Exploration of Green Library Concept with Artificial Intelligence

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Notes	ABSTRACT
  	This study aims to analyze the self-citation behavior of the ten most productive lecturers at Halu Oleo University using a bibliometric approach. Employing the Fi-Index method for self-citation analysis, the research followed three main stages: data collection, data processing, and data analysis. The data were obtained from the Scopus database, focusing on the top ten productive lecturers at the institution. Each lecturer's self-citation activity was measured using the Fi-Index formula, which compares the number of self-citations relative to their h-index. The findings revealed that all ten lecturers demonstrated self-citation patterns within a normal range. Muhammad Nurdin recorded the highest number of self-citations (867) with a Fi-Index score of 0.047572, followed by Maulidiyah (654, Fi-Index 0.043446), and others with similarly low Fi-Index scores ranging from 0.002096 to 0.043446. These values indicate that their self-citation practices do not exceed what is typically considered acceptable relative to their publication impact. The study concludes that the Fi-Index is a practical tool for evaluating the proportionality of self-citations among academic authors. It is recommended that future research apply the Fi-Index more broadly to assess self-citation behaviors among researchers across institutions and disciplines, ensuring a balanced interpretation of scholarly influence. **Keywords:** Artificial Intelligence (AI); Library services; Green library

1. INTRODUCTION

Libraries have historically functioned as essential institutions for knowledge dissemination and equitable public access to information. In recent years, however, global commitments to sustainability and growing concerns over climate change have necessitated strategic transformations in library management and operations (Mochammad et al., 2020). These developments have given rise to the concept of *the green library*, which positions libraries not only as custodians of knowledge but also as active contributors to environmental

sustainability through responsible and efficient resource management. Within this evolving framework, artificial intelligence (AI) has garnered increasing scholarly and professional attention as a technological enabler of sustainable and efficient library practices.

The integration of AI into library environments extends beyond a mere technological trend; it represents a strategic approach to enhancing service effectiveness while simultaneously reducing environmental impacts. AI-based applications offer significant potential to optimize collection management, support energy-efficient operations, enhance access to digital resources, and reduce paper consumption through the promotion of electronic collections and automated services (Zhou, 2023). One of the core dimensions of the green library paradigm is the reduction of paper usage. Through the adoption of digital technologies and AI-driven systems, libraries can expand e-book services and other digital resources, thereby decreasing reliance on printed materials (Budianto et al., 2022). Collectively, these advancements reinforce fundamental green library principles, including resource efficiency, carbon footprint reduction, and equitable access to information, particularly for users in underserved or geographically remote communities.

More broadly, the implementation of AI-supported green libraries is closely aligned with the United Nations Sustainable Development Goals (SDGs), particularly those addressing quality education, innovation and infrastructure, and responsible consumption and production. Libraries that embed sustainability principles into their operations are well positioned to reinforce their role as community learning hubs and as catalysts for environmental awareness and behavioral change (Kulkov et al., 2023). As emphasized by by the International Federation of Library Associations and Institutions (IFLA), the advancement of the SDGs is intrinsically linked to the empowerment of libraries, given their strategic function in fostering informed, inclusive, and resilient societies.

Recent scholarly discourse reflects a growing interest in the role of artificial intelligence in supporting environmentally sustainable library ecosystems. For example, Monyela and Tella highlight AI's capacity to enhance knowledge management practices and support digital transformation (Monyela & Tella, 2024), while Adigun et al., (2024) emphasize its contribution to improving service accessibility and operational efficiency. Despite these contributions, the existing body of literature remains largely focused on technological development or conceptual sustainability frameworks. Consequently, empirical and practice-oriented examinations of how AI can be strategically leveraged to advance green library objectives remain limited, indicating a clear research gap.

AI technologies also support intelligent facility management, including automated control of energy systems to reduce electricity use and operational waste (Liu et al., 2025). At the same time, AI promotes inclusivity through tools such as natural language processing and assistive technologies, expanding equitable access for users with disabilities, language barriers, or diverse learning needs (Cox & Mazumdar, 2024). Thus, AI contributes not only to environmental sustainability but also to social sustainability two pillars of modern green libraries.

Despite these developments, there remains a gap in scholarly understanding regarding the systematic relationship between AI applications and green library initiatives. Existing literature often discusses AI adoption or green library strategies separately, lacking an integrative perspective that explains how AI specifically strengthens environmentally responsible library practices. Therefore, this study seeks to analyze the synergy between AI and green library implementation, identifying key roles, opportunities, and sustainable

impacts of AI based innovation in library operations. By addressing this intersection, the research aims to enrich discourse on sustainable library management and offer insights to guide future environmentally conscious technological adoption in libraries.

