

*Digital Inclusion Through Innovative Library Management Systems in Digital Libraries:  
Literature Study*

Dyana Maftuhatu Rosyidah, Yogyakarta State University, Indonesia  
Cepi S. Abdul Jabar, Yogyakarta State University, Indonesia  
Marvina Anan Dita, Yogyakarta State University, Indonesia  
Roudhotul Fitria, Yogyakarta State University, Indonesia  
Rio Sebastian, Yogyakarta State University, Indonesia  
Aryadi Manuel Gultom, Yogyakarta State University, Indonesia

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**Abstract**

Library management systems in digital libraries can bring about innovation in digital inclusion. Digital library users will find it easier to access reading materials anywhere and anytime, so the purpose of this study is to identify the effect of using a library management system in digital libraries on digital inclusion innovation. This research is the result of a synthesis of the findings of previous research articles that are relevant in the 2018-2022 period. This study adapted the Systematic Literature Review method with Publish or Perish software, then filtered and extracted the data according to the criteria for the research objectives so as to produce 54 relevant articles and compiled using the Prisma Protocol. From the results of several research syntheses, it was found that the use of library management systems in digital libraries is able to provide digital inclusion innovations. The topics in the articles obtained mostly explain the development of inclusive digital library management systems. Most of the systems used are user interface applications. In addition, the use of the library management system has a positive impact in the form of increasing inclusive services for users. Future research is expected to be able to present in detail the influence of the library management system on digital libraries to develop digital inclusion that is more friendly for persons with disabilities.

Keywords: Digital Inclusion, Library Management System, Digital Library

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## **Introduction**

ICT's development impacts various aspects of life, but not all individuals and groups can fully utilize it due to the digital divide.(W. Wan Abdullah, F. Ahmad, 2018).The International Telecommunication Union reports that only around half the world's population has internet access (ITU, 2020). The digital divide affects access to libraries, essential institutions for community information, knowledge, and education (Edmund T Cabellon, 2016). Libraries and information are two things that are interconnected and cannot be separated (Hasugian, 2009). The library has a very important role and contribution to the experience of students because the library is something that continues to connect with students in terms of meeting student needs (Kezar A, 2006). Libraries have adapted to the digital age, expanding online services, resources, and operating hours to better connect with students and ensure accessibility. (Kezar A, 2006; Snavely, 2012). Indonesia has a remarkably low interest in reading, as indicated by UNESCO's research, with only 0.001% engagement, but libraries can play a crucial role in improving this situation. (Perpusnas., 2021). Libraries, when utilized effectively, can serve as hubs for scientific development, discussions, and knowledge acquisition (Setiawan & Nuryana, 2020). Digital libraries aim to provide broader access to books and reading materials, but limited skills hinder some individuals, highlighting concerns about the digital divide and inequality. (F. Riggins, 2005; Parsons & Hick, 2008; Robinson et al., 2015). Digital inclusion is crucial for supporting individuals and communities in the digital age, addressing the pressing issue of the digital divide, and fostering societal development (Nguyen, 2020). Digital inclusion is also a determining factor for social inclusion (Alam & Imran, 2015; Helsper, 2012; Ragnedda, 2017; Warschauer, 2002). Digital inclusion refers to policies that address the digital divide, promote digital literacy, and reach out to underserved populations (Jaeger et al., 2012).

Library Management Systems (LMS) facilitate digital inclusion by transforming traditional libraries into digital ones through innovative management systems. (Shanmugam Ap Palanigounder, Ramalakshmi Arunachalam, 2020). Library management systems are vital for equitable access to libraries, supporting collection management, borrowing, inventory, and administrative tasks. Adopting these systems enhances operational efficiency, record accuracy, and overall patron service. Subramanian and Muthuraja (Subramanian, S., & Muthuraja, 2019) emphasized the importance of digital library management systems for organizing and accessing knowledge efficiently. Automated library management systems enhance service efficiency, underscoring their importance in library operations (El Naggar, H., & Elsayed, 2020; Rai, S., & Singh, 2020). Digital inclusion in library management involves leveraging technology to enhance accessibility, dissemination, and management of information resources. Innovative library management systems enable more efficient and effective services through software, mobile apps, online platforms, and other technologies for information access, digital borrowing, and various library activities (Das, A., Dey, S., & Maiti, 2018). Innovative library management systems promote digital inclusion and expand student and community engagement by providing easier access, benefiting previously excluded individuals, including those in remote areas, with disabilities, or facing physical accessibility limitations.

## **Method**

This research uses the Systematic Literature Review method to identify research topics related to digital inclusion through innovative library management systems and the impact of library management systems on digital inclusion. In Systematic Literature Review research, it

is necessary to identify as many previous studies that have been conducted in the field to be researched and which are most relevant to the research topic area, which is very important for its direction and methodology, so systematic screening is necessary.

### Search Strategy

The screening of journal articles in this SLR research uses the help of PoP (Publish or Perish) software with data sources on Google Scholar. The filtered articles have a range of 2018-2022 (the last five years) with the selection of keywords digital library, digital library management system, and digital inclusion.

### Publication Selection & Data Extraction

Based on the Prisma Protocol chart in Figure 1, the presentation of articles through the Publish or Perish search identified as many as 4920 articles. In the identification process, screening was carried out by eliminating articles that had never been cited so that 4797 articles were reduced. In the screening process, screening is carried out with criteria taken specifically for journal articles so as to exclude 4783 articles that are not included in the journal. Then, entering the eligibility assessment stage, there are two reasons; the first reason is to filter articles by determining the title of the library so that articles are filtered specifically for digital inclusion in articles with the word library only so that it is reduced to 125 articles. This was done because, in the database obtained by Publish or Perish, digital inclusion was found other than through the library. For the second reason, filtering was carried out with special criteria on journals that were cited more than ten times so as to better ensure the credibility of the article so that there were 54 articles that were reduced.

