

Building a Social Space Through a Digital Library

Syifaun Nafisah

UIN Sunan Kalijaga Yogyakarta

197812262008012017@uin-suka.ac.id

1

Received : 01-04-2023

Revised : 03-04-2023

Accepted : 30-04-2023

How to Cite:

Nafisah, S. (2023). Building a Social Space Through a Digital Library. *Librarianhip in Muslim Societies*, 2(1), 1-16.

DOI: <https://doi.org/10.15408/lims.v2i1.31755>



© 2023 by Syifaun Nafisah. This work is an open access article distributed under the terms and conditions of the Creative Commons Attribution-Share Alike 4.0 International License (CC BY NC SA)

Abstract

The development of the 4.0 revolution changed the library paradigm, shifting the types of libraries from conventional to digital libraries. The IFLA/UNESCO Manifesto for Digital Libraries officially declares a new paradigm shift in libraries. This manifesto allows libraries to save space by developing digital libraries to build social zones. A social zone is a place for human interaction in various activities. Interaction can occur in a physical or virtual context. This study aims to examine the potential for developing social space through the development of digital libraries. This study used a qualitative method with a field and literature study approach. This study conducted field data validation tests using triangulation techniques. Based on field research, libraries that have implemented digital libraries can save space usage. The room was originally for placing collection shelves; libraries can then use them to create public spaces. The creation of public space by the library is for activities that involve community participation, such as literacy. In addition, using space to build a co-working space also indirectly contributes to social interaction through discussion activities. The next task of the library is how the library can provide quality collections so that the library can make it a center of information.

Keyword: *digital library, public space, social zone, social interaction*

Abstrak

Perkembangan revolusi 4.0 mengubah paradigma perpustakaan dari konvensional menjadi perpustakaan digital. Manifesto IFLA/UNESCO untuk Perpustakaan Digital secara resmi mendeklarasikan perubahan paradigma baru di perpustakaan. Manifesto ini memungkinkan perpustakaan menghemat ruang dengan mengembangkan perpustakaan digital untuk membangun zona sosial. Zona sosial merupakan tempat interaksi manusia dalam berbagai aktivitas. Interaksi dapat terjadi dalam konteks fisik maupun virtual. Penelitian ini bertujuan untuk mengkaji potensi pengembangan ruang sosial melalui pengembangan perpustakaan digital. Penelitian ini menggunakan metode kualitatif dengan pendekatan studi lapangan dan studi literatur. Penelitian ini melakukan uji validasi data lapangan dengan menggunakan teknik triangulasi. Berdasarkan data lapangan, perpustakaan yang telah menerapkan perpustakaan digital dapat menghemat penggunaan ruang. Ruangan itu awalnya untuk menempatkan rak koleksi; perpustakaan kemudian dapat menggunakannya untuk membuat ruang publik. Penciptaan ruang publik oleh perpustakaan ditujukan untuk kegiatan yang melibatkan partisipasi masyarakat, seperti kegiatan literasi. Selain itu, pemanfaatan ruang untuk membangun *co-working space* juga secara tidak langsung berkontribusi dalam interaksi sosial melalui kegiatan diskusi. Tugas perpustakaan selanjutnya adalah bagaimana perpustakaan dapat menyediakan koleksi yang berkualitas sehingga perpustakaan dapat menjadikannya sebagai pusat informasi.

Kata Kunci: perpustakaan digital, ruang publik, wilayah sosial, interaksi sosial

INTRODUCTION

Libraries initiate paperless collections by developing digital libraries (AbdulKareem et al., 2020; Dhumne, 2017; Langheinrich, 2019; Prastyo et al., 2020). The digital library was born due to the user's need for information accessibility (Deja et al., 2021; Y. Li & Liu, 2019; Liu & Shen, 2018). Digital libraries engender a new concept of librarianship to respond to the challenges of the industrial revolution (David et al., 2022; Peerally et al., 2022; Riyanto et al., 2019; Tu, 2018).

The industrial revolution is a process of social change that rapidly changes related to human life's development by creating work equipment to increase production output (Caruso, 2018; Hussain, 2019; Philbeck & Davis, 2018; Reischauer, 2018; Saniuk et al., 2020; Sung, 2018). One of the striking changes due to the industrial revolution is the shift in roles of the production process to machines that can move and think—automated systems such as computers and robots (Hacioglu & Sevgilioglu, 2019; Mamad, 2018; Tyagi et al., 2021). This impact also extends to the library as an institution providing public information services. The rapid development of information requires libraries to have a system that can provide information quickly, one of which is by developing artificial intelligence applications in the library (Effendy et al., 2022; Galvani et al., 2018; Nafisah & Effendy, 2019; Singh & Rana, 2022).

