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Managerial Factors Influencing Green Library Initiatives in Kwara State Academic Libraries

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Abstract

This study examined managerial drivers in the adoption of green library initiatives among academic libraries in Kwara State. Utilizing a cross-sectional research design, the study targeted the total population of 46 librarians at the University of Ilorin, Kwara State University, and Al-Hikmah University. Results showed that planning, staffing, funding, organizational structure, and leadership commitment all exerted a perceived influence on green initiative adoption. Meanwhile, staffing has the most significant influence among all these drivers. The study underscores the critical role of managerial oversight in advancing sustainable library development.

Introduction

The global emphasis on sustainability has permeated various sectors and industries, including the library environment. Libraries, traditionally viewed as repositories of knowledge and community hubs, are now increasingly seen as vital players in promoting environmental sustainability through green initiatives. These initiatives encompass a range of practices designed to reduce environmental impacts of library services, such as energy-efficient buildings, sustainable resource management, and educational programs on environmental issues (Adeyemi et al., 2026). As libraries transition towards these green practices, understanding managerial drivers that influence the adoption of green libraries becomes crucial. Global warming and climate change pose a challenge to the world with harmful consequences for human life. This leads to widespread advocacy to go green in library management.

Donald (2018) noted that the word “green” is very much concerned with energy depletion, climate change, greenhouse adverse effects, and global warming and its impacts, thereby implying that people want everything to be green to save the planet on

which they live. Simply, the concept of “green” deals with the environment and how it can be used to protect lives and properties from the effects of and global warming. Brown (2019) defines a green/sustainable library as a library designed to minimize the negative impacts of some set of activities or actions on the natural environment, which is usually aimed at achieving environmental quality. Greening is not a new concept, however, the reality of climate change altering the world’s environmental climatic conditions and its negative effects that threaten lives and properties has caused its urgent adoption to reduce or surmount the adverse impact of environmental degradation (Gazzola et al., 2019).

Green library initiatives or practices can be described as conscious efforts adopted or conducted by libraries to address long-term environmental, social, or economic issues (Adeyemi et al., 2025). These kinds of initiatives are conducted to address the issue of global warming and climate change. Green library practices are part of the general sustainability effort, which supports the “Green Movement” in its aim to achieve sustainability (Adeyemi et al., 2025). For instance, in library service provision, the idea of green library initiatives includes resource sharing, socio-cultural support, fumigation effort towards preservation and conservation, and adoption of solar power supply for library’s lighting (Adeyemi et al., 2024a). All of these are geared towards general sustainability to achieve a green environment that helps society. This accentuates the importance of green library initiatives for the immediate library environment and the society at large. More importantly, it shows the significance of green libraries for general sustainability.

Ayuba (2019) saw that developed countries are the foremost with the embracement of green practices in their institutions and other areas of endeavor due to the prompt awareness of the concepts and their known health and environmental implications to lives and property. Meanwhile, Asif et al. (2020) argued that most of the hazardous waste in developing countries is usually because of the transfer of highly polluting industries of the developed world to developing countries. However, the case of academic libraries in developing countries is not the same. This is because they are set up by academic institutions with affiliations with the host country, which in the case of the current study Nigeria. There has been a lack of policies on green practices in developing countries, but there has been interest in green initiatives by institutions/organizations (Abdellatif & Graham, 2019). Premise on this discussion, the factors deciding the environmental-friendly practices are not external but internal, and institutions in developing countries are paying cognizance to green practices or initiatives.

The library and information field have not been left out in responding to the global challenge of addressing environmental hazards, and libraries have proven to be pacesetters in ensuring green library practices through eco-friendly information collection, management, preservation, and dissemination (Adeyemi et al., 2024a). Tanner et al. (2021) noted that libraries are gateways for knowledge and particularly responsible not only for giving the idea of sustainability but also for leading by example and thus serving as exemplars. Environment, society, and economy are the three most

critical factors in creating sustainable libraries that are prosperous and healthy. In other words, libraries may preserve the interaction between living things and their surroundings, create an eco-friendly environment, and make use of resources while saving money and time (Asim & Ahmad, 2022). Meanwhile, designing effective policies is essential for the implementation of green library initiatives (Jones & Wong, 2016).

In academic libraries, policy makers are generally the managers. Thus, it is important to understand the views and feelings of managers about the adoption of green library initiatives. This will answer questions about policies and strategies for implementing green library initiatives in libraries. Hayati and Barahmand (2012) noted that managerial factors are skills shown by librarians in academic libraries, which include people-related skills, self-related skills, task-related skills, and creating organizational climate. Ogonu and Owate (2023) conclude that managerial competence has a major role in how well academic libraries' function. The authors set up that managerial factors in academic libraries concern library administration issues like funding, staffing, organizational structure, collection development, and difficulties. Based on the foregoing, this study looks to examine managerial drivers of green library adoption in selected academic libraries in Kwara State.

Statement of the Problem

Librarians need to be on the constant forefront in terms of adopting technology, supporting research and learning, and even architecture and design. But libraries are also a great place to educate the public and students about the environment, from eco-friendly lifestyle choices to organizations that promote green causes. Loder (2010) suggested that librarians need to show a new public persona of libraries in a newfangled contemporary world. The author noted that librarians should function as an epitome for sustainability by providing suitable and relevant information related to green issues and concerns. They should focus upon imperishable, durable, reusable, recyclable, reducible, reprocess able, carbon neutral, recoverable, renewable, biodegradable, endurable, supportable materials and resources. This would not be achievable without effective managerial conditions in academic libraries. While there are several empirical studies explore green library practices and library sustainability (Adeyemi et al., 2024; Adeyemi et al., 2025; Vijesh et al., 2024), limited studies explored managerial drivers in the adoption of green library practices in developing regions, especially in Nigeria.

