

Literacy Transformation: Implementation of Digital Library at Tebuireng Islamic Boarding School Jombang

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Abstract: This study examines the process of literacy transformation through the implementation of digital libraries at Tebuireng Islamic Boarding School, Jombang. In the digital era, the role of libraries in supporting information literacy has undergone significant changes. This study aims to analyze the implementation of digital libraries in traditional Islamic boarding schools and their impact on the literacy culture of students. The research methodology uses a qualitative approach with a case study method. Data were collected through in-depth interviews, participant observation, and document analysis. The results of the study show that the implementation of digital libraries has brought positive changes in the pattern of information access and literacy culture of students. Key findings include increased interest in reading, expanded access to sources of knowledge, and integration of technology in learning yellow books. Challenges include resistance to change, limited technological infrastructure, and the need for digital training. Strategies to address these challenges include gradual socialization, infrastructure development cooperation, and digital literacy training programs. The study concluded that literacy transformation through digital libraries in Islamic boarding schools is a strategic step in preparing students to face the information era. The proposed recommendations include the development of digital content based on local wisdom of Islamic boarding schools, increasing collaboration between Islamic boarding schools in sharing digital resources, and further integration between traditional learning methods and digital technology.

Keywords: Literacy Transformation, Digital Library, Islamic Boarding School, Tebuireng Jombang, Educational Technology.

Introduction

In the rapidly developing digital era, literacy transformation is a must for educational institutions to remain relevant and effective in meeting students' learning needs. (Gómez-Zermeno, 2020). Pesantren, as a traditional Islamic educational institution in Indonesia, also faces challenges to adapt to the development of information and communication technology (ICT). (Wekke & Hamid, 2013). One significant effort in responding to this challenge is the implementation of digital libraries, which have been proven to increase access to educational resources and encourage a culture of literacy in

various educational contexts. (Oyediran-Tidings, Ondari-Okemwa, & Nekhwevha, 2019)

Pesantren Tebuireng Jombang, one of the leading Islamic boarding schools in Indonesia, has taken a progressive step by implementing a digital library as part of its literacy transformation strategy. This initiative is in line with the global trend where educational institutions are utilizing digital technology to improve the quality of learning and research. (Ifijeh, Iwu-James, & Adebayo, 2016) Digital libraries not only provide wider access to information resources, but also facilitate the development of digital literacy skills which are essential in the 21st century. (Sharp & Sharp, 2017) The implementation of digital libraries in Islamic boarding school environments has the

potential to bridge the digital and information gap that is often experienced by educational communities in underserved areas.(Mtebe & Raphael, 2017). In addition, the integration of digital technology into the pesantren library system can also help preserve and disseminate the rich intellectual heritage of Islam, which is often stored in manuscripts and classical books.(Sun & Yuan, 2020).

However, the implementation of digital libraries in Islamic boarding schools is not without challenges. Factors such as technological infrastructure, human resource readiness, and resistance to change can be significant obstacles.(Abubakar, 2011). Therefore, a holistic and contextual approach is needed in designing and implementing digital libraries in Islamic boarding schools.(Chaputula & Mutula, 2018) Furthermore, this study will investigate how digital libraries can support the development of information and digital literacy skills needed by students to participate effectively in the global information society.(Lau, 2017). Another important aspect to be examined is how digital libraries can facilitate the preservation and dissemination of traditional Islamic knowledge while introducing modern learning resources.(Bruckmayr, 2019) The analysis will cover how digital libraries can enrich, not replace, traditional pesantren teaching methods.(Huda et al., 2018)

In a broader context, this study will contribute to the understanding of how faith-based educational institutions can utilize digital technologies to improve the quality of education and its relevance in the modern era.(MA Al Mutawah, Thomas, & Khine, 2017) Finally, this study aims to produce insights and recommendations that can be useful for other Islamic boarding schools and similar educational institutions that wish to implement digital libraries as part of their literacy transformation strategy.(Ajayi, Shorunke, & Aboyade, 2014)

By understanding the key success factors and potential obstacles, it is hoped that this study can contribute to the development of an effective and sustainable digital library implementation model in Islamic boarding school environments.(Rahayu & Day, 2015) In an era where digital literacy is

becoming increasingly important, the transformation of Islamic boarding school libraries through digitalization represents an important step in preparing the next generation of students to face future challenges while still maintaining the traditional values that are the foundation of Islamic boarding school education.(Sari, Ciptadi, & Hardyanto, 2017).