2. METHODS

This study adopted a systematic literature review approach through a structured process of identifying, selecting, analyzing, and synthesizing relevant academic sources to generate comprehensive and reliable findings (Sugiyono, 2023). The study employed a systematic literature review to examine the relationship between artificial intelligence and green library practices using a transparent and replicable process. Searches were conducted across major academic databases, including Google Scholar, Semantic Scholar, Garuda, and EBSCOhost, using combinations of keywords such as *"green library," "sustainable library," "artificial intelligence in libraries," "AI library services,"* and *"eco-friendly library technology,"* applied with Boolean operators.

The inclusion criteria required that selected studies were published between 2020 and 2025, peer-reviewed, written in English or Indonesian, and explicitly addressed sustainability and the application of AI in library contexts. Sources that did not meet these criteria, including non-academic publications and studies unrelated to library environments, were excluded. The screening procedure followed established systematic review principles. The researchers assessed the relevance of the collected publications through title and abstract screening, followed by full-text evaluation to ensure alignment with the research objectives. Duplicate records and sources lacking sufficient academic rigor or topical relevance were removed, resulting in a final corpus consisting exclusively of credible and high-quality scholarly literature.

The selected studies were analyzed using a narrative synthesis approach, which enabled the identification of thematic patterns, conceptual relationships, and emerging trends across diverse research designs and disciplinary contexts. This analytical approach was appropriate given the interdisciplinary nature of the topic and the need to integrate varied academic perspectives. Through systematic thematic synthesis, the study developed a comprehensive understanding of the role of artificial intelligence in supporting and advancing sustainability and environmental responsibility in library practices.

3. RESULTS AND DISCUSSION

The Green Library

The green library is generally defined as a library that operates in an environmentally friendly manner across its services, infrastructure, and resource management. According to (Vijesh et al., 2024), a green library is an environment friendly or eco-friendly library by its overall library operation; the library is pivotal in preserving the natural ecological balance and safeguarding precious resources. Next, according to (Mwanzu et al., 2023), Greening libraries will aid in lowering carbon footprints, which are the total quantity of greenhouse gases produced in support of human activities both directly and indirectly.
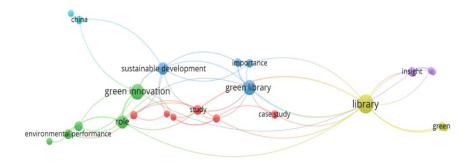
Figure 1. Green library literature

Figure 1 illustrates the bibliometric mapping of green library-related research using VOS viewer. The analysis identifies the keyword *library* as the central node, indicating the main research concentration on the institution itself. Closely connected terms include *green innovation*, *sustainable development*, and *environmental performance*. These linkages suggest a growing academic focus on how libraries adopt sustainable practices, reduce resource consumption, and apply eco-friendly technologies in their operations.

Building on this, the data presented in Figure 1 underscores the expanding scholarly interest in aligning library functions with environmental sustainability. The presence of terms such as green innovation and sustainable development as closely linked to libraries indicates an interdisciplinary approach, where libraries are not only seen as information hubs but also as actors within broader environmental and developmental frameworks (Putra, 2025). His reflects a transformation in how library roles are conceptualized no longer limited to knowledge preservation and dissemination but extended to active participation in ecological stewardship. Such developments push libraries to rethink their operational models, ranging from green architecture and renewable energy usage to adopting digital services that reduce physical resource dependence.

Moreover, the bibliometric mapping demonstrates how environmental performance has become a measurable and relevant dimension in library research and practice (Putra, 2025). His shift suggests that libraries are beginning to adopt performance metrics similar to those used in corporate environmental responsibility. Initiatives like waste reduction programs, recycling strategies, energy efficient systems and digital transition are now often embedded in the strategic planning of modern libraries. As emphasized by Vijesh et al., (2024) and Mwanzu et al., (2023), green libraries are not merely about minimizing harm but about becoming proactive institutions in shaping sustain

Reduced Energy Consumption

Implementation of a green library includes a reduction in energy use, such as the use of technology for energy efficiency. According to (Hafit & Abdullah, 2018) green environment can be implemented in the library by focusing on the following aspects which are (i) energy saving, (ii) the efficiency of resource usage, (iii) increasing natural environmental exposure, (iv) environmental load reduction and (v) sustainability of global development. In addition, digitizing collections and services also reduces the need for printed materials and physical storage space.