According to Giwa (2019), libraries can function as a matchless channel to educate and give the community about responsible environmental practices. Green library management emphasizes a new mindset of taking responsibility for the stability of nature, health of library users and staff and catering for the needs and interest of future generations of users. It has been set up that libraries should care about their long-term effect on the community and inspire others to start implementing eco-friendly efforts (Adeyemi et al., 2024a). Libraries should also find the major green library initiatives, make suggestions for building green libraries for sustainable development, and find the standards for green libraries. However, that may be a daunting and complex task without the consideration of libraries' planning, staffing, funding, organizational

structure, and leadership commitment. Effective library management is essential for advancing green library initiatives. This would also enhance the achievement of broader sustainability goals, such as the Sustainable Development Goals (SDGs). It is against this backdrop that this study investigates managerial drivers of green library adoption in selected academic libraries in Kwara State. The scope of this study is limited to selected academic libraries in Kwara State. The academic libraries that are selected for the study include University of Ilorin Library, Ilorin; Kwara State University Library, Malete; and Al-Hikmah University Library, Ilorin.

Research Questions

This study looks to answer the following questions:

i. What is the perceived influence of planning in the adoption of green library initiatives?
ii. What is the perceived impact of staffing in the adoption of green library initiatives?
iii. What is the perceived effect of funding in the adoption of green library initiatives?
iv. What is the perceived influence of organizational structure in the adoption of green library initiatives?
v. What is the perceived impact of leadership commitment in the adoption of green library initiatives?

Review of Related Literature

Perceived Influence of Planning on the Adoption of Green Library Initiatives

Asim and Ahmad (2022) noted that strategic planning is the first phase of considering the adoption of green library initiatives. They noted that this phase involves talking about the building's design, construction costs, resources, true direction, degree of being green, and other budget-related issues. Gupta (2020) noted that the idea of green library refers to the implementation of sustainable practices, strategic planning, and the use of green technologies in libraries. This shows the importance of strategic planning on the adoption of green library initiatives. However, there is little or no evidence to show any sort of influence of strategic planning on the adoption of green libraries. Vijesh et al. (2024) explored the design of green libraries in adherence with the UN's sustainable development goals (SDGs), using Rajagiri Business School Library, Kerala, India as a case study. The study results show that planning for green library initiatives include some factors, which are finding a good green library model, natural or eco-friendly resources for the work, needs assessment, stakeholders' engagement, sustainability plan, and funding and resources.

Ghorbani (2017) reported that Association of College and Research Libraries' guide states that to design a library, certain tasks like environmental monitoring and library needs assessment, budgets and plans for green spaces, and Leadership in Energy and Environmental Design (LEED) certificates standards) should be considered and examined by the designers. By preserving and giving current information, libraries contribute significantly to the growth and advancement of human communities. They ought to assume the strategic leadership position in keeping the environment by safeguarding pertinent knowledge resources and ensuring the integration of library

services with environmental preservation or expansion (Malhan & Rao, 2017). More importantly, all people that would ensure the achievement of green initiatives in libraries should be consulted and carried out. Solemanpharcy and Gaffar (2023) highlight the significance of forming alliances with stakeholders, using digital technology for information sharing, and incorporating sustainability concepts into library policies and strategic planning to address environmental issues in academic library settings.

While planning for green library initiatives, Bangar (2018) recommended that a checklist is a simple method to decide what the library can conduct institutionally. The author noted that library administration should review the user services and see what can be planned. This will help the management find the green potential for added actions to create a compelling green image. This is because the aim of the library is to function as a part of a larger plan. Hence, it must be strategic in planning for such an initiative. Mwanzu et al. (2023) recommended that it is important to understand how libraries plan for a sustainable future, which would help them in long-term environmental sustainability. Kofanov et al. (2024) noted that the original architectural and landscape designs of university campuses, which prioritize the building of green leisure places, as well as the logical and well-considered planning of the campus territory, are crucial for the proper rest of students and faculty. They noted further that prominent academic institutions place great emphasis on the strategic layout of green spaces and leisure places to improve the advantages for the university, people, and the environment.

Perceived Impact of Staffing on the Adoption of Green Library Initiatives

Kassim et al. (2019) examined green library initiatives at the Universiti Putra Malaysia, Malaysia. It was shown in the study that library staff members were trained to improve their ability on green libraries, the classes were on plant care and compost fertilizer preparation. It was shown that there were several advantages to the green initiative's execution, including financial savings, energy conservation, and positive staff attitudes about energy use. Shahriari et al. (2019) conducted a systematic review on green human resource management. The study focused on green recruitment and employment, green training and development, green performance management, green reward and development, green staff motivation, and green participation and employment relationship. The study showed that both green selection and recruitment (87.5%) and training and development (75.0%) had the highest consideration among organizations. Meanwhile, discipline management (6.25%) and socialization (3.12%) had the least consideration. Aboramadan et al. (2022) examined the effects of employees' green behavior and the role of perceived green organizational support on green human resource management in non-profit organizations. Results of the study showed that green human resources management (GHRM) has a positive relationship with green voice behavior, green knowledge-sharing behavior, and green helping behavior.