The need for information and its global distribution also requires libraries to develop innovations to reach users in all regions of the world. The International Federation of Library Associations and Institutions (IFLA) launched a manifesto for Public Libraries to engage and support the development of public libraries. The manifesto affirms that libraries help all members of society access, produce, create, and share knowledge – including by promoting open access to scientific knowledge, research, and innovation. This manifesto recommends a portal system in the digital library format to exchange knowledge and information with online service-based services (Iqbal & Wali, 2022; S. Li et al., 2019; Ling-ping et al., 2019; Suresh, 2021). This format also engenders a modern paradigm in the library.

The characteristics of the modern paradigm open up opportunities for libraries to build a social space to bridge the increasing fading of social interaction in society due to the development of ICT (Harianto et al., 2018; Kertész et al., 2020; Luo et al., 2022; Thulin et al., 2020). Extraordinary events in 2019, the COVID-19 pandemic, caused a humanitarian crisis that impacted

social interactions (Alradhawi et al., 2020; Dwivedi et al., 2020; Perez-Brumer et al., 2022; Saladino et al., 2020; Sepúlveda-Loyola et al., 2020). The COVID-19 pandemic has not shown any signs of ending, forcing people to live in the New Normal era by implementing new habits following health protocols (Dominelli, 2021; Ingrassia et al., 2020; Mbunge et al., 2021; Winata et al., 2020). For this reason, restoring social interaction due to the COVID-19 pandemic must be done immediately (Alradhawi et al., 2020; Bostan et al., 2020; Mermerkaya & Cınar, 2022; Türkmen, 2021; Usluoğlu et al., 2022).

Erving Goffman argues that the forerunner to the formation of society is the interaction between members of that society (Alvehus, 2019; Hancock & Garner, 2021; Jacobsen, 2017). The use of various social media platforms in social interaction has changed society's culture and influenced interactions in the community (Hadi, 2018). This media also symbolizes humanity's spatial relations in communicating (Sirojjudin, 2021).

The community and the government have made various efforts to improve social interaction through information and communication technology-based media and other ways (Ambarita, 2018; Desky et al., 2017). Building social interactions can be realized through social media as a communication intermediary. An empirical study has proven that social media can also establish a role in fostering social interactions in society (Cerulo, 2009). Social media has a relationship with digital libraries. The relationship between the two is that they can create new cultural objects that begin with how knowledge production, consumption, and distribution become meaningful. Social media has the nature of social media interaction which involves two-way active interaction without space and time barriers in real-time. The ability to adapt to information technology and the use of global virtual networks has changed various cultural structures that have so far believed in the truth. The role of digital libraries as the cultural identity of the knowledge society places digital libraries as a source of knowledge for the social structure of society. Digital libraries have evolved, influenced by social media as a source of knowledge for marginalized communities. The cultural boundaries between the center and the periphery have changed due to the pattern of knowledge creation resulting from the social interaction of people who network using social media (Nurochman & Supriyanto, 2022). Based on this empirical study, this study aims to explore opportunities to recover social interaction through the development of digital libraries. This study also hopes that the success of libraries in building social spaces can restore the degradation of social interaction as a negative impact of technological developments.

METHODS

This study used a qualitative method with a library and field research approach. The libraries that are the subject of this study are in Table 1.

Primary data sources in this study used direct and indirect observation meth-

Table 1. Research Sites

No .	Library Name
1.	National Library of the Republic of Indonesia
2.	Bung Karno Proclamation Library, Blitar
3.	Yogyakarta Library Ghratama Library
4.	Academic Library (Gadjah Mada University and Islamic State University of Sunan Kalijaga

ods by observing libraries in Indonesia that have implemented digital libraries in utilizing their space. Data collection in this research also used the member check technique to compile library digitization provisions based on the IFLA-UNESCO manifesto.

The IFLA-UNESCO Manifesto is a guideline that contains global and implicit information. This guideline is the primary data source in this study. For this reason, field data analysis in this study used content analysis and descriptive analysis. This study made observations in several libraries in Indonesia to explore the potential for developing social space through digital libraries. This observation is to get an overview of the use of space in the library for public areas.

This study uses the Miles and Huberman analysis model. Meanwhile, the data validity test uses triangulation techniques, observation extension, increasing persistence, and member checks. In addition, this study also uses reference materials—assurance Audit technique by recording research activities to maintain consistency and objectivity of research results.

RESULTS AND DISCUSSIONS

IFLA establishes guidelines for managing libraries as international operational standards. IFLA consists of library professionals collaborating in a common consensus to review, publish and periodically update international documents. These documents contain guidelines for managing bibliographic information and record, data authorization, library reference models and formats for library collections, data access, and other general guidelines related to library services (IFLA, 2023). IFLA's guidelines demonstrate the importance of adapting libraries to de-

velop digital libraries. Studies from various scientific perspectives also show the urgency of establishing digital libraries (Nafisah, 2022).

As a center for information resources, the library has become a center for developing science and technology. The library also preserves library materials to maintain the content of information values beneficially for society. This task makes the library the center of the nation's art and culture to create social interaction between people in the library (Biagi, 2020; Leary-Owhin & McCarthy, 2019).

To adapt to technological developments and their users, libraries must develop management and service innovations as a medium for communicating within the library. This communication fosters interaction between users and librarians for users' information needs. This interaction also opens access to information. This interaction creates opportunities for the formation of social space in the library.