The reduction of energy consumption in green libraries can be achieved through various innovative approaches, including the integration of smart building technologies (Febriyanti & Fitri, 2024). For instance, the use of motion sensor lighting systems, automated temperature controls, and energy efficient HVAC systems can significantly lower electricity usage. Libraries may also adopt green architectural designs that maximize natural light and ventilation, reducing reliance on artificial lighting and cooling. These energy saving strategies not only support environmental goals but also result in operational cost reductions, allowing libraries to reallocate resources toward improved user services and digital transformation initiatives.

Digitization further complements these efforts by minimizing the dependency on physical infrastructure (Chatterjee & Dey, 2023). By transitioning collections into digital formats, libraries reduce the space and energy required for maintaining print materials, such as lighting, climate control, and shelving infrastructure. Moreover, digital services such as online catalogs, e-books, and virtual reference tools enable users to access resources remotely, which indirectly reduces the carbon emissions associated with travel and on-site usage. In this way, the dual strategy of energy efficient facilities and digital resource development reinforces the library's role in promoting sustainability while maintaining its commitment to accessibility and service excellence.

The Role of AI in Green Library

Artificial intelligence (AI) has been progressively incorporated into modern library systems to enhance operational efficiency and sustainability. One of the most prominent implementations of AI in libraries is through the use of chatbots. (Ayu Pratiwi et al., 2024) report that AI powered chatbots can assist users by providing real time information, responding to inquiries, and supporting the discovery of library resources; with 90%accuracy.

Figure 2. Artificial Intelligence literature in green library

Figure 2 presents the bibliometric visualization of AI applications in library settings. The prominent keywords include *application*, *systematic review*, *effect*, *library*, and *design*. This indicates that recent literature emphasizes not only the implementation of AI technologies but also the evaluation of their effectiveness in supporting library functions. The terms *effect* and *design* highlight the importance of AI's impact on reshaping green strategies within library services. (Gupta et al., 2023) underline the relevance of AI and robotics in addressing major challenges such as big data, information overload, and the increasing volume of digital content within the library ecosystem.

Integration of artificial intelligence (AI) in green libraries holds substantial potential for addressing operational challenges in the digital era. AI technologies can efficiently manage and organize large volumes of information, automate classification processes, and enhance search accuracy (Sreeja Ramachandran, 2024). This reduces the need for labor-intensive, energy-consuming manual tasks, while simultaneously accelerating information services for

users. In this context, AI directly supports the principles of green libraries by promoting operational efficiency, conserving energy, and minimizing resource waste.

AI enables the development of more responsive and sustainable library services. For instance, AI powered recommendation systems can deliver personalized digital content to users based on their preferences and information needs, thereby reducing the unnecessary printing and distribution of physical materials. Additionally, AI facilitates intelligent user data management, enhancing service quality without expanding physical infrastructure. In this sense, AI functions not merely as a technical tool but as a strategic component in transforming libraries into adaptive, energy-efficient and environmentally conscious institutions aligned with contemporary societal demands (Shahzad et al., 2024).

Green Libraries and Sustainability

In the context of climate change and increased environmental awareness, green libraries are becoming an increasingly important concept. Key aspects of a green library include reduced resource use, improved energy efficiency, and better waste management. Therefore, the library serves not only as a repository of information but also as an active agent of environmental change. The application of sustainability principles in library operations includes the use of technologies that support the reduction of carbon footprints, such as the use of renewable energy, effective waste management, and reduced reliance on print media (Wardhani, n.d.). in this way, libraries can contribute to the Sustainable Development Goals (SDGs) and serve as a model for other institutions' environmental conservation efforts.

By adopting these environmentally conscious practices, libraries can foster a culture of sustainability within their communities, encouraging users to engage in eco-friendly behaviors through both example and education (Corrado, 2024). Green libraries can host programs, workshops and exhibitions that promote environmental literacy, sustainability awareness, and responsible consumption. This educational role reinforces the library's function as a transformative social institution, capable of influencing public attitudes toward the environment. As libraries embrace green initiatives, they not only fulfill their traditional mission of knowledge dissemination but also expand their impact by becoming leaders in the collective effort to address climate change and achieve long term ecological resilience.