Islam et al. (2022) investigated the GRHM practices and millennial employees' retention in small and medium enterprises in Dhaka Division of Bangladesh, and the moderating impact of creativity climate. The findings show a favorable correlation between millennial staff retention and green rewards and training. Results showed that millennial

employee retention and green performance management, engagement, and recruitment all have a negative correlation. Furthermore, the study found that implementing green rewards and training and development are the most helpful for both individuals and organizations. Mansoor et al. (2021) assessed the complementary effects of green HR practices and green organizational strategies (green management initiatives) on businesses' environmental performance of workers in Pakistani manufacturing companies. This study also defined the function of green servant leadership in conducting green management programs. This study found that green servant leadership acts as a mediator between the combined effects of green HR practices and green strategies in promoting green performance. Thus, to improve greenery, it was recommended that an integrated mechanism is necessary.

Aggarwal and Agarwala (2023) examined the relationship of green human resource management with environmental performance, highlighting the mediating effect of green organizational culture. The study found a correlation between an organization's environmental performance and its use of green HR strategies. The "degree" dimension of green organizational culture was found to be a major mediating factor in the relationship between the organization's environmental performance and green human resource practices, according to the results of parallel mediation. Diffusion and depth, the other two aspects of green organizational culture, did not significantly mediate this association. Hadi et al. (2023) showed that environmental performance will be enhanced by green HRM methods, including green hiring and selection, training and development, performance evaluation, awards, and reward. The study showed that the purpose of the training and development program is to raise awareness of environmental issues using GHRM techniques. The study concluded that organization's green goals are developed because of these efforts, which also enhance individual awareness, environmental knowledge, and environmental skills.

Perceived Effect of Funding on the Adoption of Green Library Initiatives

Mwanzu et al. (2023) examined green initiatives towards environmental sustainability in libraries in Kenya and showed that there was no special fund distributed to set up or proliferate green library initiatives. Therefore, Maina and Mwiti (2023) recommended that specific funds should be given for environmentally conscious projects in university libraries, create all-encompassing guidelines that emphasize environmental stewardship, and encourage partnerships between environmental organizations and academic libraries. Meanwhile, libraries' commitment to green sustainability projects is shown by the proper funding allocation. The participating libraries must present reports on the budget allotted, planning documents, and purchase reports (Kassim et al., 2019). David-West and Wali (2023) revealed that insufficient funds is one of the factors that lead to libraries not implementing sustainable library policies. The findings showed that funding can affect green library initiatives such as sustainable sites, innovation in design, water management/efficiency, solar and wind energy, and in-house environmental policy. Ismail et al. (2022) showed that libraries should be advocates of sustainable practices with their funding coming mostly from public funds. Kumar (2022) highlighted that green bond, which is designed to eco-friendly projects include go ahead use bond, revenue bond, project bond, securitization bond, covered bond, and loan.

Truong and Nagy (2021) investigated how prospective financial investors perceive entrepreneurs who devote time and resources to pro-social projects. Through two experiments, the study explored these impacts and present findings that imply green initiatives could raise positive legitimacy evaluations, which would therefore make it easier to get funding from financial investors. Furthermore, findings show that situations characterized by low levels of dynamism are more likely to experience these consequences. Srivastava et al. (2022) conducted a review on green financial initiatives for sustainable economic growth. The findings showed that green finance includes funding for green investments, both original and capital, as well as money for green public policies and the advancement of a green financial system. The study showed that climate-related investments are included in the category of "green" investments. It was concluded that green investments focus on projects that adapt to climate change, such as reforestation, energy efficiency improvements, and renewable energy projects. Clark et al. (2018) explored bridging the funding gaps for climate and sustainable developments, focusing on the pitfalls, progress, and potential of private finance. The study proved that enhancing collaboration and meeting actors to efficiently access and give scarce funds will be vital to prove an enabling investment climate for sustainable development.

In certain countries, the national bank plays an active role in promoting environmentally sustainable initiatives. For example, Bangladesh Bank proved the 'Climate Risk Fund' to support green efforts among banks and financial institutions. The climate fund receives at least 10% of the corporate social responsibility (CSR) budget from banks and other financial organizations (Bhuiyan et al., 2020). Ehiedu and Eyamu (2020) examined green financing initiatives and economic sustainability in Nigeria. The study found that Nigeria’s economic stability is directly and statistically significantly impacted by both Green Prevention Costs (GNPC) and Green Internal Failure Costs (GNIC). However, the economic stability of Nigeria was directly affected by Green Evaluation Costs (GNEC), albeit statistically insignificantly. This was decided by the quantities of GNEC. The study concludes that there was a strong predictive relationship between the stability of the Nigerian economy and Green Prevention Costs and Green Internal Failure Costs (GFI). Therefore, it is imperative that the regulatory bodies distribute more funding for Green Prevention Costs. The regulatory bodies should also reconsider how much emphasis is put on green evaluation costs.

Perceived Influence of Organizational Structure on the Adoption of Green Library Initiatives

Ahmady et al. (2016) noted that the division, organization, and coordination of organizational activities are done using organizational structure. The structures were set up by organizations to manage member performance and coordinate the activities of work factors. This suggests that the organizational framework of libraries can help in the adoption of green initiatives. Recently, Jaganjac et al. (2024) examined the role of organizational culture and structure in implementing sustainability initiatives. The findings of the study showed that, even though the case organization had a flat organizational structure in practice, individuals of the organization at all levels had little

understanding of the business's sustainability vision. This could be explained by a lack of internal communication inside the company, which stands in the way of the effective adoption of green values by the varied, inclusive, and family-like work environment of the company. To help practitioners implement sustainability initiatives, some recommendations were made.

