

Environmental Knowledge Management and Employees' Green Behavior in Tertiary Institutions in Nigeria: A Conceptual Approach

Yusuf Abdulhakeem,¹ Bashir Bashir Musa²
&

Abubakar Sadiq Suleiman (Professor)³

Federal University Dutsin-Ma, Katsina State-Nigeria^{1&3}
ayusuf21@fudutsinma.edu.ng

Ibrahim Badamasi Babangida University, Lapai, Niger State-Nigeria²

Abstract

Environmental knowledge management is an increasingly important topic in the context of tertiary institutions, as it can have a significant impact on employees' green behavior. Researches on environmental knowledge management have generally concentrated on three areas: sharing, application, and awareness of Environmental knowledge, according to reviews of empirical studies on the subject. In contrast, this study proposes a new theoretical model for understanding employees' green behavior, by conceptualizing the availability of Environmental Resources (AvEKR), accessibility of Environmental Resources (AcEKR), and utilization of Environmental Resources (UEKR) as independent variables. This study investigates for future research whether these novel proxies' leads to improved employee green behaviors (EGB) from the perspective of the Information Processing Model (IPM) and the Theory of Planned Behavior (TPB) specifically among higher institutions in Nigeria. The study recommends a mixed-methods approach that combines both qualitative and quantitative research methods, Interviews should be conducted with employees to gather qualitative data on their green behaviors and their perceptions of environmental knowledge resources and also to conduct a survey to collect quantitative data on the availability, accessibility, and utilization of environmental knowledge resources, as well as on green behavior. Finally, the study recommends the use of statistical and thematic analysis to analyze the data. This conceptual study recommends adding to existing literature as a future resource for scholars. The study's findings can help tertiary institutions understand how to use EKM to encourage EGB in the workplace.

Keywords: EKM; EGB; AvEKR; AcEKR; UEKR.

Introduction

In recent years, the world has come to acknowledge the critical role of Environmental Knowledge Management (EKM) in tackling pressing environmental

issues (Teli, 2018). This recognition stems from alarming trends highlighted by the Intergovernmental Panel on Climate Change (IPCC, 2022), indicating a 1.2-degree Celsius rise in global temperatures since pre-industrial times, leading to severe consequences like extreme weather events,

sea-level rise, and biodiversity loss (United Nations Environmental Programmes, 2019). Consequently, there is an urgent need for robust EKM strategies to guide policy-making, foster sustainable practices, and mitigate environmental degradation (Okengo et al., 2019).

The growing emphasis on environmental sustainability has permeated organizations worldwide, notably tertiary institutions, where EKM plays a pivotal role in shaping environmental awareness and actions (Osswald, 2019). This shift is evident in the increasing demand, reported by the United Nations Environment programmes (2019), for sustainable practices in organizations, driven by concerns such as climate change and responsible corporate behavior.

The interconnection between EKM and employee green behavior (EGB), has become a central focus for researchers and organizational leaders globally (Chirico et al., 2019). Studies indicate that organizations with effective knowledge management systems are better positioned to disseminate environmental information, raise awareness, and cultivate a culture of sustainability among employees (Abd-Mutalib et al., 2023; Alam et al., 2023; Bala et al., 2023; Fawehinmi et al., 2022; Amoah & Addoah, 2020; Zhang et al., 2021; Safari et al., 2020; Bashirun & Noranee, 2020). This notion is supported by a survey from Deloitte (2019), revealing that 87% of employees consider their company's sustainability commitment crucial for engagement and retention. In Africa, although progress is slower compared to other regions, there's a growing recognition of the importance of integrating environmental concerns into organizational

practices. (World Economic Forum, 2019). Tertiary institutions across Africa, including the University of Cape Town in South Africa and the University of Ibadan in Nigeria, are incorporating sustainability into their curricula and operations, setting examples for promoting green behaviors (Idowu et al., 2018).

However, challenges persist in fully harnessing EKM's potential to drive EGB in African tertiary institutions, including limited funding, infrastructure gaps, and insufficient awareness (Obateru, 2019). Despite these obstacles, there's optimism fueled by international support and local initiatives that Africa, particularly Nigeria, can make significant advancements in promoting sustainability within academic settings (Akinbami et al., 2019).