Materials and Methods

This study adopted a qualitative approach with a case study method, in accordance with Creswell's opinion (2018) which emphasizes that this approach is suitable for exploring and understanding meanings related to social or humanitarian issues. Case studies are chosen to allow for in-depth exploration of programs, events, activities, or processes that occur in certain individuals or groups (Yin, 2014). This research was conducted at the Tebuireng Islamic Boarding School, Jombang, which was chosen because it is one of the oldest Islamic boarding schools in Indonesia and is currently undergoing a digital transformation in its education system (Dhofier, 2011).

Data collection techniques consisted of three main methods: in-depth interviews, participant observation, and document analysis. Semi-structured interviews were conducted with Islamic boarding school administrators, library managers, teachers, and students, using a guide developed based on the research conceptual framework (Kvale & Brinkmann, 2015). Participant observation included direct observation of activities in the digital library, recording patterns of digital facility use by students, and documenting interactions between users and the digital library system (Spradley, 2016). Document analysis involved reviewing library policies, statistical analysis of digital library usage, and evaluation of available digital content (Bowen, 2019).

The collected data were analyzed using an interactive model from Miles, Huberman, and Saldana (2014), which includes data condensation, data presentation, and drawing conclusions. To ensure the validity of the data, this study applied

triangulation techniques recommended by Denzin & Lincoln (2017), including triangulation of sources, methods, and time.

The research stages consist of three phases: preparation, implementation, and reporting. In the preparation stage, proposals are prepared, instruments are developed, and research permits are obtained. The implementation stage includes collecting field data, analyzing initial data, and verifying findings with informants. Finally, in the reporting stage, researchers prepare a draft report, consult with supervisors, and finalize the research report. This research also upholds the principles of research ethics, as stated by Israel (2015), which include informed consent from all participants, confidentiality and anonymity of informants, and respect for the privacy and values of the pesantren.

Results and Discussion

The results of this study provide an in-depth description of the digital library implementation process at Pesantren Tebuireng Jombang, an Islamic educational institution that has attempted to integrate modern technology into its traditional learning system. This study specifically examines the experiences and strategies carried out by managers and teachers in adapting digital technology as a means of supporting modern literacy for students. Through a series of in-depth interviews and field observations conducted during the research period, three main themes were found that became the focus of discussion, namely: Identification of Students' Digital Literacy, Digital Library Implementation Strategy, Constraints in Using Digital Libraries.

Theme 1. Identification of Digital Literacy of Students

Based on the results of the study through observation and interviews with library managers and teachers, it was found that the level of digital understanding among students is very diverse. This diversity is mainly influenced by their socio-economic background and region of origin. Students who come from cities and are already familiar with technology, show good skills in using digital devices and the internet. On the other hand,

students who come from villages and have limited access to technology still need a lot of guidance to be able to use digital libraries properly.

The Islamic boarding school realizes that the digital skills expected from students are not limited to being able to use technological devices. They must also be able to use digital libraries efficiently, search for and filter information that suits their learning needs, think critically in choosing trusted sources of information, understand the ethics of using digital technology, and be able to combine digital learning with the existing Islamic boarding school education system.

Islamic boarding schools view these digital skills as very important basic skills for students in facing technological developments in the future. This is important so that graduates of Islamic boarding schools can compete in the modern world without abandoning good Islamic boarding school values. To overcome the differences in digital skills among students, Islamic boarding schools design training and mentoring programs that suit their needs.

Theme 2. Digital Library Implementation Strategy

In implementing digital libraries, the management and teachers have developed a comprehensive strategy. This strategy includes various interrelated programs to ensure the success of using digital libraries in Islamic boarding schools. First, the Islamic boarding school held a structured training program. The students were trained from the basics of using a computer to how to search for and download learning materials. They were also taught how to assess the truth of digital information through hands-on practice sessions guided by teachers.

Second, the pesantren developed a diverse digital collection. The pesantren's classic books were converted into digital form, coupled with the procurement of electronic books and journals. All of these digital materials were carefully selected to suit the pesantren's values and stored in an organized learning database.

Third, digital libraries are included in the learning curriculum. The students are given assignments that require them to use digital libraries. The Islamic boarding school also applies

learning methods that combine traditional and digital methods, and provides research projects that utilize digital sources.

Fourth, Islamic boarding schools provide continuous mentoring to help students. They implement a mentor system where more advanced students help their friends who are having difficulties. In addition, students can also consult with digital librarians and participate in ongoing technology mentoring programs. The use of digital libraries is also continuously monitored and evaluated to ensure their effectiveness.

Theme 3. Obstacles in Using Digital Libraries

In implementing a digital library, Pesantren Tebuireng Jombang faces various challenges that need to be addressed carefully. In terms of technological infrastructure, the pesantren faces problems such as slow internet, lack of computers and tablets, limited expertise to maintain the system, and the need for electricity backup to ensure services continue to run.