Shoham and Klain-Gabbay (2019) showed that faculty members generally choose central libraries, faculty/departmental libraries, and faculty libraries combined. Likewise, academic librarians like faculty libraries or faculty/department libraries combined; nevertheless, they are less inclined to favor a central library model than faculty members. The departmental, decentralized library approach received the least amount of support from both groups. Joseph et al. (2016) examined how decisions about product phase-out are influenced by input at the product level and how organizational structure—or how centralized decision-making is—affects these choices. The study contends that this kind of structure influences termination in two ways: directly, by easing coordination, and indirectly, by influencing how performance feedback is interpreted. Meanwhile, Mintzberg provided a framework for organizational structure, which includes simple structure (direct supervision), machine bureaucracy (standardization of work processes), professional bureaucracy (standardization of skills), divisional zed form (standardization of outputs), and adhocracy (mutual adjustment) (Lunenburg, 2012).

Abdulaziz et al. (2017) examined the influence of institutional pressures on the adoption of green initiatives. The study findings showed that normative and coercive pressures have a major impact on PLCs' adoption of green initiatives, while mimetic pressure has little effect on PLCs' adoption of green initiatives. The work makes a theoretical contribution to the literature on environmental management and management accounting in the context of green practices for environmental sustainability. Loeser et al. (2017) found that Green IS strategies mediate the relationship between environmental orientation and the adoption of Green IT practices and Green IS practices, which in turn lead to organizational benefits in the form of cost savings, improved corporate reputation, and green innovation capabilities. The findings have significance not just for the distinction between Green IT and Green IS practices, but also for the potential of IS to support environmental sustainability within enterprises. Elezaj et al. (2020) showed that the success of a project is a dependent variable in a matrix structure because it has a direct impact on the leadership of the company. Therefore, the success in the adoption of green library initiatives results from being involved and knowledgeable of the best practices of balanced structures and different organization (organograms).

Perceived Impact of Leadership Commitment on the Adoption of Green Library Initiatives

Cop et al. (2020) investigated the perceived behavioral control as a mediator of green training, environmental commitment, and organizational citizenship behavior. The findings proved that perceived behavioral control completely influences the relationship between green training and environmental commitment as well as organizational

behavior. Msengi et al. (2019) assessed knowledge and awareness of sustainability initiatives among college students of different degree programs in a Southeastern Texas university. Most students were unaware that the institution has committed to climate and sustainability accords, and just roughly 17% were aware that the university's strategic plan includes a sustainability part. Approximately 36% of the students said that at their campus orientation, they were given information about sustainability. Haldorai et al. (2022) revealed that green intellectual capital and top management commitment to sustainability have a direct bearing on hotel environmental performance and green HRM. Yusliza et al. (2019) provided evidence on the characteristics of (GHRM) and the ways that top management commitment and corporate social responsibility (CSR) influence it in developing nations, like Malaysia in this study. Furthermore, the results showed how vital top management commitment is to effectively integrate CSR and GHRM practices to provide positive environmental performance.

El-Kassar and Singh (2019) examined green innovation and organizational performance, focusing on the influence of big data and the moderating role of management commitment and human resource practices. The study's findings imply that when top management is more dedicated to green practices, green innovation practices are realized in response to stakeholder pressure. Furthermore, "Big Data Assimilation" through adoption and routinization tends to be more incorporated and diffused across the organization's processes in general, and green processes in particular, for organizations with high management commitment. Romani et al. (2016) offered insights into positive spillover effects by proving the possible influence of a new CSR initiative's commitment on water use on the propensity to support other environmentally friendly products. The significance of expanding the current perspective on corporate social responsibility (CSR) programs and considering social results in addition to financial returns is thus emphasized by this finding. This is corroborated by the study findings of Adeyemi et al. (2024b).

Ojo and Fauzi (2020) explored environmental awareness and leadership commitment as determinants of information technology (IT) professionals' engagement in green IT practices for environmental performance. The path analysis results confirmed the important roles that environmental consciousness and leadership dedication have in influencing the attitudes and beliefs that IT professionals have about green IT (GIT). Furthermore, both their attitudes and their behaviors are related to environmental IT performance in a substantial way. Ren et al. (2023) examined the relationship between very employee green behavior (VEGB) and affective commitment, a result that particularly affects the psychological bonds that employees form with their employers. Utilizing data from two studies, it was shown that VEGB was positively correlated with affective commitment. This correlation was made possible by three mediating mechanisms that gave workers a sense of moral credit and warmth while shielding them from emotional exhaustion. Hamid and Earlyanti (2023) found that there are three (3) categories of commitment, which include affective, normative, and cognitive commitment.

Methodology

Research Design

This study adopts cross-sectional research design. The aim is to precisely and methodically characterize a population, circumstance, and phenomena (Rea & Parker, 2014). This describes librarians' perspectives on managerial factors influencing green library initiatives in selected academic libraries in Kwara State. Additionally, the university's student distribution affected the design choice.

Population of the Study

The study population includes professional librarians employed at selected academic libraries in Kwara State. According to data obtained from the administrative offices, the total number of professional librarians is as follows: University of Ilorin Library, Ilorin (23); Kwara State University Library, Malete (16); and Al-Hikmah University Library, Ilorin (7). Collectively, these libraries have a combined population of forty-six (46) professional librarians.

Sampling Technique and Sample

This study adopts the total enumeration sampling technique. Sampling is a method used to methodically choose a smaller number of representative objects or people (a subset) from a determined population to use as subjects for experimentation or observation (Sharma, 2017). Total enumeration technique was adopted owing to the small population of the study, since it allowed the researchers to cover more people than selecting a subset. It also ensures comprehensive data collection without the risks of bias associated with smaller samples. Hence, the sample size for the study is forty-six (46).