One advantage of implementing digital libraries is that libraries can save space due to reduced printed collections. The room then becomes a space to build social space. This public space can be a co-working space, sports corner, discussion room, mini cinema, or other areas where library users can interact. Law no. 43 of 2007 concerning libraries declare that one of a library's functions is as a recreation medium. The development of a sports center in the library can make the library a healthy recreation area for the community. This development also supports the national goal of educating the nation through healthy physical development for the community. Some libraries that have created social space through digital library utilization are as follows.

The digital library application belonging to the National Library of Indonesia is iPusnas. iPusnas is an application that aims to make it easier for the public to access all reading materials in the National Library via smartphone. All reading sources on iPusnas have legality and are official. By providing legal collections, this library can minimize the use of pirated books by the public.

This library also provides an Indonesian Onesearch (IOS) digital service. IOS is a web portal that contains a full-text bibliographic collection whose data is collected using harvest methods from members' online repositories. Through IOS, users can access the electronic collections of all libraries in Indonesia in real-time. This capability can improve the quality of information retrieval through the library. IOS also provides ebook versions. IOS can strengthen the existence of libraries by providing fully open access information for the community.

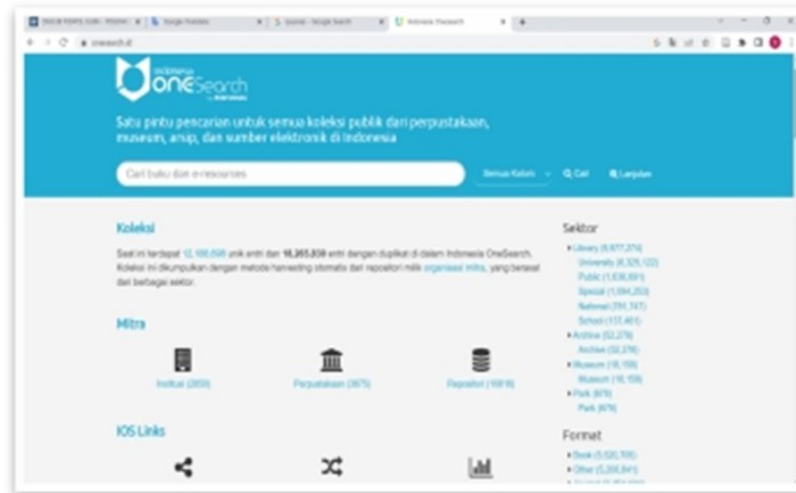


Figure 1. Indonesia One Search Portal

Source: <https://onesearch.id/>

Implementation of iPusnas and iOS builds collaboration between libraries. National libraries and libraries in all regions of Indonesia, through the IOS portal, can collaborate and work together to meet the community's information needs. This collaboration will create a virtual public space. The existence of interaction spaces in the library will form a social zone. Libraries can facilitate library users to get proper study space to interact, be creative, and hold events together. Collections in digital formats such as e-content, e-journals, ebooks, digital electronic theses and dissertations (ETD), podcasts, videocasts, digital publishing, and digital archives can support libraries in distributing information through digital libraries. This concept is in line with the idea of forming social space. Public space plays an essential role in creating social space. Public space has a role in influencing the process of production and consumption of space. This role depends on socio-cultural, political, natural, and economic factors. Each region has dominant characteristics that will later influence how people produce and consume space. Suppose people can take advantage of this public space to carry out activities related to socio-culture, politics, and natural and economic conditions. In that case, this public space becomes a social space.

This library also creates public space through its activities. These activities include entrepreneurship workshops, democracy seminars, accounting exhibitions, community service seminars, seminars on instilling an interest in reading, conferences, internet governance workshops, and other activities to improve literacy skills and community competence. In addition, National Library also plays an active role in increasing literacy by conducting various literacy activities. One of the literacy activities organized by this library is disaster

literacy which aims to socialize natural disaster management. The National Library of the Republic of Indonesia also plays an active role in preservation activities by holding intensive courses on ancient Javanese at the international level. This activity is proof of the realization of public space in this library inclusively for all people. This activity is proof of the realization of public space in this library in an inclusive manner for all people. Implementing various activities for persons with disabilities in the library makes this public space a social zone.

The Bung Karno Proclamation Library is the presidential library owned by the government of the Republic of Indonesia. This library seeks to improve Indonesian culture and civilization through the thoughts of the Indonesian Proclaimer Sukarno. He is also the first president of the Republic of Indonesia. The Government of the Republic of Indonesia hopes that the spirit of Indonesian nationalism to face ideological globalization can grow through this library. For this reason, this library has become a center for studying Indonesian nationalism. One of the efforts this library has developed is so that the Indonesian people can reflect and actualize Sukarno's thoughts and understand the history of the formation of the Unitary State of the Republic of Indonesia.

