive the library layout as well organized and supportive of their learning activities. The high proportion of positive responses demonstrates that the arrangement of spaces, furniture, and service areas facilitates students' ability to navigate the library and access the resources they need. An effective layout contributes to a more comfortable and efficient learning environment by minimizing barriers to information access and creating spaces that accommodate various academic activities.

The positive evaluation of this indicator suggests that the library has successfully designed its physical environment to meet users' expectations. A well-structured layout allows students to move easily between collections, study areas, service counters, and other facilities. Such an arrangement can enhance user convenience, reduce time spent locating resources, and improve the overall library experience.

The results also highlight the importance of spatial organization in supporting effective learning. Libraries are no longer viewed solely as repositories of books but as multifunctional learning environments that facilitate individual study, collaborative work, and access to information resources (Sun et al., 2023; Tinmaz et al., 2023). Therefore, an appropriate layout plays a significant role in creating an atmosphere that encourages academic engagement and sustained use of library services.

Although the overall assessment was highly positive, the presence of neutral responses indicates that some students may still perceive opportunities for improvement in certain aspects of the library's spatial arrangement. Variations in user preferences, study habits, and patterns of library use may influence these perceptions. Consequently, periodic evaluations of space utilization and user needs remain important to ensure that the library layout continues to support evolving learning requirements.

Overall, the findings demonstrate that the library layout is one of the strongest aspects of the library facilities evaluated in this study. The very high mean score indicates that the current spatial arrangement effectively supports students' academic activities and contributes positively to the creation of an effective learning environment.

Space Capacity

The Space Capacity indicator obtained a mean score of 4.22, indicating a very high level of student satisfaction regarding the adequacy of the library's available space. The response distribution revealed that 77 responses (38.5%) were categorized as strongly agree, 89 responses (44.5%) as agree, and 34 responses (17.0%) as neutral. No respondents selected either the disagree or strongly disagree categories.

DOI: https://doi.org/10.70188/1dfjat24

The mean score was calculated as follows:

$$= \frac{(77 \times 5) + (89 \times 4) + (34 \times 3)}{200}$$
$$= \frac{385 + 356 + 102}{200}$$
$$= \frac{843}{200}$$
$$= 4.215$$
$$= 4.22$$

The findings indicate that students generally perceive the available library space as sufficient to accommodate their academic activities. The high proportion of positive responses suggests that the library provides an environment capable of supporting individual learning, academic discussions, and other educational activities without significant limitations related to space availability.

Adequate space capacity is an important aspect of library services because it directly influences users' comfort and learning experiences. A library with sufficient space allows students to utilize facilities more effectively, reduces overcrowding, and creates a more conducive atmosphere for study and academic engagement. The positive assessment obtained in this study suggests that the existing library space has largely met students' expectations and usage requirements.

The results also reflect the growing importance of learning spaces in higher education institutions. Modern libraries are expected to function not only as repositories of information resources but also as learning environments that support a variety of academic activities (Nur & Fritantus, 2021; Tsekea et al., 2026; Wang & Jia, 2024). Sufficient space capacity enables libraries to accommodate diverse learning preferences, including independent study, collaborative learning, and information-seeking activities.

Although the overall evaluation was highly favorable, the presence of neutral responses indicates that some students may still perceive limitations during periods of high usage. Differences in visitation patterns, preferred study locations, and expectations regarding learning spaces may influence these perceptions. Therefore, continuous monitoring of space utilization remains important to ensure that the library can effectively respond to increasing student demands.

Overall, the findings demonstrate that space capacity represents one of the strengths of the library facilities evaluated in this study. The very high mean score suggests that the available space effectively supports students' academic activities and contributes positively to the creation of a comfortable and productive learning environment.

CONCLUSION

This study aimed to analyze students' needs regarding library facilities as a basis for developing facilities that support effective learning at Universitas Negeri Makassar. The findings indicate that students generally have positive perceptions of the facilities available in the library. All evaluated indicators achieved high to very high categories, suggesting that the existing library facilities adequately support students' academic needs.

DOI: https://doi.org/10.70188/1dfjat24

Among the evaluated indicators, Library Layout obtained the highest mean score (4.28), indicating that students perceived the library's spatial organization as accessible, comfortable, and supportive of efficient library use. This was followed by Book Collections (4.25), Internet Access (4.24), and Space Capacity (4.22). These findings suggest that students consider the library's collections, internet services, and available space to be adequate for supporting learning activities and information retrieval. Meanwhile, Technological Facilities obtained a mean score of 4.11, which, although categorized as high, represented the lowest score among the evaluated indicators.