Instrument for Data Collection

The questionnaire was used for data collection. The use of questionnaires has become an indispensable method of data collection in different fields of study. Meanwhile, items on the questionnaire were extracted from the literature. The questionnaire is divided into six (6), which include Section A-F. Section A elicits the demographic information of the respondents, including gender, age, year of work experience, and educational qualification. Section B-F elicits information on the five research questions on a 5-point Likert scale of Strongly Agree=5 to Strongly Disagree=1. The choice of 5-point Likert scale is informed by the fact that it balances detail and simplicity, which allows for nuanced responses from the respondents.

Validity and Reliability of the Instrument

To ensure the construct and content validity of the questionnaire, three copies were given to three (3) experts of Library and Information Science. Noteworthy that one of these experts is a scholar in "Green Library". Meanwhile, all their comments and observations were used to revise the questionnaire before the administration of the questionnaire on the respondents. Specifically, two items on the first version of the questionnaire (in sections C and D) were suggested to be expunged, and these were expunged. The experts noted that they are repetitive and would generate monotonous data. This led to the final version of the questionnaire copy before final administration on the respondents. The reliability of the questionnaire was ensured using internal

consistency, which involves using the Cronbach alpha (α) (See Table 2). Based on the data sourced from field survey in 2024, for Section A (adoption of green initiatives in planning), the co-efficient is 0.73; Section B (adoption of green initiatives in staffing) is 0.85; Section C (adoption of green initiatives in funding) is 0.76; Section D (adoption of green initiatives in organizational structure); and Section E (adoption of green initiatives in leadership commitment). The reliability result for each section of the question was over 0.70, which is generally considered proper and acceptable (Taber, 2018).

Ethical Considerations

Copies of Letter of Introduction were made available to different members of the research group assigned to the selected academic libraries. The heads of the academic libraries stamped and signed letters before the administration of the questionnaire on the respondents. Data was collected physically from the respondents, visiting their various offices for two days consecutively. Before administration, the purpose of the study was explained to the respondents, and they were made to understand that participation in the data collection process is voluntary and could be withdrawn at any point. Meanwhile, the anonymity of the respondents was assured. Collected data was analyzed using the IBM-Statistical Product and Service and Solution (SPSS) software. Descriptive statistics were used for data analysis, using the frequency count, simple percentage, mean, and standard deviation. Descriptive statistics were used because it is easy to understand and it is comprehensible.

Results

A total of forty-six (46) copies of questionnaire were administered on the respondents, but only forty-one (41) were returned filled and confirmed for the study. This is 89.13% return rate. Table 1 presents the demographic information of the respondents, which includes gender, age, years of work experience, and educational qualification.

Table 1

Respondents' demographic information (N=41)

Variables	Frequency	Percentage (%)
Gender		
Male	22	53.7
Female	19	46.3
Age		
Less than 20 years	0	0.0
21-25 years	17	41.5
26-30 years	13	31.7
31 years and above	11	26.8
Years of Work Experience		
1-5 years	15	36.6
6-10 years	14	34.1
11-15 years	10	24.4
16 years and above	2	4.9
Educational Qualification		
BSc/BLIS	24	58.5
MLIS	15	36.6

PhD	2	4.9

Note. Data sourced from field survey in 2024.

Table 1 shows that **53.7%** of respondents were male and **73.2%** were aged **30 or below**. Furthermore, **70.7%** identified as having 10 years of experience or less. In terms of education, **58.5%** held **BSc/BLIS degrees**, while postgraduate qualifications remained low, with only **4.9%** of the sample having a **PhD.**

Table 2

Perceived influence of planning on the adoption of green library initiatives

Items	Strongly Agreed f (%)	Agreed f (%)	Neutral f (%)	Disagreed f (%)	Strongly Disagreed f (%)	Mean (x̄)	SD
Library building's design	14(34.1)	27(65.9)	0(0.0)	0(0.0)	0(0.0)	4.34	0.48
Green library model	6(14.46)	35(85.4)	0(0.0)	0(0.0)	0(0.0)	4.15	0.36
Eco-friendly resources	10(24.4)	26(63.4)	4(9.8)	1(2.4)	0(0.0)	4.10	0.66
Environmental monitoring	10(24.4)	28(68.3)	3(7.3)	0(0.0)	0(0.0)	4.17	0.54
Stakeholders	7(17.1)	28(68.3)	5(12.2)	1(2.4)	0(0.0)	4.00	0.63
Sustainability plan	13(31.7)	26(63.4)	2(4.9)	0(0.0)	0(0.0)	4.27	0.55

Note. Data sourced from field survey in 2024 **Criterion Mean = 3.25**

Table 2 indicates that most of the respondents agreed that library building's design was planned with environmental consciousness (x̄=4.34), library found and selected good green library to model (x̄=4.15), they used natural or eco-friendly resources for work (x̄=4.10), carried out environmental monitoring and library needs assessment (x̄=4.17), they are engaged as a stakeholder on the adoption of green library initiatives (x̄=4.10), and libraries had designed sustainability plan (x̄=4.10). The average mean of the perceived influence of planning on the adoption of green library initiatives is 4.17. This means that managers should use robust planning practices to enhance green library adoption with a focus on ensuring sustainable designs, stakeholder engagement, environmental monitoring, and eco-friendly resources. This should foster long-term sustainability and align with global environmental standards.