In 2022, the Bung Karno library carried out 11 types of literacy activities, including Coffee Literacy, Mustika Rasa Literacy, Hasta Karya Literacy, Embroidery Literacy, Waste Recycling Utilization Literacy, Wastra Nusantara Literacy, Arts and Culture Literacy, Graphic Design Literacy, Vlogging Literacy, Literacy of Scientific Works about Bung Karno, and Historical Literacy Telling about Bung Karno's thoughts. This literacy activity uses collections of books written by Sukarno and books related to Sukarno.

Literacy activities organized by this library have made Bung Karno's library a place for community gatherings. Uniquely, literacy activities that aim to achieve social inclusion are taken from books stored in the library, for example, Mustika Rasa Literacy. Mustika Rasa Literacy is a literacy activity that presents Ir. Sukarno. The book entitled Mustika Rasa inspired the naming of this literacy. This Mustika Rasa literacy activity teaches people how to process recipes into products with economic value.

Another literacy activity is Literasi Wastra Nusantara which introduces typical Indonesian fabrics, such as batik, woven, songket, and other typical materials. As an archipelagic country, Indonesia has a variety of cultures, one of which is a variety of embroidery patterns. The diversity of embroidery motifs is also one of the literacy themes in this library, Embroidery Literacy. This literacy activity can absorb people's interest in participating in this activity.

Promotion through digital libraries has also proven effective in realizing libraries as public spaces for society.



Figure 2. Bung Karno Library as a Public Space Area

Source: (Fathurriza, 2017)

Ghratama Pustaka is one of the libraries in the Yogyakarta Special Region Government. Yogyakarta is one of Indonesia's regions with the privilege of the Sultanate system in its administration. In addition, its administrative area is the Duchy of Pakualaman. The Duchy of Pakualaman is an area within a state with sovereignty and power but still depends on the central government according to a political agreement. This uniqueness makes Yogyakarta a cultural and educational destination for domestic and foreign tourists.

Ghratama Pustaka has an architecture that combines modern and traditional Yogyakarta concepts. Ghratama Pustaka's architectural philosophy reflects the uniqueness of Yogyakarta and the ideals of perfection for Javanese people with four pillars of life: Prakoso (Strong), Wulung (Eagle), Agung (Glorious), and Wangi (Fragrant) through the use of the library. The philosophy of the eagle in Javanese culture is that humans always increase their potential by flying higher, challenging problems, and conquering them.



Figure 3. Four pillars in Ghratama Pustaka Yogyakarta

Source: (Platform (support@ommu.co), 2016)

The uniqueness of the Ghratama Pustaka library building makes this library one of the educational tourism destinations for tourists. For this reason, this library provides public space for the community. The design of the public space contained in this library includes a children's book collection room, children's playroom, storytelling room, children's music room, and 6D cinema room. In addition, this library also has a general collection room and a Braille collection room for users with special needs. This library also has a rare and cultural collection room to develop science and culture. The public can use the space for activities in the library. Most of the book collections in this library are presented in digital format and disseminated to the digital library application community to facilitate access to information for the public. The dissemination of library collections at Ghratama Pustaka and the promotion of its facilities and activities through digital library applications can increase public interest in visiting this library. Through this application, people can access the services and facilities in this library to foster a desire to visit the library. With the increasing public interest in visiting the library, it has become a center for community activities in its social activities. Gradually this library became a social zone for the district to carry out educational activities.

This library also initiates service innovation through digital library applications by developing delivery services for the community – communication between users and libraries in utilizing this delivery service through this application feature. This feature is a medium of communication and virtual interaction between users and the library to make it easier for people to use the services in this library. This innovation has the potential to create virtual public spaces through digital libraries.

The application of digital libraries in tertiary institutions allows libraries to build public spaces. Converting media collections into digital formats can save space in the library. College libraries can create public spaces by designing mini studios, study and discussion rooms, independent study rooms, exercise rooms, and closed discussion rooms. The concept of social space in college is also through information services through digital libraries. Libraries through digital libraries provide services that are scientific development. One library that offers this service is the Digital Library of the Faculty of Engineering, Gadjah Mada University, Yogyakarta. These services include discussions with experts on different discussion themes, data management, plagiarism checks to mind map services for research purposes. Libraries routinely inform and promote these activities through their digital library website.

The Library of the Faculty of Social and Political Sciences, Gadjah Mada University, also provides a social zone. The social zone in this library adopts the cafe concept. The social zone in the library is known as the DIGILIB Café.