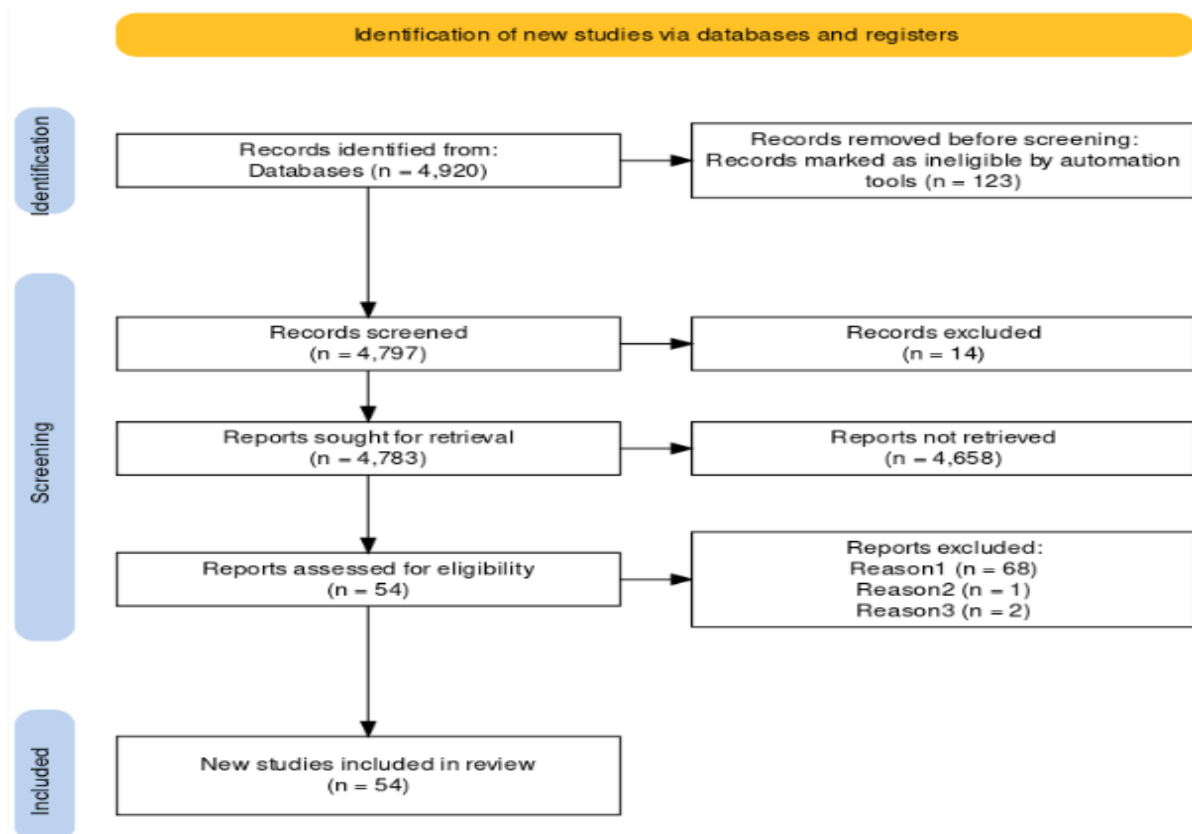


Figure: 1 PRISMA Diagram

Based on the entire screening series, as shown in the Prisma Protocol Chart, the final number of 54 articles related to the topic of digital inclusion through innovative library management systems was obtained. Thus, this research is directed to provide research results where the existing technology in the library management system can provide digital inclusion innovations to students in particular and the community in general in accessing the library and, in the future, can further develop technology in the library management system.

## Result

### Article Characteristics

In this SLR research, the final screening results were obtained from as many as 54 articles on the topic of digital inclusion through library management system innovation. The research articles were analyzed using VoSviewer software to find out the article keywords that often appear and other keyword associations. Analysis using VoSviewer can be seen through the keyword mapping shown in Figure 2.

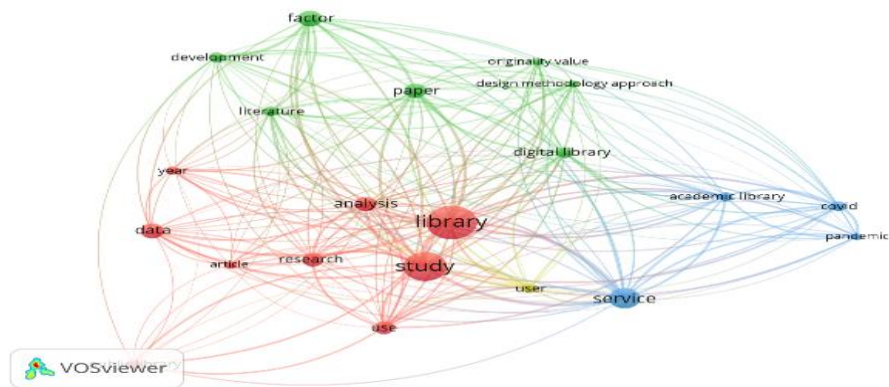


Figure 2: Obtained Article Keyword Mapping

Figure 2 it can be seen that the keyword about. In the research article, the distribution of each year can be shown through the graph in Figure 3.

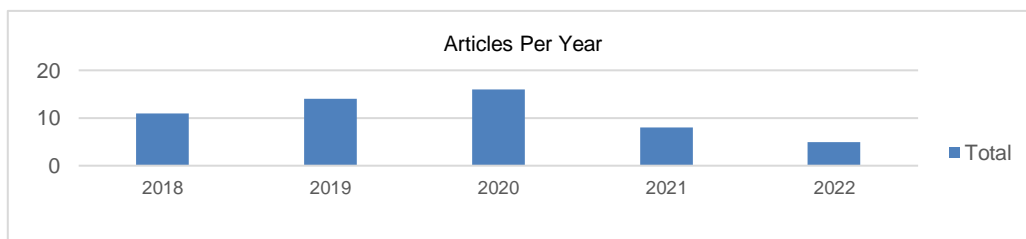


Figure 3: Distribution of Articles by Year

Based on Figure 3, it can be seen that most of the research articles obtained were published in 2020 and the least in 2022. The number of article citations obtained can be shown using the diagram in Figure 4.

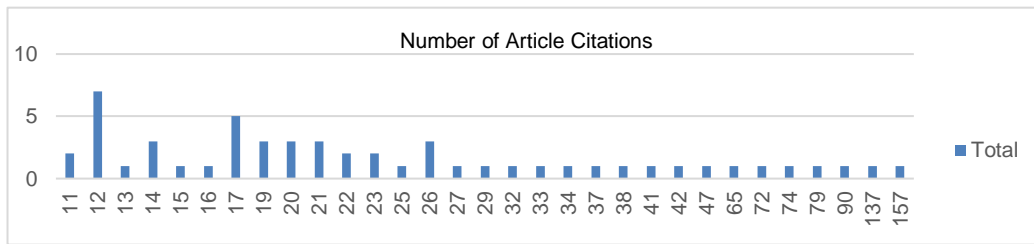


Figure 4: Number of citations of articles obtained

Based on Figure 4, it can be seen that the most cited article has 157 citations with a frequency of 1 article, while there are seven articles that have 12 citations. The distribution of journal publication sources and research articles obtained can be seen in the diagram below in Figure 5.