Table 3

Perceived impact of staffing on the adoption of green library initiatives

Items	Strongly Agreed f (%)	Agreed f (%)	Neutral f (%)	Disagreed f (%)	Strongly Disagreed f (%)	Mean (x̄)	SD
Attitude	19(46.3)	21(51.3)	1(2.4)	0(0.0)	0(0.0)	4.44	0.55
Recruitment and employment	14(34.1)	24(58.6)	3(7.3)	0(0.0)	0(0.0)	4.27	0.59

Training and development	11(26.8)	27(65.9)	3(7.3)	0(0.0)	0(0.0)	4.20	0.56
Performance management	13(31.7)	26(63.4)	2(4.9)	0(0.0)	0(0.0)	4.27	0.55
Rewards and development	10(24.4)	28(68.3)	3(7.3)	0(0.0)	0(0.0)	4.17	0.54
Staff motivation	13(31.7)	24(58.5)	4(9.8)	0(0.0)	0(0.0)	4.21	0.61
Participation/employment relationship	13(31.7)	26(63.4)	2(4.9)	0(0.0)	0(0.0)	4.27	0.55

Note. Data sourced from field survey in 2024. **Criterion Mean = 3.25**

Table 3 indicates that most of the respondents agreed that they have positive attitude regarding energy use and eco-friendly practices ($\bar{x}$=4.44), their libraries adopt eco-friendly recruitment and employment ($\bar{x}$=4.27), their libraries adopt eco-friendly training and development ($\bar{x}$=4.20), their libraries adopt eco-friendly performance management ($\bar{x}$=4.27), their libraries adopt eco-friendly staff motivation ($\bar{x}$=4.21), and their libraries adopt eco-friendly participation and employment relationship ($\bar{x}$=4.27). The average means of the perceived influence of staffing on the adoption of green library initiatives is 4.26. This implies that staffing practices that can enhance green library adoption include cheerful outlook towards energy use, eco-friendly recruitment and employment, eco-friendly training and development, eco-friendly performance management, eco-friendly staff motivation, and eco-friendly employment relationship. This would help enhance eco-friendly practices in academic libraries, which would enhance library sustainability practices.

Table 4

Perceived effects of funding on the adoption of green library initiatives

Items	Strongly Agreed f (%)	Agreed f (%)	Neutral f (%)	Disagreed f (%)	Strongly Disagreed f (%)	Mean ($\bar{x}$)	SD
Fund for establishment	7(17.1)	29(70.7)	3(7.3)	2(4.9)	0(0.0)	4.00	0.67
Effective water management	11(26.8)	25(61.0)	4(9.8)	1(2.4)	0(0.0)	4.12	0.68
Adoption of solar energy	8(19.5)	30(73.2)	3(7.3)	0(0.0)	0(0.0)	4.12	0.51
In-house environmental policy	6(14.6)	30(73.2)	4(9.8)	1(2.4)	0(0.0)	4.00	0.59
Renewable energy projects	11(26.8)	25(61.0)	4(9.8)	1(2.4)	0(0.0)	4.12	0.68
Pay extra	12(29.3)	26(63.4)	1(2.4)	2(4.9)	0(0.0)	4.17	0.70
Green bond	14(34.1)	22(53.7)	4(9.8)	1(2.4)	0(0.0)	4.20	0.72

Note. Data sourced from field survey in 2024. **Criterion Mean = 3.25**

Table 4 illustrates that most of the respondents agreed that their libraries allocate funds to establish or proliferate green library initiatives (x̄=4.00), funding affects effective water management (x̄=4.12), funding affects the adoption of solar energy (x̄=4.12), funding affects in-house environmental policy (x̄=4.00), funding affects renewable energy projects (x̄=4.12), their libraries pay extra for environmentally friendly library resources (x̄=4.17), and their libraries adopt green bond [e.g. revenue bond, proceed use bond, securitization bond and so on] (x̄=4.20). The average mean on the perceived effects of funding on the adoption of green library initiatives is 4.10. This shows that academic libraries can adopt green library initiatives through funding practices, which include giving funds to enhance green library initiative, funding of solar energy, funding of effective water management, funding of in-house environmental policy, and funding of renewable energy projects. With such funding practices, academic libraries can enhance green library adoption.

Table 5

Perceived influence of organizational structure on the adoption of green library initiatives

Items	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed	Mean	SD
	f (%)	f (%)	f (%)	f (%)	f (%)	(x̄)	
Internal communication	12(29.3)	27(65.9)	2(4.9)	0(0.0)	0(0.0)	4.24	0.54
Direct supervision	9(22.0)	30(73.2)	2(4.9)	0(0.0)	0(0.0)	4.17	0.50
Work process	8(19.5)	31(75.6)	2(4.9)	0(0.0)	0(0.0)	4.15	0.48
Skills	8(19.5)	31(75.6)	2(4.9)	0(0.0)	0(0.0)	4.15	0.48
Outputs	9(22.0)	25(61.0)	6(14.6)	1(2.4)	0(0.0)	4.02	0.69
Mutual adjustment	13(31.7)	23(56.1)	5(12.2)	0(0.0)	0(0.0)	4.20	0.64

Note. Data sourced from field survey in 2024. **Criterion Mean = 3.25**

Table 5 shows that most of the respondents agreed that internal communication influences the adoption of green library initiatives (x̄=4.24), direct supervision influences the adoption of green library initiatives (x̄=4.17), standardization of work process influences the adoption of green library initiatives (x̄=4.15), standardization of skills influences the adoption of green library initiatives (x̄=4.15), standardization of outputs influences the adoption of green library initiatives (x̄=4.02), and mutual adjustment among library staff influences the adoption of green library initiatives (x̄=4.20). The average mean of the perceived influence of organizational structure on the adoption of green library initiatives is 4.16. Standardized work process, standardization of skills and outputs, direct supervision, internal communication and mutual adjustments are some organizational structures that can enhance green library adoption.