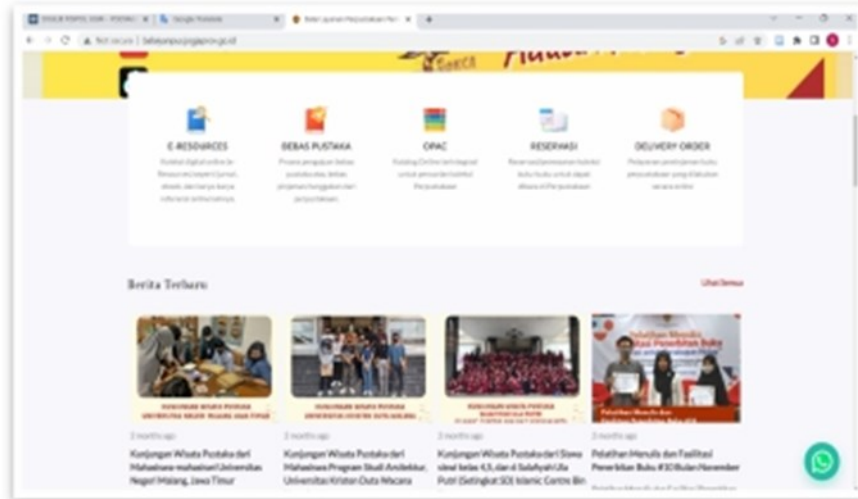


Figure 4. Reservation and Delivery Order Features Innovation at the Ghratama Pustaka

Source: <http://balaiyanpus.jogjaprov.go.id/>

DIGILIB Cafe has meeting room facilities, a cafe, a performance stage, a green screen studio, a discussion room, mini cinema, and a sports center. The library has a discussion room with computers and various devices, including wifi access.

'Libraries for all' is the library's slogan to show its inclusivity. Sunan Kalijaga State Islamic University is one of the libraries that facilitates persons with disabilities to carry out activities and access information widely through the library through the Difable Corner facility. The library provides collections that are friendly for persons with disabilities and facilities and infrastructure designed according to the needs of persons with disabilities in this corner. The development of the digital library at UIN Sunan Kalijaga has supported the library in providing this corner because there is sufficient space for persons with disabilities to reach the library safely. This concept makes the library an inclusive public space.

CONCLUSION

The development of a digital library can realize the concept of social space because the library will get flexibility in arranging its space for public areas. Digital services will also increase the diversity and reach of libraries in developing their services because they can enrich the variety of reading materials in the li-

brary. One of the implementations is a collaboration between libraries through portals such as Indonesia OneSearch (IOS). This effort makes the library a place for interactive activities to exchange information. Exchanging information will foster communication between users, increasing social interaction between users.

Creating public spaces through the development of digital libraries restores social interaction between communities impacted by massive technological developments. The library's challenge in realizing social space is the library's readiness to guarantee the quality of information so that the information distributed is legal and does not violate religious and social norms.

12

REFERENCES

- AbdulKareem, A. K., Bello, M. L., Ishola, A. A., & Jimoh, L. A. (2020). E-Government, Information and Communications Technology Support and Paperless Environment in Nigerian Public Universities: Issues and Challenges. *Journal of Technology Management and Business*, 7(1), 65-74. <https://publisher.uthm.edu.my/ojs/index.php/jtmb/article/view/5384/3658>
- Ali, P. M. N., Zehra, S., Vaidya, P., & Mohsin, S. M. (2022). Role of Academic Social Networking Sites in Knowledge Sharing and Research Collaboration among Research Scholars. *DESIDOC Journal of Library & Information Technology*, 42(5), 309-317. <https://doi.org/10.14429/djlit.42.5.18239>
- Alradhawi, M., Shubber, N., Sheppard, J., & Ali, Y. (2020). Effects of the COVID-19 pandemic on mental well-being amongst individuals in society- A letter to the editor on "The socio-economic implications of the coronavirus and COVID-19 pandemic: A review." *International Journal of Surgery (London, England)*, 78, 147-148. <https://doi.org/10.1016/j.ijssu.2020.04.070>
- Alvehus, J. (2019). Emergent, distributed, and orchestrated: Understanding leadership through frame analysis. *Leadership*, 15(5), 535-554. <https://doi.org/10.1177/1742715018773832>
- Ambarita, E. (2018). *The Urgency of Linguistic Communication and Culture in Social Interactions*. INA-Rxiv. <https://doi.org/10.31227/osf.io/crdbx>
- Basak, M., & Roy, S. B. (2022). Mapping the Literature on Digital Humanities. *DESIDOC Journal of Library & Information Technology*, 42(6), 354-363. <https://doi.org/10.14429/djlit.42.6.18271>
- Biagi, F. (2020). *Henri Lefebvre's Critical Theory of Space*. Springer Nature.
- Bostan, S., Erdem, R., Öztürk, Y., Kılıç, T., & Yılmaz, A. (2020). The effect of COVID-19 pandemic on the Turkish society. *Electronic Journal of General Medicine*, 17(6), 1-8. <https://doi.org/10.29333/ejgm/7944>
- Caruso, L. (2018). Digital innovation and the fourth industrial revolution: Epochal social changes? *AI & SOCIETY*, 33, 379-392. <https://doi.org/10.1007/s00146-017-0736-1>
- Cerulo, K. (2009). Non-Humans in Social Interaction. *Annual Review of Sociology*, 35, 531-552. <https://doi.org/10.1146/annurev-soc-070308-120008>
- David, L. O., Nwulu, N. I., Aigbavboa, C. O., & Adepoju, O. O. (2022). Integrating fourth industrial revolution (4IR) technologies into the water, energy & food nexus for sustainable security: A bibliometric analysis. *Journal of Cleaner Production*, 363, 1-13. <https://doi.org/10.1016/j.jclepro.2022.132522>