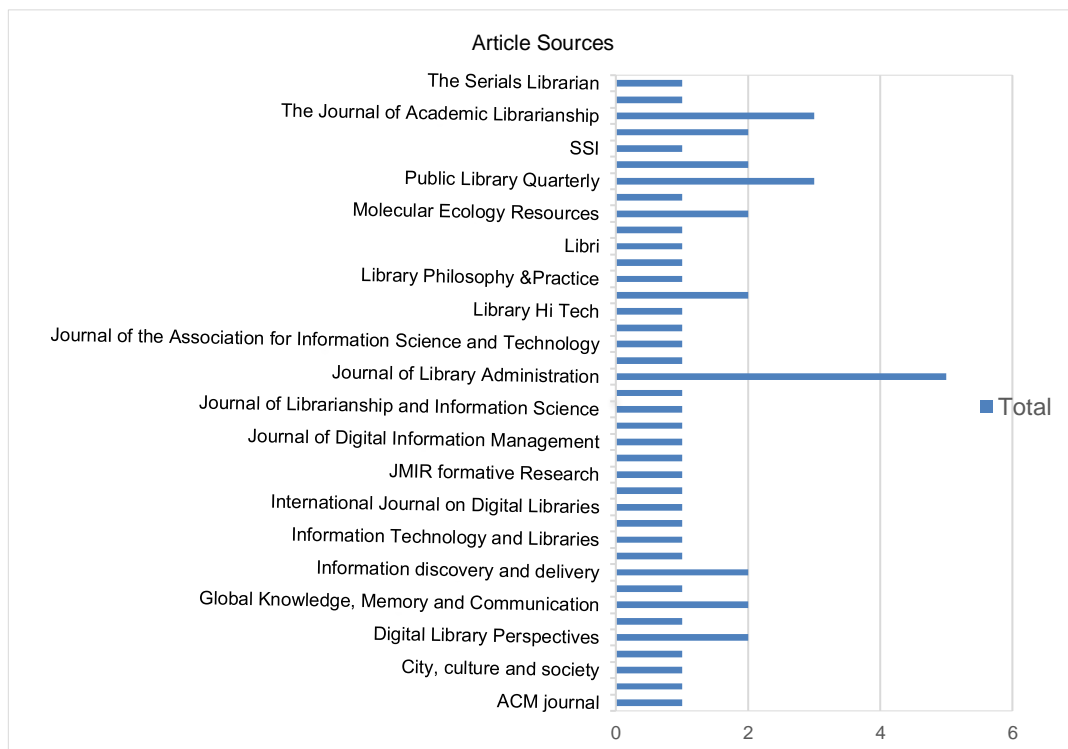


Figure 5: Distribution of Article Sources Obtained

Based on Figure 5, it can be seen that the distribution of the most sources of articles obtained from the Journal of Library Administration. Series as many as 4 articles. The distribution of article publications obtained can be illustrated with the diagram shown in Figure 6.

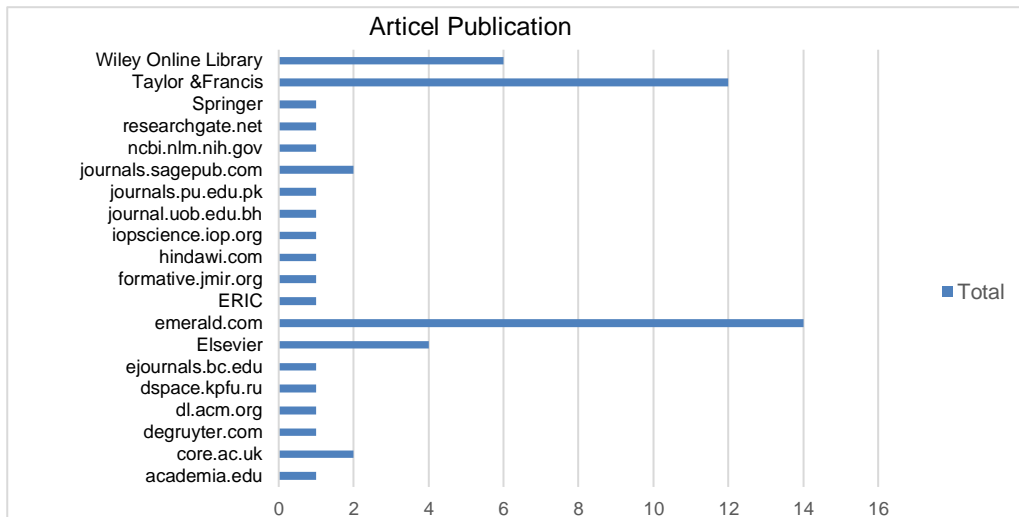


Figure 6: Distribution of Article Publications Obtained

Based on Figure 6, the distribution of the most article publications obtained is from Emerald.com, with as many as 14 articles.

Thus, it can be concluded that the characteristics of the articles obtained in the playback mostly carry the words Library, Service, and Digital Library most dominant in the articles obtained because they have a large circle, so it can be said that Library, Service, Digital Library, and Development with the most distribution of article years in 2020. The highest number of citations is 157 citations, and most articles have 12 article citations. From the acquisition of these articles, most journal sources come from the Journal of Library Administration with the most publications, namely Emerald.com.

### Use of Library Management System

The use of library management systems in digital libraries is an innovation that can facilitate students and the community in accessing reading resources. With digitization, eating libraries today can also be accessed inclusively by anyone at any time. Based on the articles that have been obtained, the use of library management systems is often related to several topics shown in Figure 7.

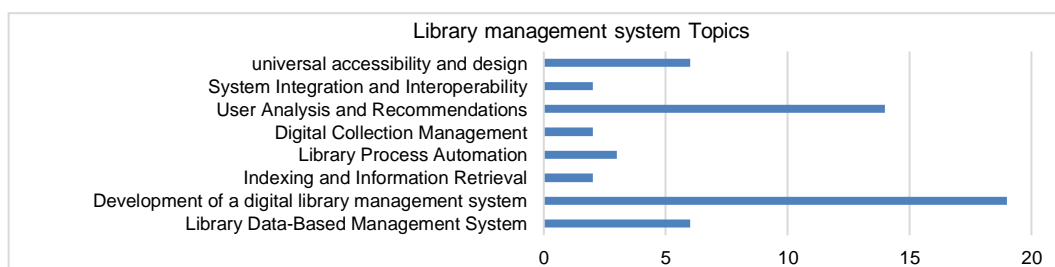


Figure 7: Library Management System Topics

Based on Figure 7, it can be seen that the most frequently implemented topics in library management systems are the topics of digital library management system development and user analysis and recommendations. The use of library management systems can support the needs of students and the community to access reading materials or books more easily and inclusively. Based on the articles that have been obtained, the form of presentation of the library management system can be shown through the diagram in Figure 8.