Based on these findings, it can be concluded that the library facilities at Universitas Negeri Makassar generally meet students' needs and contribute to the creation of an effective learning environment. Nevertheless, continuous facility development based on students' needs remains essential to ensure that library services keep pace with technological advancements, changing learning patterns, and the evolving demands of higher education.

REFERENCES

Bhatti, A. J., & Jumani, N. B. (2012). *Use of libraries in open and distance learning system: Barriers to the use of AIOU libraries by tutors and students*. *13*(2), 16–35. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84861654441&partnerID=40&md5=366bb3292810a59e5bb9733169f1a347

Darwis, M., Musmin, M., Jamaluddin, J., & Arhas, S. H. (2024). The Implementation of Library Delivery Program in Untia Fisherman's Village. *Khizanah Al-Hikmah: Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan*, *12*(2), 280–289.

Gunarathna, M. (2024). *Student Satisfaction with Physical and Digital Library Facilities in Higher Education Institutes*. *71*(2), 190–199. https://doi.org/10.56042/ALIS.V71I2.7349

Lestari, I., Jamaluddin, J., & Arhas, S. H. (2025). Analysis of the Use of Interactive Learning Media in Students In the Department of MPLB UPT SMK Negeri 1 Bulukumba. *Journal of Educational Development and Learning (JEDAL)*, 120–132.

Makhmaraimova, S., Mustafaeva, N., Buriyeva, L., Ashirbaeva, D., Kilicheva, K., Rustamova, M., Sapaev, I. B., & Turakulova, A. (2025). *Information Services in School Libraries: A Study of their Contribution to Student Academic Development*. *15*(2), 413–419. https://doi.org/10.51983/ijiss-2025.IJISS.15.2.50

Mandrekar, B. (2021). *Delivering Literacy Programmes for the Academic Excellence of the Under Graduate Students. 2021*, 1–11. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104775157&partnerID=40&md5=f39605846074d195f386b39abec8575e

Nasaruddin, H., Hatimah, K., Niswaty, R., Herman, H., & Arhas, S. H. (2024). Analysis of Elfan Bookless Library System Innovation at the Barru Regency Library and Archives Office. *Khizanah Al-Hikmah: Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan*, *12*(1), 89–99.

Nasrullah, M., & Arhas, S. H. (2025). SPIRIT Model: Conceptual Development of 21st Century Teacher Competencies Based on Systematic Literature Review. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, *17*(2), 979–994.

Nur, M., & Fritantus, Y. (2021). Service Quality and User Satisfaction of Border Area Library Services. *Jurnal Ad'ministrare*, *8*(1), 77–86.

Okafor, A. Y. (2025). Exploring the Impact of Digital Technology on Indigenous Language Teaching and learning: A case study of the Igbo language. *International Journal of Administration and Education (IJAE)*, *2*(1), 1–9. https://doi.org/10.70188/v3ek6d82

Pathak, S. (2021). Impact of Internet of Things and Artificial Intelligence on Human Resource Development. In *Intelligent Systems Reference Library* (Vol. 193, pp. 239–267). https://doi.org/10.1007/978-3-030-57835-0_19

Selmiani, S., Niswaty, R., & Nasrullah, M. (2024). The Influence of Excellent Service on User Satisfaction in the Technical Implementation Unit of the Universitas Negeri Makassar Library. *Journal of Social Science and Economics (JOSSE)*, *1*(3), 116–122. https://doi.org/https://doi.org/10.70188/d8r0aa47

Sun, J., Huang, L., & Zheng, Y. (2023). *DMAIC Model's Relative Efficiency Analysis of Input and Output in Cultural Construction of University Library and Mental Health Education of College Students*. https://doi.org/10.2478/amns.2023.1.00429

Tinmaz, H., Fanea-Ivanovici, M., & Baber, H. (2023). A snapshot of digital literacy. *Library Hi Tech News*, *40*(1). https://doi.org/10.1108/LHTN-12-2021-0095

Tsekea, S., Tutani, N., & Chisita, M. (2026). *Examining Innovative Library User Experiences in the 21st Century* (pp. 97–114). https://doi.org/10.1108/978-1-80686-513-020261006

Wajdi, M. B. N., Halim, P., Badruddin, S., Abdullah, H. A., Setiawan, M. I., Sari, I. N., Brata, D. P. N., & Simarmata, J. (2018). *Advancement of E-Book through automation system in department of Islamic education (STAI) Miftahul Ula Nganjuk*. *7*(3.6 Special Issue 6), 438–440. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067271075&partnerID=40&md5=d839f96071fdac64c3514b2594cba289

Wang, X., & Jia, M. (2024). Development of a unified digital library system: integration of image processing, big data, and deep learning. *International Journal of Information and Communication Technology*. https://doi.org/10.1504/IJICT.2024.137942