- Deja, M., Rak, D., & Bell, B. (2021). Digital transformation readiness: Perspectives on academia and library outcomes in information literacy. *The Journal of Academic Librarianship*, 47(5), 1-15. <https://doi.org/10.1016/j.acalib.2021.102403>
- Desky, A. F., Pujiati, P., Simanihuruk, M., Ismail, R., & Manurung, R. (2017). Language as a Status Symbol of Power in Social Interactions at a Multi-cultural School in the City of Medan. *Jurnal Ilmu Sosial Dan Ilmu Politik*, 20(3), 64-77. <https://doi.org/10.22146/jsp.27210>
- Dhumne, K. M. (2017). *Paperless Society in Digital Era*. 3.
- Dominelli, L. (2021). A green social work perspective on social work during the time of COVID-19. *International Journal of Social Welfare*, 30(1), 7–16. <https://doi.org/10.1111/ijsw.12469>
- Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55, 1-20. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>
- Effendy, N., Ruhyadi, D., Pratama, R., Rabba, D., Aulia, A., & Atmadja, A. (2022). Forest quality assessment based on bird sound recognition using convolutional neural networks. *International Journal of Electrical and Computer Engineering*, 12, 4235–4242. <https://doi.org/10.11591/ijece.v12i4.pp4235-4242>
- Fathurriza, A. (2017). *UPT Perpustakaan Proklamator Bung Karno, Sebuah Perpustakaan Kepresidenan Untuk Mengenal Sejarah Indonesia—TempatWisata.pro*. Tempat.me. <https://www.tempatwisata.pro/wisata/UPT-Perpustakaan-Proklamator-Bung-Karno>
- Galvani, R. Y., Effendy, N., & Kusumawanto, A. (2018). Evaluating Weight Priority on Green Building Using Fuzzy AHP. *2018 12th South East Asian Technical University Consortium (SEATUC)*, 1, 1–6. <https://doi.org/10.1109/SEATUC.2018.8788887>
- Hacioglu, U., & Sevgilioglu, G. (2019). The evolving role of automated systems and its cyber-security issue for global business operations in Industry 4.0. *International Journal of Business Ecosystem & Strategy*, 1(1), 01-11. <https://doi.org/10.36096/ijbes.v1i1.105>
- Hadi, A. (2018). Bridging Indonesia's Digital Divide: Rural-Urban Linkages? *Jurnal Ilmu Sosial Dan Ilmu Politik*, 22(1), 17-33. <https://doi.org/10.22146/jsp.31835>
- Hancock, B. H., & Garner, R. (2021). Erving Goffman and "The New Normal": Havoc and Containment in the Pandemic Era. *The American Sociologist*, 52(3), 548–578. <https://doi.org/10.1007/s12108-021-09510-3>
- Harianto, S., Imron, A., Setiawan, K. G., & Sadewo, F. X. S. (2018). Social and economic behavior shift in the suburban society. *Journal of Physics: Conference Series*, 953, 1-5. <https://doi.org/10.1088/1742-6596/953/1/012187>
- Hussain, A. (2019). Industrial revolution 4.0: Implication to libraries and librarians. *Library Hi Tech News*, 37(1), 1–5. <https://doi.org/10.1108/LHTN-05-2019-0033>
- IFLA. (2023). Current IFLA Standards [Org]. *IFLA*. <https://www.ifla.org/current-ifla-standards/>
- Ingrassia, P. L., Capogna, G., Diaz-Navarro, C., Szyld, D., Tomola, S., & Leon-Castelao, E. (2020). COVID-19 crisis, safe reopening of simulation centres and the new normal: Food for thought. *Advances in Simulation*, 5(1), 1-14. <https://doi.org/10.1186/s41077-020-00131-3>