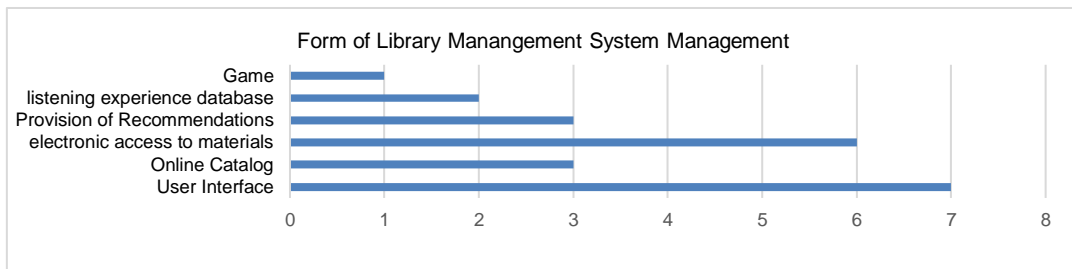


Figure 8: Form of Library Management System Presentation

Based on Figure 8, the presentation form of the library management system is often used in the form of a user interface and electronic access to materials.

The form of presentation of the library management system is adjusted to the needs and objectives of digital libraries to facilitate access to reading materials or books as a whole. The library management system in digital libraries is basically developed to further facilitate access to reading materials and books as a whole. The use of library management systems in digital libraries can provide an increase or impact on development and services to be more inclusive. Based on the articles that have been obtained, the library management system that can have a positive impact on digital inclusion can be shown through the diagram in Figure 9.

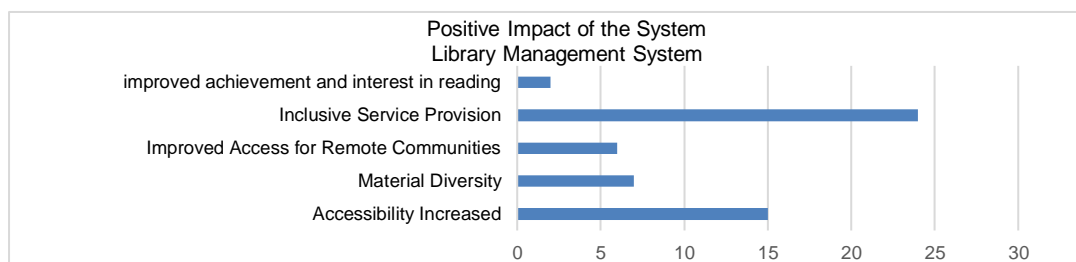


Figure 9: Positive Impact of Using the System Library Management System in the Library Digital

Figure 9 shows that the use of library management systems in frequent digital libraries provides a positive impact on the provision of inclusive services and increased accessibility.

Therefore, it can be concluded that the use of library management systems in the digital library shows the topics that are often implemented in the system library management system development digital as well as user analysis and recommendations, with most forms of presentation done in the form of a user interface and electronic access to materials. System usage library management at the library Digital has several positive impacts that can be felt by various parties. The most positive feeling is inclusive service provision, and accessibility increased (A., 2013; Adamou et al., 2019; AlAwadhi & Al-Daihani, 2019; Beyene, 2018).

## Discussion

### Use of Management Systems Library in Digital Library

Library Management Systems act as a tool for changing traditional libraries to digital libraries (SHANMUGAM AP PALANIGOUNDER, RAMALAKSHMI ARUNACHALAM, 2020).[18] A library management system is important to ensure that all members of society can feel the same benefits from the library. This system plays a crucial role in collection

management, lending, inventory, and administrative activities in the library. By adopting a Library Management System, Libraries can increase operational efficiency, improve the accuracy of recording, and provide services better to visitors.

Subramanian and Muthuraja (Subramanian, S., & Muthuraja, 2019) emphasize the importance of management systems digital library to organize and access knowledge efficiently. An automated library management system helps improve internal efficiency and provides library services; this shows that this system is so important in the context of service library (El Naggar, H., & Elsayed, 2020; Rai, S., & Singh, 2020). The inclusion of digital in library management includes the use of technology to improve accessibility, dissemination, and management of information resources in the library.

Based on that article obtained, the use of management systems library in digital library covers several topics, namely systems library data-based management (Ahlfeld, 2020; Ashiq et al., 2021; Deja et al., 2021; Gahagan & Calvert, 2020; Ma & Lund, 2021; Velasquez & Evans, 2018), Management system development digital library (A., 2013; Adamou et al., 2019; AlexanElizarovder & Novikov, 2019; Ångqvist et al., 2019; Beyene, 2018; Bohmann et al., 2022; Desmarais & Louderback, 2020; Do et al., 2019; Dresel et al., 2020; Elizarov & Lipachev, 2020; Harlow & Hill, 2020; Morinière et al., 2019; Murphy et al., 2022; Peacock et al., 2020; Rafi et al., 2019; Rosman et al., 2020; Singeh et al., 2020; Wang & An, 2019; Waterman et al., 2020; Zheng et al., 2022), Library Process Automation (Desmarais & Louderback, 2020; Leorke et al., 2018; Mbambo-Thata, 2021). Analysis Users and Recommendations (A., 2013; Afthanorhan et al., 2020; AlAwadhi & Al-Daihani, 2019; Ali et al., 2021; Cox et al., 2019; Do et al., 2019; Isibika & Kavishe, 2018; Lediga & Fombad, 2018; Marineo & Shi, 2019; Ocran et al., 2020; Pionke, 2020; Rahimi et al., 2019; Rutherford et al., 2018; Samsuddin et al., 2020), System Integration and Interoperability (Darch et al., 2020; Potnis et al., 2020), accessibility and design universal (Chisita & Chizoma, 2021; Cleave & Geijsman, 2020; Glusker et al., 2022; Rysavy & Michalak, 2020; Sanchez-Rodriguez & LoGiudice, 2018).