Green libraries are growing in popularity, and there is a need for a list of green libraries and digital resources on ecology and sustainable development (Kumar et al., 2023). As the usage of digital resources increases, library can reduce their dependence on printed materials E-book services and other digital resources powered by artificial intelligence allow users to access information without printing documents. This helps to reduce deforestation and paper use, which is one of the important aspects of green libraries. Green libraries also play an important role in environmental education. By providing resources and information on environmental issues, libraries can raise public awareness about the importance of sustainability. In addition to providing access to digital resources, green libraries can curate specialized collections and databases focused on climate change, renewable energy, biodiversity, and sustainable practices (Ajani et al., 2024).

Educational programs presented by libraries, such as seminars, workshops and exhibitions, can help people understand the environmental challenges they face and ways to address them (Latif et al., 2023). Through such educational programs, it will show that libraries that focus on digitization can improve information literacy among the public, which in turn supports the development of more sustainable communities.

Green energy management in libraries, can involves a series of strategic measures designed to reduce energy consumption and maximize efficiency. Here are the procedures that can be implemented (Hafit & Abdullah, 2018):

a. Energy saving: Conducted regular energy audits to identify areas where energy can be saved. These audits include an assessment of energy use throughout the facility, including lighting, heating, cooling, and electronic equipment.

b. Use of Renewable Energy: Integrate renewable energy resources, like solar panels or wind turbines, to meet part of the library's energy needs. This not only reduces dependence on fossil energy sources but also lowers operational costs in the long run.

c. Efficient Lighting System: Replacing conventional lights with more efficient LED lights. Moreover, implementing an automated lighting system that can adjust light intensity based on need and time of day, and utilizing natural light as much as possible.

d. HVAC System Management (Heating, Ventilation and Air Conditioning): Optimize HVAC systems by using smart technologies that can monitor and regulate temperature and humidity automatically. This includes the use of smart thermostats and sensors to reduce energy use when rooms are unused.

e. Use of Energy Efficient Equipment's: Choose electronic equipment and devices that have a high energy efficiency label. This includes computers, printers, and other devices used in the library.

f. Energy Awareness Program: Educate staff and visitors about the importance of energy saving. This may include awareness campaigns, training, and the introduction of green practices that can be implemented in daily activities.

g. Monitoring and Reporting: Implement an energy monitoring system that can provide real-time data on energy usage. With this data, the library can make the necessary analysis and adjustments to improve energy efficiency.

Through the concept of green libraries, libraries are able to contribute to the reduction of carbon footprints. Using minimal physical storage space for print collections and reducing operational energy consumption can make libraries a model of sustainability. In addition, when using automated sensors and energy monitoring systems, libraries can identify areas where energy can be saved. This not only reduces operational costs, but also contributes to reducing the overall carbon footprint. By adopting these practices, libraries can set an example for other institutions in terms of sustainability and energy efficiency. Furthermore, it can be argued that libraries that adopt green technology and AI can reduce the carbon emissions generated from their operations. libraries can implement smart energy management systems to monitor and manage their energy consumption (Verdecchia et al., 2023).

Artificial Intelligence as a Tool for Green Library Transformation

Libraries who adopt digital technology and AI can provide wider access to the community, especially in remote areas. By providing easily accessible digital platforms, libraries can reach users who previously did not have access to information resources. Thus, by using technology called artificial intelligence, it shows that libraries using digital technology and artificial intelligence can provide wider access to the community, especially in remote areas, without having to rely on print media (Verdecchia et al., 2023).

One of the main benefits of implementing AI in libraries is the increased efficiency in the cataloging and information retrieval process. By using machine learning algorithms and Natural Language Processing (NLP), libraries can automate the cataloging process, which previously required a lot of time and effort. This not only speeds up the collection management process, but also improves the accuracy of information searches. Not only that, AI can provide suggestions on relevant books even if the search words do not exactly match the title or keywords in the catalog. This is in line with (Monyela & Tella, 2024) statement, the use of AI in cataloging allows libraries to better manage collections, thereby reducing waste of resources and improving user experience.

Artificial intelligence also allows libraries to improve interaction with users through the use of chatbots. AI powered chatbots can provide real-time information, answer user questions, and assist with resource searches (Ayu Pratiwi et al., 2024). AI combined with a chatbot can provide additional services such as automatic book acceptance and return. By using technologies such as RFID and automated systems, users can borrow and return books without direct interaction with librarians and reduce physical interaction and excessive book management. This not only increases user satisfaction but also reduces the workload of library staff as well as the need for space.