- Iqbal, T., & Wali, M. (2022). IDOL: Retrofit-Kotlin Service-Based Online Digital Library Application and College Open Data Repository. *International Journal Software Engineering and Computer Science (IJSECS)*, 2(1), 1-8. <https://doi.org/10.35870/ijsecs.v2i1.760>
- Jacobsen, M. H. (2017). Erving Goffman. In M. H. Jacobsen (Ed.), *The Interactionist Imagination: Studying Meaning, Situation and Micro-Social Order* (pp. 195–232). Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-58184-6_8
- K, M. H., & E, S. (2011). Perception and Use of Social Networking Sites by the Students of Calicut University. *DESIDOC Journal of Library & Information Technology*, 31(4), 295-301. <https://doi.org/10.14429/djlit.31.4.1109>
- Kertész, J., Török, J., Murase, Y., Jo, H.-H., & Kaski, K. (2020). *Modeling the Complex Network of Social Interactions* (pp. 3–19). https://doi.org/10.1007/978-3-030-54936-7_1
- Kumar, B. (2015). Academic Library in Transition from Library as a Place to Library as a Learning Centre: A Case Study of Indian Institutes of Management. *DESIDOC Journal of Library & Information Technology*, 35(3), 169-176. <https://doi.org/10.14429/djlit.35.3.8673>
- Langheinrich, M. (2019). The Paperless Magazine. *IEEE Pervasive Computing*, 18(4), 4–7. <https://doi.org/10.1109/MPRV.2019.2955835>
- Lata, N., & Sonkar, S. K. (2022). Use of Information Communication Technology (ICT) in Library and Information Science Education and Research. *DESIDOC Journal of Library & Information Technology*, 42(6), 397-403. <https://doi.org/10.14429/djlit.42.6.18371>
- Leary-Owhin, M. E., & McCarthy, J. P. (2019). *The Routledge Handbook of Henri Lefebvre, The City and Urban Society*. Routledge.
- Li, S., Hao, Z., Ding, L., & Xu, X. (2019). Research on the application of information technology of Big Data in Chinese digital library. *Library Management*, 40(8/9), 518–531. <https://doi.org/10.1108/LM-04-2019-0021>
- Li, Y., & Liu, C. (2019). Information Resource, Interface, and Tasks as User Interaction Components for Digital Library Evaluation. *Information Processing & Management*, 56(3), 704–720. <https://doi.org/10.1016/j.ipm.2018.10.012>
- Ling-ping, R., Li, D., & Li, L. (2019). Application of Three-dimensional Digital Model in Digital Archive Ubiquitous Intelligent Service. *Journal of Physics: Conference Series*, 1314(1), 1-6. <https://doi.org/10.1088/1742-6596/1314/1/012146>
- Liu, S., & Shen, X.-L. (2018). Library management and innovation in the Big Data Era. *Library Hi Tech*, 36(3), 374–377. <https://doi.org/10.1108/LHT-09-2018-27>
- Luo, H., Zuo, M., & Wang, J. (2022). Promise and reality: Using ICTs to bridge China's rural–urban divide in education. *Educational Technology Research and Development*, 70(3), 1125–1147. <https://doi.org/10.1007/s11423-022-10118-8>
- Mamad, M. (2018). Challenges and Benefits of Industry 4.0: An overview. *International Journal of Supply and Operations Management*, 5, 256–265. <https://doi.org/10.22034/2018.3>
- Mbunge, E., Fashoto, S. G., Akinnuwesi, B., Metfula, A., Simelane, S., & Ndumiso, N. (2021). Ethics for integrating emerging technologies to contain COVID-19 in Zimbabwe. *Human Behavior and Emerging Technologies*, 3(5), 876–890. <https://doi.org/10.1002/hbe2.277>
- Mermerkaya, S., & Cinar, F. (2022). The effects on mental health of nurses during the COVID-19 pandemic: A systematic review and meta-analysis.