Based on the article that obtained, it can be seen that the topic is most often implemented in library management systems is topic Management system development digital library; this is because Libraries, especially in schools or universities, are obliged to develop information technology to achieve learning objectives with developing a digital library technology based. According to Deasy Lisa Damayant's study, Library management is very important. Digital library management begins with digital library planning, digital library budget funding, management of digital collections, management of human resources, monitoring and performance evaluation, analysis of obstacles, digital library management, and efforts to create a library management system that serves its aims to overcome them. Obstacle: Utilize digital libraries and build mutual relationships between librarians and students and teachers, with possible students and teachers accessing digital libraries more frequently (Damayanti et al., 2023).

### **The Form of Presentation of the Management System Digital Library**

The form of presentation of the management system library is tailored to your needs and digital library purposes for easy access to reading materials or books as a whole. System library management at the library digital is basically developed for easier access to reading and books overall.



Based on that article obtained, the existing form of presentation in the library management system in a digital library is the interface users (Elizarov & Lipachev, 2020; Leorke et al., 2018; Mbambo-Thata, 2021; Nneji, 2018; Singeh et al., 2020; Wan Zahari Wan Yusoff and Maziah Ismail, 2008; Zheng et al., 2022), electronic access to matter (Desmarais & Louderback, 2020; Dresel et al., 2020; Lediga & Fombad, 2018; Mbambo-Thata, 2021; Rahimi et al., 2019; Velasquez & Evans, 2018), database listening experience (Adamou et al., 2019; Waterman et al., 2020), online catalog (AlexanElizarovder & Novikov, 2019; Rafi et al., 2019; Velasquez & Evans, 2018), games (Cleave & Geijsman, 2020), providing recommendations (Beyene, 2018; Bohmann et al., 2022; Murphy et al., 2022).

Based on the articles obtained, it can be seen that the form of presentation of the library management system that is often used is in the form of a user interface. Many user interface applications have been created, according to research conducted by Maulana Y. & Dian P.S., which makes the user interface of the CIRLIB Application (Cirebon Library) in accordance with the fulfillment of user requirements. The application is designed in the form of use case diagrams, action diagrams, and user interfaces. User interface design services include essential library information, book lending services, on-site reading services, e-books, and education (Yusuf & Sari, 2023).

### **The Positive Impact of Using the System Library Management for Digital Inclusion**

Subramanian and Muthuraja (Subramanian, S., & Muthuraja, 2019) emphasize the importance of management systems digital library to organize and access knowledge efficiently. Automated library management system helps improve internal efficiency and provides library services; this shows that this system is so important in the context of service library (El Naggar, H., & Elsayed, 2020; Rai, S., & Singh, 2020). The inclusion of digital in library management includes the use of technology to improve accessibility, dissemination, and management of information resources in the library.

By implementing an innovative system of library management, libraries can provide more services efficiently and effectively to members of the public. Management system innovative library can involve the use of software, mobile applications, or online platforms for easy access and search information, borrowing and returning digital books, as well as usage of other technology to facilitate library activities (Das, A., Dey, S., & Maiti, 2018).

Based on that article obtained indicates that the use library management system on frequent digital library have a positive impact on inclusion digital is increasing accessibility (A., 2013; Ångqvist et al., 2019; Bohmann et al., 2022; Do et al., 2019; Kazuye Kimura, 2018; Leorke et al., 2018; Rutherford et al., 2018; Rysavy & Michalak, 2020; Singeh et al., 2020; Velasquez & Evans, 2018; Wan Zahari Wan Yusoff and Maziah Ismail, 2008; Wang & An, 2019), Material Diversity (Ahmad et al., 2018; Elizarov & Lipachev, 2020; Morinière et al., 2019; Nneji, 2018; Rafi et al., 2019; Wan Zahari Wan Yusoff and Maziah Ismail, 2008; Wittmann et al., 2019), inclusive service provision (A., 2013; Adamou et al., 2019; Afthanorhan et al., 2020; Ali et al., 2021; Anyim, 2019; Ashiq et al., 2021; Beyene, 2018; Chisita & Chizoma, 2021; Cox et al., 2019; Deja et al., 2021; Desmarais & Louderback, 2020; Glusker et al., 2022; Isibika & Kavishe, 2018; Ma & Lund, 2021; Mbambo-Thata, 2021; Peacock et al., 2020; Potnis et al., 2020; Rahimi et al., 2019; Rahmat & Saqlain Raza, Hasan Zahid, Jaffar Abbas, Fatimah Azzahraa Mohd Sobri, 2022; Rosman et al., 2020; Sanchez-Rodriguez & LoGiudice, 2018; Zheng et al., 2022), achievement and interest read increases (Cleave & Geijsman, 2020; Marineo & Shi, 2019).

Based on the article obtained, it can be seen that the management system used library in digital libraries often has a positive effect on the provision of inclusive services. Basic library services must continue to grow in inclusion to form a society that has access to complete reading materials easily, anywhere and anytime.

This is what Sudarmin et al (Damayanti et al., 2023) said. According to research, change-based library social inclusion is an effort to create an educated society in library and archival services. Enrekang Regency, through various strategies, involves librarians in active roles, politics publishing one. Order and the formation of synergistic teams, meeting stakeholders, launching Enrekang library, and organizing co-learning meetings. However, the Library and Archives Service Enrekang Regency also met some problems in developing a library based on social inclusion. Source limited budget resources and network Internet. The goal is to overcome obstacles by collaborating with various actors (Cleave & Geijsman, 2020; Marineo & Shi, 2019) at the state level, district, and private and to optimize the existing budget as well as possible.

## **Conclusion**

From the presented information, it can be concluded that digital library management systems play a crucial role in transforming traditional libraries into digital entities, advancing service delivery, and resource management. The primary focus of this research is the development of digital library management systems, particularly in educational settings, utilizing information technology to achieve learning objectives and foster digital libraries. These systems come in various presentation forms, with user interfaces being the most commonly used. The implementation of these systems has a positive impact on digital inclusion by enhancing accessibility, diversifying materials, and providing inclusive services. Despite challenges such as resource limitations and internet connectivity issues, collaborative efforts with stakeholders can offer solutions. This research provides an in-depth understanding of how innovation in digital library management systems can enhance digital inclusion, broaden access, and advance learning and reading interests.