Through the use of AI, libraries can provide more inclusive services, such as screen readers or text-to-speech provision for users with disabilities, as well as user friendly interfaces for all. AI also allows us to develop more interactive and engaging educational programs to transform the user experience. For example, by using AI based simulations, users can learn about the impact of climate change and the importance of environmental conservation in more depth. In addition, these AI based simulations can be attended without being physical, which can reduce the carbon footprint generated from travel. In this way, libraries not only serve as information providers, but also as active agents of change in building public awareness and knowledge on environmental issues.

4. CONCLUSION

The integration of sustainability principles and artificial intelligence within library environments reflects a strategic transformation in contemporary library services and information management. The findings of this study indicate that libraries are increasingly moving beyond their conventional role as information repositories toward becoming environmentally responsible and technologically adaptive institutions. Through the adoption of energy-efficient infrastructures, the expansion of digital collections, and the application of intelligent management systems, libraries contribute meaningfully to environmental conservation while simultaneously enhancing social inclusion. In this context, libraries assume a critical role as agents of change, fostering environmental awareness and promoting sustainable behaviors through education, equitable access to information, and innovative service models.

Furthermore, the incorporation of artificial intelligence into library operations offers substantial potential to reinforce sustainability initiatives by improving operational efficiency, broadening access to information resources, and reducing reliance on physical materials. AI-driven automation, intelligent information services, and adaptive digital platforms support environmentally sustainable workflows and enable libraries to extend their services to wider and more diverse user populations, including those in remote or underserved communities. As sustainability-oriented digital transformations continue to advance, libraries are well

positioned to contribute significantly to global sustainability agendas by exemplifying responsible environmental practices and leading the development of greener and more resilient knowledge management ecosystems.

AUTHORS' CONTRIBUTIONS

Eni Amaliah: Writing oiginal draft preparation. Ideas; formulation or evolution of overarching research goals and aims.
Muhamad Khadavi Febrian: Ideas; formulation or evolution of overarching research goals and aims.. **Julian Hadi Saputra:** Ideas; formulation or evolution of overarching research goals and aims..

CONFLICT OF INTERESTS

We state that there are no known conflicts of interest linked with this publication, and that there has been no significant financial assistance for this work that could have influenced its outcome.

REFERENCES

Adigun, G. O., Ajani, Y. A., & Enakrire, R. T. (2024). The Intelligent Libraries: Innovation for a Sustainable Knowledge System in the Fifth (5th) Industrial Revolution. *Libri*, *74*(3), 211–223. https://doi.org/10.1515/libri-2023-0111

Ajani, Y. A., Tella, A., & Enakrire, R. T. (2024). The green library revolution: a catalyst for climate change action. *Collection and Curation*, *43*(2), 60–67. https://doi.org/10.1108/CC-10-2023-0032

Ayu Pratiwi, M., Syahbaniar, D., & Hanif Robbani, A. (2024). WIDYA (Web Information Dialog Your Assistant): AI-Powered Chatbot for Library Online Service Innovation. *Jurnal FPPTI*, *2*(2), 42–52. https://doi.org/10.59239/jfppti.v2i2.31

Budianto, T. H., Vista, U. F., & Putra, G. B. (2022). Design a library information system for a green library in Bangka Regency. *IOP Conference Series: Earth and Environmental Science*, *1108*(1). https://doi.org/10.1088/1755-1315/1108/1/012045

Chatterjee, S., & Dey, B. (2023). STRATEGIES OF LIBRARY MATERIALS DIGITIZATION IN AN ACADEMIC LIBRARY: A STUDY. *International Journal of Research -GRANTHAALAYAH*, *11*(6). https://doi.org/10.29121/granthaalayah.v11.i6.2023.5948

Corrado, E. M. (2024). Environmental Sustainability and Libraries. *Technical Services Quarterly*, *41*(3), 265–274. https://doi.org/10.1080/07317131.2024.2357015

Cox, A. M., & Mazumdar, S. (2024). Defining artificial intelligence for librarians. *Journal of Librarianship and Information Science*, *56*(2), 330–340. https://doi.org/10.1177/09610006221142029

Febriyanti, E., & Fitri, I. (2024). The Potentiality of Eco-Library Design in Medan City Towards Sustainability Development. *IOP Conference Series: Earth and Environmental Science*, *1404*(1), 012022. https://doi.org/10.1088/1755-1315/1404/1/012022

Kumar, K., Alma'awali Zainab Mohammad Nabhan, Almorani, N. M. S., & Sharma, K. C. (2023). Framework for Implementation of Sustainable Green Information Technology in Library Digitalization. *Journal of Energy Engineering and Thermodynamics*, *31*, 31–37. https://doi.org/10.55529/jeet.31.31.37