Table 6

Perceived impact of leadership commitment on the adoption of green library initiatives

Items	Strongly Agreed f (%)	Agreed f (%)	Neutral f (%)	Disagreed f (%)	Strongly Disagreed f (%)	Mean (x̄)	SD
Commitment	8(19.5)	31(75.6)	2(4.9)	0(0.0)	0(0.0)	4.15	0.48
Strategic plan	10(24.4)	25(61.0)	6(14.6)	0(0.0)	0(0.0)	4.10	0.63
Top library management	6(14.6)	29(70.7)	6(14.6)	0(0.0)	0(0.0)	4.00	0.55
Emotional commitment	5(12.2)	27(65.9)	8(19.5)	1(2.4)	0(0.0)	3.88	0.64
Right and moral thing	9(22.0)	24(58.5)	8(19.5)	0(0.0)	0(0.0)	4.02	0.65
Alternatives	12(29.3)	20(48.8)	9(22.0)	0(0.0)	0(0.0)	4.07	0.72

Note. Data sourced from field survey in 2024 **Criterion Mean = 3.25**

Table 6 indicates that most of the respondents agreed that they were aware that their library heads are committed to climate and sustainability accords (x̄=4.15), they were aware that their library's strategic plan includes sustainability component (x̄=4.10), they were aware top library management is dedicated to green practices (x̄=4.00), they felt their library management had emotional commitment towards green practices [affective] (x̄=3.88), they felt their library leadership adopted green library practice because they see it as the right and moral thing to do [normative] (x̄=4.02), and perceived our library leadership commit to green practices because alternatives and/or cost of eco-friendly library as too high [continuance] (x̄=4.07). The average mean of the perceived impact of leadership commitment on the adoption of green library initiatives is 4.04. This means that leadership commitment can enhance green library adoption through commitment to climate and sustainability accords, awareness of strategic planning, library management's dedication to green practices, and emotional commitment towards green practices, moral obligation to partake in green library practices, and alternative benefits of green library practices.

In a comparative analysis of the five managerial factors adapted for this study, the results showed that staffing as a managerial factor had the most influence on the adoption of green library initiatives in the selected libraries (x̄=4.26), followed by planning with an average mean of 4.17, followed by organizational structure with an average mean of 4.16, followed by funding with an average mean of 4.10, and last leadership commitment with an average mean of 4.04. This shows that staffing had the most influence on the adoption of green library initiatives in the selected academic libraries in Kwara State, Nigeria. This means that, among all managerial drivers, academic libraries should take their staffing practices seriously if they are interested in green library adoption.

Discussions

The findings showed that most of the library building's design was planned with environmental consciousness. This is like the findings of Asim and Ahmad (2022), which showed that building's design is one of the phases of strategic planning in the adoption of green library initiatives. Libraries identified strong green library models, used eco-friendly materials, assessed environmental needs, involved librarians in green initiatives, and created sustainability plans. This is similar to the findings of Vijesh et al. (2024), which demonstrated that planning for green library initiatives in Rajagiri Business School Library, Kerala, India include some factors, which are finding good green library model, natural or eco-friendly resources for the work, needs assessment, stakeholders' engagement, sustainability plan, and funding and resources. Solemanpharcy and Gaffar (2023) also highlighted the significance of forming alliances with stakeholders. The overall findings showed that planning influences the adoption of green library initiatives in the selected academic libraries.

Most librarians view energy use and eco-friendly practices positively, consistent with Kassim et al. (2019), who found that staff attitudes at Universiti Putra Malaysia affect green library initiatives. Results of the study further showed that libraries adopt eco-friendly recruitment and employment, libraries adopt eco-friendly training and development, libraries adopt eco-friendly performance management, libraries adopt eco-friendly staff motivation, and libraries adopt eco-friendly participation and employment relationships. This is like the findings of Shahriari et al. (2019), which showed that both green selection and recruitment and training and development had the highest consideration among organizations. Also, Islam et al.'s (2022) findings are related to the current study as it was shown that employee retention and green performance management, engagement, and recruitment all have a negative correlation while green rewards and training and development were the most helpful for both individuals and organizations. Overall, results showed that staffing influences the adoption of green library initiatives in the selected academic libraries.

Results showed that most of the libraries distribute funds to prove or proliferate green library initiatives. This is like the findings of Maina and Mwiti (2023), which showed that specific funding should be given for environmentally conscious projects in university libraries. It was also found that funding affects effective water management, funding affects the adoption of solar energy, funding affects in-house environmental policy, funding affects renewable energy projects, and their libraries pay extra for environmentally friendly library resources. This is the same with the findings of David-West and Wali (2023), which revealed that funding can affect water management/efficiency, solar and wind energy, and in-house environmental policy. Results showed that most of the libraries adopt green bonds [e.g., revenue bond, proceeds use bond, and securitization bond. This is like the findings of Kumar (2022), which highlighted that the designed to eco-friendly projects include go ahead use bond, revenue bond, project bond, securitization bond, covered bond, and loan. Overall, the findings showed that funding has perceived influence on the adoption of green library initiatives.

Findings revealed that internal communication influences the adoption of green library initiatives. This is like the findings of Jaganjac et al. (2024), which showed that lack of internal communication in a company can stand in the way of the effective adoption of green values. Findings also showed that direct supervision influences the adoption of green library initiatives, standardization of work process influences the adoption of green library initiatives, standardization of skills influences the adoption of green library initiatives, standardization of output influences the adoption of green library initiatives, and mutual adjustment among library staff influences the adoption of green library initiatives. This writes down that simple structure (direct supervision), machine bureaucracy (standardization of work processes), professional bureaucracy (standardization of skills), divisional zed form (standardization of outputs), and adhocracy (mutual adjustment) influence the adoption of green library initiatives (Lunenburg, 2012). Overall, the results showed that organizational structure has perceived influence on the adoption of green library initiatives.