Studies acknowledge the positive relationship between EKM and EGB, (Abd-Mutalib et al., 2023; Alam et al., 2023; Bala et al., 2023; Fawehinmi et al., 2022; Amoah&Addoah, 2020; Zhang et al., 2021; Safari et al., 2020; Bashirun &Noranee, 2020). There is a noticeable lack of sufficient statistical evidence and empirical research focusing on the availability, accessibility, and utilization of environmental knowledge resources in understanding this relationship. Researches predominantly used quantitative methods, neglecting the benefits of mixed methods for a deeper understanding of EGB (Abd-Mutalib et al.,2023; Alam et al., 2023; Bala et al., 2023; Fawehinmi et al., 2022; Amoah & Addoah, 2020;Zhang et al., 2021;Safari et al., 2020;Bashirun &Noranee, 2020).

This study aims to bridge these gaps by proposing a comprehensive investigation of

the relationships between EKM and EGB, with a focus on the availability, accessibility, and utilization of environmental resources, using a mixed method approach. By addressing gaps in the literature and employing a comprehensive research approach, this study aims to provide insights that can inform strategies for promoting sustainable practices and environmental stewardship in academic settings.

The research questions are:

1. Does the availability of Environmental Knowledge Resources (EKR) significantly relate to EGB in the study area?
2. Does the accessibility of Environmental Knowledge Resources (EKR) significantly relate to EGB in the study area?
3. Does the utilization of Environmental Knowledge Resources (EKR) significantly relate to EGB in the study area?

The following hypotheses are proposed:

H1: Availability of Environmental Knowledge Resources significantly relates to Employee Green Behavior in the study area.

H2: Accessibility of Environmental Knowledge Resources significantly relates to Employee Green Behavior in the study area.

H3: Utilization of Environmental Knowledge Resources significantly relates to Employee Green Behavior in the study area.

2.0 Literature Review

2.1 Concept of Employee Green Behavior

There is overwhelming consensus in the

literature about the definition of Employee green behavior (EGB). For instance, De et al. (2017) opine that (EGB) refers to eco-friendly actions taken by staff members within a company, such as recycling, wise resource use, taking part in environmental campaigns, upholding sustainable policies, and so on. Stern (2000) defines (EGB) as behavioral intention that motivates individuals to take action to lessen their negative environmental effect. Furthermore, other studies describe employee Green behavior as any behavior that is beneficial to the environment or minimizes harm to the environment ([Steg & Vlek, 2009](#); [Ones & Dilchert, 2012](#), Andersson et al., 2013). Above all, this study defines employee green behavior as any behavior that is beneficial to the environment or minimizes the carbon foot print.

2.2 Concept of Environmental Knowledge Management

According to Amyx et al. (1994), environmental knowledge is the extent to which a person or organization learns about and cares about ecological issues. According to Chou et al. (2005), environmental knowledge can be defined as the data, information, and knowledge resources that have been amassed by an organization through its knowledge structures.

Environmental knowledge management is made up of several parts, however. Availability, accessibility and utilization of environmental knowledge resources are the most relevant and important dimensions of knowledge resources when it comes to influencing employees' green behavior. Other dimensions, such as

quality or accuracy, are less relevant or difficult to measure.

2.2.1 Availability of Environmental Knowledge Resources (Availability of EKR)

(E.g. online databases, textbooks, and scientific journals);

Availability refers to the extent to which environmental knowledge resources are readily accessible and usable by employees (Checkland & Wilson, 1991). The degree at which employees may easily acquire and utilize environmental knowledge resources is referred to as availability (Checkland & Wilson, 1991). Individuals decide how they should behave after first assessing the information that is at their disposal (Ryan & Carr, 2010).

2.2.2 Accessibility of Environmental Knowledge Resources (Accessibility of EKR)

(E.g. ease of use, affordability, and language);

The ease with which staff members may get, comprehend, and apply environmental information resources is referred to as accessibility (Lloyd, 2010). The degree at which resources, services, products, or environments are available to as many individuals as feasible is referred to as access in general. It can be seen as the ease with which information can be accessed.