Gupta, N. K., Namdeo, D. K., Dubey, D., & Gupta, Dr. S. (2023). Artificial Intelligence, Robotics And Its Applications In Green Libraries. *Journal of Survey in Fisheries Sciences*, *10*(1), 3979–3987. https://doi.org/10.53555/sfs.v10i1.1823

Hafit, A. binti, & Abdullah, C. Z. (2018). Implementation of Green Technology in Library: A Proposed Framework. *International Journal of Academic Research in Business and Social Sciences*, *7*(12), 507–514. https://doi.org/10.6007/ijarbss/v7-i12/3631

Kulkov, I., Kulkova, J., Rohrbeck, R., Menvielle, L., Kaartemo, V., & Makkonen, H. (2023). *Artificial intelligence - driven sustainable development: Examining organizational, technical, and processing approaches to achieving global goals*. *32*(3), 2253–2267.

Latif, A., Khalid, A., Rasheed, A., & Mirza, T. (2023). Eco Literacy: Assessing the Contribution of Public Sector College Libraries of Bahawalpur District. *Journal of Social Sciences Review*, *3*(1), 659–666. https://doi.org/10.54183/jssr.v3i1.207

Liu, X., Cifuentes-Faura, J., Zhao, S., Wang, L., & Yao, J. (2025). Impact of artificial intelligence technology applications on corporate energy consumption intensity. *Gondwana Research*, *138*, 89–103. https://doi.org/10.1016/j.gr.2024.09.003

Mochammad, R., Ardika MS, R., & Cahyono, T. Y. (2020). Library 4.0: Eco-Blended Library and Library Inclusion. *Khizanah Al-Hikmah: Jurnal Ilmu Perpustakaan, Informasi Dan Kearsipan*, *8*(2), 116–129. https://doi.org/10.24252/kah.v8i2a2

Monyela, M., & Tella, A. (2024). *Leveraging artificial intelligence for sustainable knowledge organisation in academic libraries*. *90*(2), 1–11. https://doi.org/10.7553/90-2-2396

Mwanzu, A., Bosire-Ogechi, E., & Odero, D. (2023). The Emergence of Green Libraries in Kenya: Insights From Academic Libraries. *The Journal of Academic Librarianship*, *49*(5), 102601. https://doi.org/https://doi.org/10.1016/j.acalib.2022.102601

Putra, D. D. (2025). Exploring Green Libraries Innovation toward Environmental Sustainability in Indonesia: A Systematic Literature Review. *IOP Conference Series: Earth and Environmental Science*, *1439*(1), 012023. https://doi.org/10.1088/1755-1315/1439/1/012023

Shahzad, K., Khan, S. A., Iqbal, A., & Javeed, A. M. D. (2024). Identifying university librarians' readiness to adopt artificial intelligence (AI) for innovative learning experiences and smart library services: an empirical investigation. *Global Knowledge, Memory and Communication*. https://doi.org/10.1108/GKMC-12-2023-0496

Sreeja Ramachandran. (2024). Transforming Libraries Sustainably: A Synergy of AI and Machine Learning. *International Journal of Advanced Research in Science, Communication and Technology*, 398–401. https://doi.org/10.48175/IJARSCT-15354

Sugiyono. (2023). *Metode Penelitian Kualitatif (Untuk Penelitian Yang Bersifat: Eksploratif, Enterpretif, Interaktif Dan Konstruktif)* (Sofia Yustiyani Suryandari, Ed.). Alfabeta.

Verdecchia, R., Sallou, J., & Cruz, L. (2023). A systematic review of Green AI. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *13*(4), 1–26. https://doi.org/10.1002/widm.1507

Vijesh, P. V., Chopade, V., Joy, V., & Joseph, M. K. (2024). Designing a Green Library in Alignment with the UN's Sustainable Development Goal: a Case Study of Rajagiri Business School Library, Kerala, India. *Electronic Green Journal*, *2024*(49). https://doi.org/10.5070/G314960177

Wardhani, D. K. (n.d.). SIKAP PUSTAKAWAN TERHADAP DESAIN GREEN BUILDING DI PERPUSTAKAAN ITS SURABAYA. *Journal Unair*, 1–10.

Zhou, H. (2023). Research on the Development of University Libraries in the Era of Artificial Intelligence (AI). *The Frontiers of Society, Science and Technology*, *5*(7), 109–113. https://doi.org/10.25236/fsst.2023.050719