The study found that library heads are committed to climate and sustainability accords and library's strategic plan including sustainability components. This is like the findings of Msengi et al. (2019), which showed students were unaware that the institution has committed to climate and sustainability accords, and just roughly 17% were aware that the university's strategic plan includes a sustainability part in Southeastern Texas university. Results further showed that most of the librarians felt top library management is dedicated to green practices and they felt their library management had emotional commitment towards green practices [affective]. This is like the findings of earlier studies (Hamid & Earlyanti, 2023; Ren et al., 2023), which proved that green behavior had a relationship with affective commitment. Moreover, results showed that most of the librarians felt their library leadership adopted green library practice because they see it as the right and moral thing to do [normative]. This is like the findings of earlier studies (Abdulaziz et al., 2017; Hamid &Earlyanti, 2023), which showed that normative and coercive pressure influence the adoption of green initiatives. The study found that most of the library leadership were committed to green practices because alternatives and/or cost of eco-friendly libraries were too high [continuance]. Overall, the findings showed that leadership commitment had perceived influence on the adoption of green library initiatives.

Conclusion

This study emphasizes the role of planning in the adoption of green library initiatives. The study suggests that libraries that incorporate environmental consciousness in their library building design, use eco-friendly resources, conduct environmental monitoring, and develop sustainability plans are more probable to contribute to the environment positively. These insights go beyond libraries and offer guidance for general sustainability practices across different sectors. It was concluded that libraries are willing to adopt green library initiatives through the implementation of eco-friendly recruitment and employment strategies, integration of green principles into training and development, encouragement of participatory management, and focus on staff

motivation. Moreover, it was recognized that funding affects green library adoption through effective water management, adoption of solar energy, in-house environmental policies, and renewable energy projects. The broader implications of this study emphasized the significance of initiative-taking planning in sustainability efforts. Organizations in other fields like educational, healthcare, and corporate sectors can adopt a similar approach by integrating sustainability principles in their structural frameworks. It was set up in the study that careful planning ensures that sustainability measures are not only implemented but sustained over time. The study recognized that heads of academic libraries are committed to climate and sustainability accords and incorporate sustainability components into their strategic plans. This underscores the importance of leadership in fostering an institutional culture of environmental sustainability. The study underscores the importance of environmental monitoring and assessment. This suggests that regular evaluation of sustainability initiatives helps organizations track progress, find areas for improvement, and adapt to evolving environmental standards. Other industries can receive help from incorporating such mechanisms to ensure that sustainability goals align with the best global practices. By addressing managerial factors, libraries can align their operations with SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action). Future studies should consider exploring the interaction between managerial factors and organizational culture in implementing green initiatives. Also, comparative analyses across different regions or library types could provide a broader understanding of sustainability practices.

Implications

Findings from this study have different implications for research, practice, and society. From the research perspective, results of the study underscore the need for further investigation into the specific ways that planning, staffing, funding, organizational structure, and leadership commitment influence the adoption of green library initiatives. The future study should be qualitative in nature to provide in-depth and comprehensive understanding about the influence these managerial factors have on the adoption of green library initiatives in academic libraries. Future studies could explore how these factors interact with one another and find the most critical elements for successful implementation. Additionally, research could be expanded to include comparative analyses across different regions or types of libraries, providing a broader understanding of the factors that drive green library practices.

For library professionals and practitioners, the findings of this study highlight the importance of strategic planning and resource allocation in the implementation of green library initiatives in academic libraries. Library administrators and policymakers in Kwara State, Nigeria and other developing countries with similar characteristics with the study area should consider the identified factors when designing and promoting green library programs. Effective planning, adequate staffing, sufficient funding, a supportive organizational structure, and strong leadership commitment are all crucial components for the successful adoption of sustainable practices in academic libraries. Moreover,

library managers should prioritize staff training on green practices to enhance sustainability efforts. Libraries that prioritize these elements are likely to be more successful in implementing green initiatives, which can lead to more environmentally sustainable services.

For society, the implications of the study findings are significant as they emphasize the role of academic libraries in promoting environmental sustainability in our environment. By adopting green library initiatives, academic libraries can contribute to broader societal goals of reducing environmental impact and promoting sustainability. This would align with the Sustainable Development Goal-11 and 13 (SDG-11 and 13), which concern “Sustainable Cities and Communities” and “Climate Action”. The findings of the study suggest that with the right planning, resources, and leadership, libraries can become models of sustainability within their communities. This not only helps to protect the environment but also raises awareness among library users, including students, faculty members, and the public, about the importance of sustainable practices.

Recommendations

The following recommendations are proffered based on the study’s findings:

i. Academic libraries’ management should continue finding and modeling their libraries after successful green library initiatives.
ii. Management of academic libraries should develop a repository of best practices and successful green library models within the academic library community.
iii. Regular training and development programs should focus on eco-friendly practices, which may be by creating incentives for staff who actively contribute to green initiatives.
iv. Academic libraries should explore various funding mechanisms such as green bonds, grants, and partnerships to ensure sustained funding green initiatives.
v. Management of academic libraries should strengthen internal communication channels to ensure that all staff members are aware of and committed to green initiatives, which may include regular updates and feedback sessions that can keep the team aligned with the green goals.
vi. Library leadership should publicly commit to green practices, and this commitment should be reflected in strategic plans, goals, and actions.
vii. Academic libraries should regularly measure the impact of their green initiatives on the environment.

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