2.2.3 Utilization of Environmental Knowledge Resources (Utilization of EKR)

The term "utilization" describes how workers really make use of environmental knowledge resources in their day-to-day

activities and at work (Hughes & Terras, 2014). The utilization of environmental knowledge resources refer to the efficient and effective use of available environmental knowledge resources to achieve a particular goal or objective. This can include human resources, financial resources, natural resources, and technological resources. It is important for organizations and individuals to effectively utilize their environmental knowledge resources in order to maximize environmental friendly behavior and minimize waste.

2.3 Review of Empirical Studies

This section contains a comprehensive overview of empirical research on Environmental Knowledge Management and its impact on employee green behavior conducted across different regions globally. Although no studies seems to directly investigate the correlation between the availability, accessibility, and utilization of environmental knowledge resources and employees' green behavior, there exists a body of literatures that explore the link between Environmental Knowledge Management and employees' green behavior. These studies establish a fundamental basis for comprehending the relationship between our independent and dependent variables within this research.

While the studies have not specifically delved into the availability, accessibility, and utilization of environmental knowledge resources due to the innovative nature of our predictor variables, they are akin to environmental knowledge sharing, which plays a crucial role in shaping employees'

green behavior. Thus, these findings hold significance for this study as environmental knowledge sharing represents a key facet of the availability, accessibility, and utilization of environmental knowledge resources.

Abd-Mutalib et al.(2023) investigate the factors influencing the behavior of sharing environmental knowledge among accounting educators through a revised theory of planned behavior utilizing the Smart-PLS modeling approach. The results indicate that engaging in environmental knowledge sharing practices has placed educators in a unique position regarding the dissemination of environmental knowledge, given that the execution of environmental initiatives has not been accorded due significance and is not perceived as customary among the academic staff.

Alam et al. (2023) examine the mechanisms involved in knowledge management processes that impact the operational performance of knowledge workers within the context of green technology implementation. The empirical analysis employs Smart PLS-SEM and fuzzy set qualitative comparative analysis (fsQCA). The findings suggest that green technology implementation has a positive effect on the knowledge management processes within manufacturing firms, leading to a significant enhancement in the operational performance of knowledge workers. The results of the fsQCA analysis shed light on different combinations (such as communication, collaboration, supporting role, and improved performance) within the knowledge management process (including acquisition, sharing, and utilization) that are recognized to

elevate the performance of knowledge workers' operational performance.

Bala et al. (2023) examine the correlation among environmental knowledge, environmental sensitivity, environmental attitude, and environmental behavioral intention within a sample of 466 university students from the northern region of India. The research employs partial least square structural equation modeling (PLS-SEM) for their analysis. The findings indicate that the association between environmental knowledge (EK) and environmental behavioral intention (EBI) was mediated in a sequential manner by environmental sensitivity (ES) and environmental attitude (EA). The research offers a framework that could play a crucial role in environmental conservation efforts, elucidating the genesis of youth's behavioral intentions from their environmental knowledge.

Bresciani et al. (2023) delve into the exploration of the impact of environmental management accounting and environmental knowledge management practices on environmental performance through a mediated-moderated model employing Partial Least Square-Structural Equation Modeling. Findings indicate a positive correlation between EMA, environmental KM practices, and TMS with environmental performance. Furthermore, TMS acts as a significant mediator in the relationship between EMA, environmental KM practices, and environmental performance. The Greater Worker Commitment Program (GWCP) exhibits a positive connection with environmental performance. Lastly, GWCP significantly enhances the positive

association between TMS and environmental performance.

Polas et al. (2023) investigate the relationship between Knowledge management practices and green innovation in SMES, specifically focusing on the impact of environmental awareness on environmental sustainability among 194 SMEs in Abu Dhabi, UAE through the application of Smart partial least squares structural equation modeling (PLS-SEM) 3.0. The findings suggest a significant and positive correlation between knowledge acquisition, knowledge dissemination, and knowledge responsiveness with green innovation. In addition, the results of the data analysis support the idea that environmental awareness acts as a mediating factor in the connection between knowledge dissemination and green innovation. Nevertheless, the study does not identify any mediating role of environmental awareness in the association between knowledge acquisition, knowledge responsiveness, and green innovation.