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## References

- A., K. (2013). University level questions. 2021.
- Adamou, A., Brown, S., Barlow, H., Allocca, C., & d'Aquin, M. (2019). Crowdsourcing Linked Data on listening experiences through reuse and enhancement of library data. *International Journal on Digital Libraries*, 20(1), 61–79. <https://doi.org/10.1007/s00799-018-0235-0>
- Afthanorhan, A., Foziah, H., & Majid, N. A. (2020). Investigating Digital Library Success using the DeLone and McLean Information System Success 2.0: The Analysis of Common Factor based Structural Equation Modeling. *Journal of Physics: Conference Series*, 1529(4), 0–8. <https://doi.org/10.1088/1742-6596/1529/4/042052>
- Ahlfeld, K. (2020). Poised to Transform: Lessons Learned from COVID-19 in a School Library. *Journal of Library Administration*, 60(8), 958–965. <https://doi.org/10.1080/01930826.2020.1820282>
- Ahmad, K., Jian Ming, Z., & Rafi, M. (2018). Assessing the digital library research output: bibliometric analysis from 2002 to 2016. *Electronic Library*, 36(4), 696–704. <https://doi.org/10.1108/EL-02-2017-0036>
- Alam, K., & Imran, S. (2015). The digital divide and social inclusion among refugee migrants: A case in regional Australia. *Information Technology and People*, 28(2), 344–365. <https://doi.org/10.1108/ITP-04-2014-0083>
- AlAwadhi, S., & Al-Daihani, S. M. (2019). Marketing academic library information services using social media. *Library Management*, 40(3–4), 228–239. <https://doi.org/10.1108/LM-12-2017-0132>
- AlexanElizarovder, & Novikov, B. (2019). Сборник Статей Со Ссылкой На РегиональнЫц Матцентр-29-10-2019 (1).Pdf
- Ali, S., Habes, M., Youssef, E., & Adwan, M. N. Al. (2021). A Cross-Sectional Analysis of Digital Library Acceptance, & Dependency during Covid-19. *International Journal of Computing and Digital Systems*, 10(1), 1415–1425. <https://doi.org/10.12785/ijcds/1001125>
- Ångqvist, M., Muñoz, W. A., Rahm, J. M., Fransson, E., Durniak, C., Rozyczko, P., Rod, T. H., & Erhart, P. (2019). ICET – A Python Library for Constructing and Sampling Alloy Cluster Expansions. *Advanced Theory and Simulations*, 2(7), 1–10. <https://doi.org/10.1002/adts.201900015>
- Anyim, W. O. (2019). Assessment of ICT literacy skills of digital library users and staff in Salem University Lokoja, Kogi. *Library Philosophy and Practice*, 2019.
- Ashiq, M., Rehman, S. U., Safdar, M., & Ali, H. (2021). Academic library leadership in the dawn of the new millennium: a systematic literature review. *Journal of Academic Librarianship*, 47(3), 102355. <https://doi.org/10.1016/j.acalib.2021.102355>

- Beyene, W. M. (2018). Digital Inclusion in Library Context: A Perspective from Users with Print Disability. *Journal of Web Librarianship*, 12(2), 121–140. <https://doi.org/10.1080/19322909.2018.1427657>
- Bohmann, K., Elbrecht, V., Carøe, C., Bista, I., Leese, F., Bunce, M., Yu, D. W., Seymour, M., Dumbrell, A. J., & Creer, S. (2022). Strategies for sample labelling and library preparation in DNA metabarcoding studies. *Molecular Ecology Resources*, 22(4), 1231–1246. <https://doi.org/10.1111/1755-0998.13512>
- Chisita, C. T., & Chizoma, U. S. (2021). Rethinking academic library space amidst the COVID-19 pandemic in South Africa: preparing for the future. *Information Discovery and Delivery*, 49(2), 105–113. <https://doi.org/10.1108/IDD-07-2020-0087>
- Cleave, J., & Geijsman, J. (2020). LibraryCraft – how the COVID-19 pandemic led to the growth of the WA libraries public Minecraft server. *Digital Library Perspectives*, 36(4), 377–388. <https://doi.org/10.1108/DLP-05-2020-0027>
- Cox, A. M., Pinfield, S., & Rutter, S. (2019). The intelligent library: Thought leaders' views on the likely impact of artificial intelligence on academic libraries. *Library Hi Tech*, 37(3), 418–435. <https://doi.org/10.1108/LHT-08-2018-0105>
- Damayanti, D. L., Hidayati, D., & Mandasari, O. (2023). Digital Library : Upaya Mewujudkan Perpustakaan Sekolah Berbasis Teknologi. *Jurnal Pendidikan Dan Konseling*, 5(1), 4487–4496.
- Darch, P. T., Sands, A. E., Borgman, C. L., & Golshan, M. S. (2020). Library cultures of data curation: Adventures in astronomy. *Journal of the Association for Information Science and Technology*, 71(12), 1470–1483. <https://doi.org/10.1002/asi.24345>
- Das, A., Dey, S., & Maiti, A. (2018). An Inclusive Framework of Digital Library for Visually Challenged Users. *Ommunication and Networking Technologies (ICCCNT)*.
- Deja, M., Rak, D., & Bell, B. (2021). Digital transformation readiness: perspectives on academia and library outcomes in information literacy. *Journal of Academic Librarianship*, 47(5), 102403. <https://doi.org/10.1016/j.acalib.2021.102403>
- Desmarais, B., & Louderback, P. (2020). Planning and Assessing Patron Experience and Needs for an Academic Library Website. *Journal of Library Administration*, 60(8), 966–977. <https://doi.org/10.1080/01930826.2020.1820283>
- Do, H. Van, Dorner, D. G., & Calvert, P. (2019). Discovering the contextual factors for digital library education in Vietnam. *Global Knowledge, Memory and Communication*, 68(1–2), 125–147. <https://doi.org/10.1108/GKMC-08-2018-0071>
- Dresel, R., Henkel, M., Scheibe, K., Zimmer, F., & Stock, W. G. (2020). A Nationwide Library System and Its Place in Knowledge Society and Smart Nation: The Case of Singapore. *Libri*, 70(1), 81–94. <https://doi.org/10.1515/libri-2019-0019>
- Edmund T Cabellon, J. A. (2016). Engaging the Digital Generation: New Directions for Student Services, No. 155. In Wiley Periodicals, Inc.