Challenges also arise from human resources, where there is a large difference in digital skills among students. Staff and teachers need continuous training, coupled with the attitude of resistance to change from traditional to digital systems. The lack of skilled IT personnel is also a separate obstacle.

In terms of learning, Islamic boarding schools need to adjust teaching methods that combine technology, maintain a balance between digital and traditional learning methods, develop digital learning materials, and assess how effective this digital-based learning is. Meanwhile, in terms of culture and values, Islamic boarding schools must be able to balance technological advances with Islamic boarding school traditions, ensure that the use of technology is in accordance with Islamic boarding school values, and monitor access to information to remain in line with Islamic values.

To overcome these challenges, Islamic boarding schools have taken several important steps. They have gradually improved their technological infrastructure according to their capabilities, developed training programs for all Islamic boarding school residents, formed a special team to manage the digital library, and conducted regular

evaluations and adjustments. Through these various efforts, Pesantren Tebuireng Jombang remains committed to developing a digital library as an effective learning support tool, without abandoning the traditional values of the pesantren. The success of this program is expected to be an example for other pesantren in implementing digital technology in their education system.

Discussion

This study analyzes the implementation of digital libraries at Tebuireng Jombang Islamic Boarding School and its impact on the transformation of students' literacy. The results of the study indicate that the implementation of digital libraries has brought positive changes in the pattern of information access and literacy culture of students.

Increased Reading Interest and Knowledge Access: The implementation of digital libraries in Islamic boarding schools has increased interest in reading and expanded students' access to sources of knowledge. (Setiawan, 2018) digital technology can promote the quality of learning and research in educational environments. (Ifijeh, G., Iwu-James, J., & Adebayo, 2016) In the context of Islamic boarding schools, digital libraries facilitate students to easily access and study various learning materials, including religious literature and scientific works, independently. (Rahayu, & Day, 2015)

Technology Integration in Traditional Learning: Digital libraries have also been integrated into traditional Islamic boarding school learning methods, such as yellow book learning. (Huda, et al 2018) This is in line with Dhofier's view that Islamic boarding schools need to balance traditional values and the demands of modern development. Thus, literacy transformation in Islamic boarding schools does not mean abandoning tradition, but rather enriching it by utilizing digital technology. (Dhofier, 2011) Another important finding is that digital libraries have encouraged the development of digital literacy skills among students. (Sharp, 2017) Islamic boarding schools realize that digital literacy is an important skill that students must have to face the challenges of the information era. (T. & K. Al Mutawah, 2017) Therefore, Islamic boarding

schools conduct outreach and training to ensure that students can utilize digital libraries optimally.

Implementation Challenges: However, the implementation of digital libraries in Islamic boarding schools is not without challenges. Factors such as resistance to change, limited technological infrastructure, and the need for digital training are obstacles that must be faced. (Abubakar, 2011) Pesantren seek to address these challenges through holistic strategies, such as gradual socialization, infrastructure development collaboration, and digital literacy training programs. (rahayu and day, 2015)

Implications and Recommendations: The results of this study have important implications for the development of an effective and sustainable digital library implementation model in Islamic boarding school environments. (rahayu and day, 2015) This study recommends several strategic steps, including the development of digital content based on local wisdom of Islamic boarding schools, increasing collaboration between Islamic boarding schools in sharing digital resources, and further integration between traditional learning methods and digital technology. (Setiawan, 2018) Proper implementation of digital libraries can be an important step for Islamic boarding schools in preparing generations of students to face future challenges while still maintaining traditional values.

Conclusions

The implementation of a digital library at the Tebuireng Jombang Islamic Boarding School has brought positive changes in the access to information and literacy culture of the students. With a digital library, interest in reading increases, and access to sources of knowledge is wider. The integration of digital technology into traditional Islamic boarding school learning methods, such as learning yellow books, also enriches the traditions of the Islamic boarding school without having to abandon them. In addition, this implementation encourages the development of digital literacy skills among students, which are important in facing the challenges of the information era. However, the implementation of a digital library at

this Islamic boarding school also faces several challenges, such as resistance to change, limited technological infrastructure, and the need for digital training. To overcome this, the Islamic boarding school adopted a holistic strategy through gradual socialization, infrastructure development cooperation, and digital literacy training programs for students. This study recommends strategic steps, including the development of digital content based on local Islamic boarding school wisdom, increasing collaboration between Islamic boarding schools in sharing digital resources, and stronger integration between traditional learning methods and digital technology. Effective implementation of digital libraries can be an important step in preparing the next generation of students to face future challenges, while still maintaining the traditional values of Islamic boarding schools.