Das (2022) examines the impact of knowledge management and co-evolution on environmentally friendly operations within Indian manufacturing firms, utilizing the variance-based structural equation modeling approach. The results reveal that both knowledge management and co-evolution are closely correlated with green product and process development, as well as green manufacturing and logistics. Moreover, the corporate environmental strategy is found to have a positive influence on both knowledge management and co-evolution.

Fawehinmiet al. (2022) investigate the Predictors of Employee Green Behavior among Academics in Malaysia, involving a

sample of 425 academics from research universities in Malaysia, utilizing the Smart PLS 3.3 software. The findings indicate a positive impact of academics' Perceived Moral Norms (PMN) and Perceived Behavioral Control (PBC) on their Employee Green Behavior (EGB). Nevertheless, the relationship between their Environmental Knowledge (ENK) and EGB is not deemed statistically significant.

Sultana et al. (2022) examine the impact of perceived environmental knowledge and environmental concern on customers' intention to visit green hotels, with a focus on the mediating role of green trust among 213 customers in the hotel industry of Dhaka, Bangladesh, utilizing the Partial Least Square method. The research demonstrates a statistically significant and positive effect of perceived green knowledge and green trust on customers' intention to visit green hotels. Additionally, green trust was found to act as a mediator in the relationship between visit intentions and customers' green knowledge and environmental concern.

Zhang et al. (2021) investigate the impact of environmental knowledge practices, namely environmental knowledge sharing and environmental knowledge application, on employee green behavior through a questionnaire survey conducted among 266 employees in China. The data are analyzed using Structural Equation Modeling (SEM), revealing that both environmental knowledge application and environmental knowledge sharing yield a favorable influence on employee green behavior. Moreover, the relationship between environmental knowledge applications as well as environmental knowledge sharing and

employee green behavior is mediated by environmental behavioral intention. Furthermore, green perceived organizational support plays a beneficial role in moderating the connection between environmental behavioral intention and employee green behavior.

Amoah and Addoah (2020) study the relationship between environmental knowledge and pro-environmental behavior in developing countries, particularly focusing on households in Ghana. Employing a household survey methodology and utilizing multinomial legit regression analysis, the researchers established a significant and positive association between environmental knowledge and pro-environmental behavior. The findings indicate that variations in pro-environmental behavior can be attributed to environmental knowledge (internal factors) as well as socio-economic factors (external factors).

Bashirun and Noranee (2020), study the Impact of Environmental Knowledge and Attitude on Employee Green Behavior within a sample of 108 employees working in a private organization in Malaysia. Utilizing SPSS, the research carried out data analysis and discovers that there is no significant correlation between environmental knowledge (EK) and environmental attitude (EA) in relation to employee green behavior (EGB).

Safari et al. (2020), examine the influence of environmental knowledge and awareness on green behavior in relation to behavioral intentions, environmental attitude, and green commitment as mediating factors utilizing the structural equation modeling approach. The

findings reveal that environmental knowledge and awareness exerts a significant direct impact on the green behavior of managers ($\beta = 0.42$). Furthermore, environmental knowledge and awareness demonstrate a noteworthy indirect influence on managers' green behavior through behavioral intentions ($\beta = 0.34$), environmental attitude ($\beta = 0.19$), and green commitment ($\beta = 0.33$).

Paço and Lavrador (2017) investigate the correlation between the general environmental knowledge of students and their attitudes and behaviors towards energy conservation by employing the theory of reasoned action (TRA). The research involves a comparison between students possessing elevated environmental knowledge and those with a lower level of environmental awareness. The study reveals a lack of substantial variance in the attitudes and behaviors towards the environment among the two student groups.