- El Naggari, H., & Elsayed, N. (2020). An Automated Library Management System for Efficient Services. *Advances in Science, Advances in Science, Technology and Engineering Systems Journal*, 5(2), 29–36.
- Elizarov, A. M., & Lipachev, E. K. (2020). Methods of processing large collections of scientific documents and the formation of digital mathematical library. *CEUR Workshop Proceedings*, 2543, 354–360.
- F. Riggins, S. D. (2005). The Digital Divide: Current and Future Research Directions. *Journal of the Association for Information Systems*, 6(12), 298–337. <https://doi.org/https://doi.org/10.17705/1jais.00074>
- Gahagan, P. M., & Calvert, P. J. (2020). Evaluating a Public Library Makerspace. *Public Library Quarterly*, 39(4), 320–345. <https://doi.org/10.1080/01616846.2019.1662756>
- Glusker, A., Emmelhainz, C., Estrada, N., & Dyess, B. (2022). “Viewed as Equals”: The Impacts of Library Organizational Cultures and Management on Library Staff Morale. *Journal of Library Administration*, 62(2), 153–189. <https://doi.org/10.1080/01930826.2022.2026119>
- Harlow, S., & Hill, K. (2020). Assessing Library Online Patrons Use of Resources to Improve Outreach and Marketing. *Serials Librarian*, 79(1–2), 200–227. <https://doi.org/10.1080/0361526X.2019.1703873>
- Hasugian, J. (2009). *Dasar-dasar ilmu perpustakaan dan informasi*. USUPress.
- Helsper, E. J. (2012). A Corresponding Fields Model for the Links Between Social and Digital Exclusion. Wiley Online Library. <https://doi.org/https://doi.org/10.1111/j.1468-2885.2012.01416.x>
- Isibika, I. S., & Kavishe, G. F. (2018). Utilisation of subscribed electronic resources by library users in Mzumbe university library, Tanzania. *Global Knowledge, Memory and Communication*, 67(1–2), 109–125. <https://doi.org/10.1108/GKMC-09-2017-0075>
- ITU. (2020). ITU Statistics. International Telecommunication Union (ITU). <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>
- Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., & DeCoster, E. J. (2012). Digital divides, digital literacy, digital inclusion, and public libraries. *Public Library Quarterly*, 31(1), 1–20.
- Kazuze Kimura, A. (2018). Defining, evaluating, and achieving accessible library resources: A review of theories and methods. *Reference Services Review*, 46(3), 425–438. <https://doi.org/10.1108/RSR-03-2018-0040>
- Kezar A. (2006). Librarians enhancing student engagement: Partners in learning that builds bridges. *Association of College and Research Libraries*.

- Lediga, M. M., & Fombad, M. C. (2018). The use of information and communication technologies in public libraries in South Africa as tools for bridging the digital divide: the case of the Kempton Park public library. *Public Library Quarterly*, 37(3), 296–305. <https://doi.org/10.1080/01616846.2018.1471964>
- Leorke, D., Wyatt, D., & McQuire, S. (2018). “More than just a library”: Public libraries in the 'smart city'. *City, Culture and Society*, 15(May), 37–44. <https://doi.org/10.1016/j.ccs.2018.05.002>
- Ma, J., & Lund, B. (2021). The evolution and shift of research topics and methods in library and information science. *Journal of the Association for Information Science and Technology*, 72(8), 1059–1074. <https://doi.org/10.1002/asi.24474>
- Marineo, F., & Shi, Q. (2019). Supporting Student Success in the First-Year Experience: Library Instruction in the Learning Management System. *Journal of Library and Information Services in Distance Learning*, 13(1–2), 40–55. <https://doi.org/10.1080/1533290X.2018.1499235>
- Mbambo-Thata, B. (2021). Responding to COVID-19 in an African university: the case the National University of Lesotho library. *Digital Library Perspectives*, 37(1), 28–38. <https://doi.org/10.1108/DLP-07-2020-0061>
- Morinière, J., Balke, M., Doczkal, D., Geiger, M. F., Hardulak, L. A., Haszprunar, G., Hausmann, A., Hendrich, L., Regalado, L., Rulik, B., Schmidt, S., Wägele, J. W., & Hebert, P. D. N. (2019). A DNA barcode library for 5,200 German flies and midges (Insecta: Diptera) and its implications for metabarcoding-based biomonitoring. *Molecular Ecology Resources*, 19(4), 900–928. <https://doi.org/10.1111/1755-0998.13022>
- Murphy, J. E., Lewis, C. J., McKillop, C. A., & Stoeckle, M. (2022). Expanding digital academic library and archive services at the University of Calgary in response to the COVID-19 pandemic. *IFLA Journal*, 48(1), 83–98. <https://doi.org/10.1177/03400352211023067>
- Nguyen, A. (2020). Handbook of Social Inclusion. *Handbook of Social Inclusion*, November, 0–13. <https://doi.org/10.1007/978-3-030-48277-0>
- Nneji, K. O. (2018). Digitization of academic library resources: A case study of Donal E. U. Ekong Library. *Library Philosophy and Practice*, 1. [http://digitalcommons.unl.edu/libphilprac/1990?utm\\_source=digitalcommons.unl.edu%2Flibphilprac%2F1990&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](http://digitalcommons.unl.edu/libphilprac/1990?utm_source=digitalcommons.unl.edu%2Flibphilprac%2F1990&utm_medium=PDF&utm_campaign=PDFCoverPages)
- Ocran, T. K., Underwood, E. P. G., & Arthur, P. A. (2020). Strategies for successful implementation of mobile phone library services. *Journal of Academic Librarianship*, 46(5). <https://doi.org/10.1016/j.acalib.2020.102174>
- Parsons, C., & Hick, S. (2008). Moving From Digital Divide to Digital Inclusion. *Currents: New Scholarship in the Human Services*, 7(2), 1–16. [http://www.ucalgary.ca/currents/files/currents/Parsons\\_final\\_0.pdf](http://www.ucalgary.ca/currents/files/currents/Parsons_final_0.pdf)