- Anaesthesia, Pain and Intensive Care*, 26, 1-20. <https://doi.org/10.35975/apic.v26i2.1837>
- Nafisah, S. (2022). Urgency of digitizing school libraries in Indonesia's post-truth era: A cross-perspective review. *Jurnal Kajian Informasi & Perpustakaan*, 10(2), 157-172. <https://doi.org/10.24198/jkip.v10i2.35702>
- Nafisah, S., & Effendy, N. (2019). Voice Biometric System: The Identification of the Severity of Cerebral Palsy using Mel-Frequencies Stochastics Approach. *International Journal of Integrated Engineering*, 11(3), 194-206. <https://publisher.uthm.edu.my/ojs/index.php/ijie/article/view/4663>
- Nurochman, A., & Supriyanto, W. (2022). Relasi perpustakaan digital dan media sosial sebagai sumber pengetahuan masyarakat marjinal. *Buletin Perpustakaan Universitas Islam Indonesia*, 5(2), Article 2. <https://doi.org/10.20885/bpuui.25170>
- Peerally, J. A., Santiago, F., De Fuentes, C., & Moghavvemi, S. (2022). Towards a firm-level technological capability framework to endorse and actualize the Fourth Industrial Revolution in developing countries. *Research Policy*, 51(10), 104563. <https://doi.org/10.1016/j.respol.2022.104563>
- Perez-Brumer, A., Balasa, R., Doshi, A., Brogdon, J., Doan, T., & Oldenburg, C. E. (2022). COVID-19 Related Shifts in Social Interaction, Connection, and Cohesion Impact Psychosocial Health: Longitudinal Qualitative Findings from COVID-19 Treatment Trial Engaged Participants. *International Journal of Environmental Research and Public Health*, 19(16), 1-12. <https://doi.org/10.3390/ijerph191610264>
- Philbeck, T., & Davis, N. (2018). The Fourth Industrial Revolution: Shaping a New Era. *Journal of International Affairs*, 72(1), 17–22.
- Platform (support@ommu.co), O. (2016). *Filosofi empat pilar minaret grhatama pustaka | Dinas Perpustakaan dan Arsip Daerah D.I Yogyakarta*. <http://dpad.jogjaprovo.go.id/article/news/vieww/filosofi-empat-pilar-minaret-grhatama-pustaka-863>
- Prastyo, P. H., Sumi, A. S., & Kusumawardani, S. S. (2020). A Systematic Literature Review of Application Development to Realize Paperless Application in Indonesia: Sectors, Platforms, Impacts, and Challenges. *Indonesian Journal of Information Systems*, 2(2), 111–129. <https://doi.org/10.24002/ijis.v2i2.3168>
- Reischauer, G. (2018). Industry 4.0 as policy-driven discourse to institutionalize innovation systems in manufacturing. *Technological Forecasting and Social Change*, 132, 26–33. <https://doi.org/10.1016/j.techfore.2018.02.012>
- Riyanto, S., Marlina, E., & Triasih, H. (2019). Librarian role in research library services in Indonesian Institute of Sciences. *Berkala Ilmu Perpustakaan Dan Informasi*, 15(2), 201-212. <https://doi.org/10.22146/bip.35200>
- Saladino, V., Algeri, D., & Auriemma, V. (2020). The Psychological and Social Impact of Covid-19: New Perspectives of Well-Being. *Frontiers in Psychology*, 11, 1-6. <https://www.frontiersin.org/articles/10.3389/fpsyg.2020.577684>
- Saniuk, S., Grabowska, S., & Gajdzik, B. (2020). Social Expectations and Market Changes in the Context of Developing the Industry 4.0 Concept. *Sustainability*, 12(4), 1-21. <https://doi.org/10.3390/su12041362>
- Sepúlveda-Loyola, W., Rodríguez-Sánchez, I., Pérez-Rodríguez, P., Ganz, F., Torralba, R., Oliveira, D. V., & Rodríguez-Mañas, L. (2020). Impact of Social Isolation Due to COVID-19 on Health in Older People: Mental and Physical Effects and Recommendations. *The Journal of Nutrition, Health & Aging*, 24(9), 938–947. <https://doi.org/10.1007/s12603-020-1500-7>
- Singh, P. K., & Rana, P. (2022). Potential of Augmented Reality in Optimization

- of Military Libraries Services. *DESIDOC Journal of Library & Information Technology*, 42(6), 404-413. <https://doi.org/10.14429/djlit.42.6.18191>
- Sirojjudin, A. M. (2021). Utilization of Big Data Analysis Through Public Video, Virus Data Cooperation, and Social Media as the Surveillance to COVID-19 in Indonesia. *Jurnal Ilmu Sosial Dan Ilmu Politik*, 25(1), 1-15. <https://doi.org/10.22146/jsp.56491>
- Sung, T. K. (2018). Industry 4.0: A Korea perspective. *Technological Forecasting and Social Change*, 132, 40-45. <https://doi.org/10.1016/j.techfore.2017.11.005>
- Suresh, S. R. (2021). An Electronic Digital Library Using Integrated Security Methods and Cloud Storages. *International Journal of Advanced Networking and Applications*, 13(1), 4839-4844.
- Thulin, E., Vilhelmson, B., & Schwanen, T. (2020). Absent Friends? Smartphones, Mediated Presence, and the Recoupling of Online Social Contact in Everyday Life. *Annals of the American Association of Geographers*, 110(1), 166-183. <https://doi.org/10.1080/24694452.2019.1629868>
- Tu, Zhifang, & Xu, Huifang (2018). Digital Scholarship Skills and Librarian Training Toward Digital Scholarship Services—Case Studies of Academic Libraries in China. Proceedings of IFLA WLIC. (1-12), <https://library.ifla.org/id/eprint/2200/1/206-tu-en.pdf>.
- Türkmen, L. (2021). Assessment of knowledge, attitudes and practices of healthcare workers in Turkey regarding coronavirus disease-2019. *Southeast Asian J Trop Med Public Health*, 52(6), 742-761. <https://doi.org/10.13140/RG.2.2.24420.04488>
- Tyagi, A.K., Fernandez, T.F., Mishra, S., Kumari, S. (2021). Intelligent Automation Systems at the Core of Industry 4.0. In: Abraham, A., Piuri, V., Gandhi, N., Siarry, P., Kaklauskas, A., Madureira, A. (eds) Intelligent Systems Design and Applications. ISDA 2020. *Advances in Intelligent Systems and Computing*, vol 1351. Springer, Cham. 1-18. https://doi.org/10.1007/978-3-030-71187-0_1
- Usluoğlu, F., Togay, A., Atici, M., & Şahin, İ. (2022). The Effects of COVID-19 Pandemic on Adults Living in Turkey and Ways of Coping. *Social Work in Public Health*, 1-16. <https://doi.org/10.1080/19371918.2022.2117754>
- Winata, A. P., Fadelina, R., & Basuki, S. (2020). New normal and library services in Indonesia: A case study of university libraries. *Digital Library Perspectives*, 37(1), 77-84. <https://doi.org/10.1108/DLP-07-2020-0059>