References

- Abubakar. (2011a). Digitizing libraries in Nigeria: The way forward. *International Journal of Library and Information Science*, 3(5).
- Abubakar, BM (2011b). Academic libraries in Nigeria in the 21st century. *Library Philosophy and Practice*, 1(135), 1–6.
- Ajayi, S.A., Shorunke, O.A., & Aboyade, M.A. (2014). The Influence Of Electronic Resources Use On Students' Reading Culture In Nigerian Universities: A Case Study Of Adeleke University Ede, Osun State. *Library Philosophy & Practice*.
- Al Mutawah, M.A., Thomas, R., & Khine, M.S. (2017). Investigation into self-regulation, engagement in learning mathematics and science and achievement among Bahrain secondary school students. *International Electronic Journal of Mathematics Education*, 12(3), 633–653.
- Al Mutawah, T. & K. (2017). Investigating the use of digital libraries in traditional religious educational settings. *Education and Information Technologies*, 22(4).
- Bruckmayr, P. (2019). The changing fates of the Cambodian Islamic manuscript tradition. *Journal of Islamic Manuscripts*, 10(1), 1–23.
- Chaputula, A.H., & Mutula, S. (2018). eReadiness of public university libraries in Malawi to use mobile phones in the provision of library and information services. *Library Hi Tech*, 36(2), 270–288.
- Dhofier. (2011). Pesantren tradition: A study of the kyai's outlook on life and his vision of the future of Indonesia. Jakarta: LP3ES.

- Gómez-Zermeño, M. G. (2020). Massive open online courses as a digital learning strategy of education for sustainable development. *Journal of Sustainable Development of Energy, Water and Environmental Systems*, 8(3), 577–589.
- Huda, Jasmi, Mustari, Basiron, Sabani, Safar, M. (2018). Empowering children with adaptive technology skills: Recent evidence from function and empirical analysis. *International Journal of Engineering & Technology*, 7(3).
- Huda, M., Maselena, A., Atmotiyoso, P., Siregar, M., Ahmad, R., Jasmi, K., & Muhamad, N. (2018). Big data emerging technology: insights into innovative environments for online learning resources. *International Journal of Emerging Technologies in Learning (IJET)*, 13(1), 23–36.
- Ifijeh, G., Iwu-James, J., & Adebayo, O. (2016). Digital inclusion and sustainable development in developing countries. A Nigerian Perspective. *International Information & Library Review*, 48(3).
- Ifijeh, G., Iwu-James, J., & Adebayo, O. (2016). Digital inclusion and sustainable development in Nigeria: The role of libraries. In 3rd International Conference on African Development Issues (CU-ICADI). Covenant University Ota, Nigeria.
- Lau, WWF (2017). Effects of social media usage and social media multitasking on the academic performance of university students. *Computers in Human Behavior*, 68, 286–291.
- Mtebe, J., & Raphael, C. (2017). A decade of technology enhanced learning at the University of Dar es Salaam, Tanzania: Challenges, achievements, and opportunities. *International Journal of Education and Development Using ICT*, 13(2).
- Oyediran-Tidings, S.O., Ondari-Okemwa, E.M., & Nekhwevha, F.H. (2019). Information needs and constraints of access to educational information in the Fort Beaufort Education District. *South African Journal of Education*, 39(Supplement 2), S1–S10.
- Rahayu and day. (2015). Improving accessibility of digital libraries. Case Studies in Indonesia. In Proceedings of the 2015 International Conference on Information Technology Systems and Innovation (ICITSI) IEEE, 1–6.
- Rahayu, R., & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in developing countries: evidence from Indonesia. *Procedia-Social and Behavioral Sciences*, 195, 142–150.
- Sari, MW, Ciptadi, PW, & Hardyanto, RH (2017). Study of smart campus development using internet of things technology. In IOP Conference Series: Materials Science and Engineering (Vol. 190, p. 12032). IOP Publishing.
- Setiawan, S. and. (2018). Digitization of Islamic Boarding School Libraries: Strategy for Building a Digital Literacy Culture. *Journal of Agricultural Library*, 27(2).
- Sharp. (2017). Teaching digital literacy skills. *Trends in Information Management*. University of Indonesia, 11(1).
- Sharp, J. H., & Sharp, L. A. (2017). A comparison of student academic performance with traditional, online, and flipped instructional approaches in a C# programming course. *Journal of Information Technology Education. Innovations in Practice*, 16, 215.
- Sun, J., & Yuan, B.-Z. (2020). Bibliometric mapping of top papers in Library and Information Science based on the Essential Science Indicators Database. *Malaysian Journal of Library and Information Science*, 25(2), 61–76.
- Wekke, IS, & Hamid, S. (2013). Technology on language teaching and learning: a research on Indonesian Islamic boarding schools. *Procedia-Social and Behavioral Sciences*, 83, 585–589.