- Peacock, R., Grevatt, H., Dworak, E., Marsh, L., & Doty, S. (2020). Developing and evaluating an asynchronous online library microcredential: a case study. *Reference Services Review*, 48(4), 699–713. <https://doi.org/10.1108/RSR-07-2020-0048>
- Perpusnas. (2021). Kuatkan Peran Perpustakaan dalam Transfer Pengetahuan. Perpustakaan Nasional Republik Indonesia. <https://www.perpusnas.go.id/news-detail.php?lang=id&id=210322024648sRanzJoZq3>
- Pionke, J. J. (2020). Library Employee Views of Disability and Accessibility. *Journal of Library Administration*, 60(2), 120–145. <https://doi.org/10.1080/01930826.2019.1704560>
- Potnis, D. D., Winberry, J., Finn, B., & Hunt, C. (2020). What is innovative to public libraries in the United States? A perspective of library administrators for classifying innovations. *Journal of Librarianship and Information Science*, 52(3), 792–805. <https://doi.org/10.1177/0961000619871991>
- Rafi, M., JianMing, Z., & Ahmad, K. (2019). Evaluating the impact of digital library database resources on the productivity of academic research. *Information Discovery and Delivery*, 47(1), 42–52. <https://doi.org/10.1108/IDD-07-2018-0025>
- Ragnedda, M. (2017). The Third Digital Divide A Weberian Approach to Digital Inequalities.
- Rahimi, M., Rosman, M., Ismail, M. N., & Masrek, M. N. (2019). Investigating the Determinant and Impact of Digital Library Engagement: A Conceptual Framework. *Journal of Digital Information Management*, 17(4), 214. <https://doi.org/10.6025/jdim/2019/17/4/214-226>
- Rahmat, T. E., & Saqlain Raza, Hasan Zahid, Jaffar Abbas, Fatimah Azzahraa Mohd Sobri, S. N. S. (2022). Nexus between integrating technology readiness 2.0 index and students' e-library services adoption amid the COVID-19 challenges: Implications based on the theory of planned behavior. *Journal of Education and Health Promotion*. [https://doi.org/10.4103/jehp.jehp\\_508\\_21](https://doi.org/10.4103/jehp.jehp_508_21)
- Rai, S., & Singh, J. (2020). Adoption and Use of Library Management Systems in Academic Libraries: A Review. *Journal of Information, Knowledge and Research in Computer Engineering*, 5(2), 455–460.
- Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, T. M., & Stern, M. J. (2015). Digital inequalities and why they matter. *Information Communication and Society*, 18(5), 569–582. <https://doi.org/10.1080/1369118X.2015.1012532>
- Rosman, M. R. M., Ismail, M. N., & Masrek, M. N. (2020). Investigating the predictors of digital library engagement: A structured literature analysis. *Pakistan Journal of Information Management and Libraries*, 22, 60–82. <https://doi.org/10.47657/1586>

- Rutherford, L., Singleton, A., Derr, L. A., & Merga, M. K. (2018). Do digital devices enhance teenagers' recreational reading engagement? Issues for library policy from a recent study in two Australian states. *Public Library Quarterly*, 37(3), 318–340. <https://doi.org/10.1080/01616846.2018.1511214>
- Rysavy, M. D. T., & Michalak, R. (2020). Assessing the Accessibility of Library Tools & Services When You Aren't an Accessibility Expert: Part 1. *Journal of Library Administration*, 60(1), 71–79. <https://doi.org/10.1080/01930826.2019.1685273>
- Samsuddin, S. F., Mohamed Shaffril, H. A., Bolong, J., & Mohamed, N. A. (2020). Understanding the reading habit and attitudes among the rural community in low literacy rate areas in Malaysia: Rural library perspectives. *Library Management*, 41(1), 39–52. <https://doi.org/10.1108/LM-06-2019-0037>
- Sanchez-Rodriguez, N. A., & LoGiudice, J. (2018). Building bridges: Fostering dynamic partnerships between the library department and office of student disability services in higher education. *Journal of Access Services*, 15(4), 142–160. <https://doi.org/10.1080/15367967.2018.1520640>
- Setiawan, F., & Nuryana, Z. (2020). Students at the centre of learning: Revitalisasi pengelolaan perpustakaan sekolah sebagai penguatan core intelektual. *Teacher in Educational Research*, 2(1), 38. <https://doi.org/10.33292/ter.v2i1.66>
- SHANMUGAM AP PALANIGOUNDER, RAMALAKSHMI ARUNACHALAM, B. S. (2020). Library Management System. *Journal of Xi'an University of Architecture & Technology*, 12(11). <https://doi.org/10.37896/JXAT12.11/29777>
- Singeh, F. W., Abrizah, A., & Kiran, K. (2020). Bringing the digital library success factors into the realm of the technology-organization-environment framework. *Electronic Library*, 38(3), 659–675. <https://doi.org/10.1108/EL-08-2019-0187>
- Snaveley, L. (2012). Student engagement and the academic library.
- Subramanian, S., & Muthuraja, R. (2019). Digital Library Management System for Knowledge Organization and Access. *International Journal of Innovative Technology and Exploring Engineering*, 8(9), 1537–1541.
- Velasquez, D. L., & Evans, N. (2018). Public library websites as electronic branches: A multi-country quantitative evaluation. *Information Research*, 23(1).
- W. Wan Abdullah, F. Ahmad, & N. A. B. (2018). *Libraries in the Digital Age*. Springer Singapore.
- Wan Zahari Wan Yusoff and Maziah Ismail. (2008). 기사 (Article) 와 안내문 (Information) [. *The Electronic Library*, 34(1), 1–5.
- Wang, X., & An, Z. (2019). New Insights into RAFT Dispersion Polymerization-Induced Self-Assembly: From Monomer Library, Morphological Control, and Stability to Driving Forces. *Macromolecular Rapid Communications*, 40(2), 1–14. <https://doi.org/10.1002/marc.201800325>



- Warschauer, M. (2002). Reconceptualizing the Digital Divide. *First Monday*, 7(7).  
<https://doi.org/https://doi.org/10.5210/fm.v7i7.967>
- Waterman, A. D., Wood, E. H., Ranasinghe, O. N., Lipsey, A. F., Anderson, C., Balliet, W., Holland-Carter, L., Maurer, S., & Salas, M. A. P. (2020). A digital library for increasing awareness about living donor kidney transplants: Formative study. *JMIR Formative Research*, 4(7), 1–13. <https://doi.org/10.2196/17441>
- Wittmann, R., Neatrou, A., Cummings, R., & Myntti, J. (2019). From digital library to open datasets: Embracing a “collections as data” framework. *Information Technology and Libraries*, 38(4), 49–61. <https://doi.org/10.6017/ital.v38i4.11101>
- Yusuf, M., & Sari, D. P. (2023). Perancangan User interface Aplikasi CIRLIB (Cirebon Library) Berbasis Android pada Perpustakaan Kota Cirebon. *G-Tech: Jurnal Teknologi Terapan*, 7(1), 336–345. <https://doi.org/10.33379/gtech.v7i1.1975>
- Zheng, Q., Tang, Y., Liu, Y., Liu, W., & Huang, Y. (2022). UX Research on Conversational Human-AI Interaction: A Literature Review of the ACM Digital Library. *Conference on Human Factors in Computing Systems - Proceedings*.  
<https://doi.org/10.1145/3491102.3501855>

**Contact email:** [dyanamaftuhatu.2022@student.uny.ac.id](mailto:dyanamaftuhatu.2022@student.uny.ac.id)