The vast majority of the studies focus on environmental knowledge sharing, application, and awareness of environmental knowledge (Abd-Mutalib et al., 2023; Alam et al., 2023; Bala et al., 2023; Fawehinmi et al., 2022; Zhang et al., 2021; Safari et al., 2020). Consequently, the results of the studies are inconclusive, leaving a lacuna to be filled. Furthermore, the majority of the studies on environmental knowledge management and employee green behavior used only quantitative technique. For instance, (Abd-Mutalib et al., 2023; Alam et al., 2023; Bala et al., 2023; Fawehinmi et al., 2022; Amoah & Addoah, 2020; Zhang et al., 2021; Safari et al., 2020; Bashirun & Noranee, 2020). The

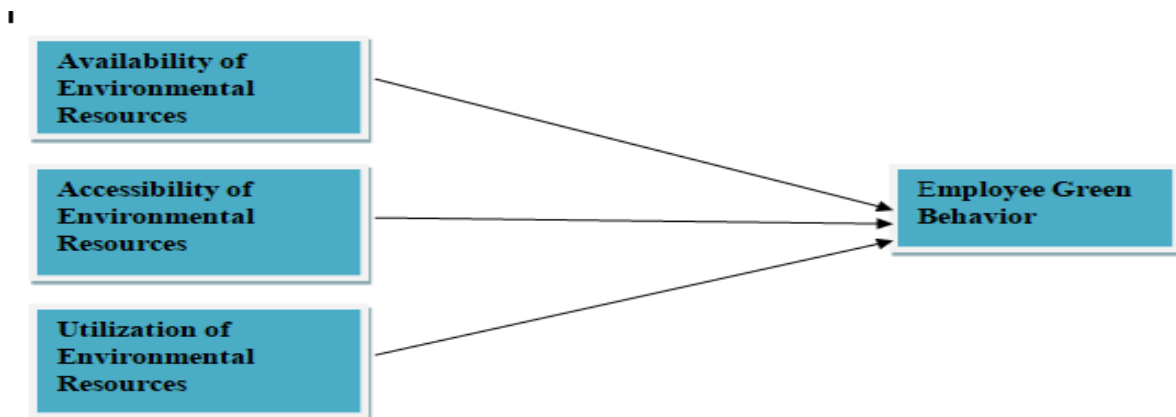
research implies that gaining a comprehensive understanding of the problem is blurred. It reduces the chances of combining the strengths of both types of research design to get a complete picture of the problem. In this regard, this study aims to bridge these gaps by proposing a comprehensive investigation of the relationships between EKM and EGB, with

a focus on the availability, accessibility, and utilization of environmental resources, using a mixed method approach.

2.4 Proposed Conceptual Framework

Building on the foregoing discussions in the literature review, this paper proposes a conceptual framework.

Figure1.



Framework as depicted in Figure 1.

The model for this research is depicted in Figure1. The proxies for the independent variables in this study are Availability of Environmental Knowledge Resources, Accessibility of Environmental Knowledge Resources and Utilization of Environmental Knowledge Resources, while Employee Green Behavior is the dependent variable.

2.5 Theoretical Framework

This research adopts the theory of planned behavior and the Information Processing Framework.

The Information Processing Model is initially proposed by Allan Paivio (1971). The

Information Processing Model is a theoretical framework that explains how information is processed by the human mind. It consists of several stages, including input, storage, processing, and output. In this model, information from the external environment is received as input, stored in memory, processed and manipulated, and then produced as an output or response. This model helps researchers and psychologists understand the cognitive processes involved in human thinking, learning, and problem-solving.

The Information Processing Model can be related to the proxies of availability, accessibility, and utilization of resources in the following ways:

1. Availability of Resources: In the context of the Information Processing Model, availability refers to the presence or existence of relevant information or resources that can be used in the cognitive processes. Just as having access to a wide range of resources in the environment can enhance learning and problem-solving, the availability of diverse sources of information can enrich the encoding and storage stages of the Information Processing Model.

2. Accessibility of Resources: Accessibility refers to the ease of obtaining or retrieving resources when needed. Similarly, in the Information Processing Model, accessibility plays a crucial role in the retrieval stage. If resources or information are easily accessible, individuals can more efficiently retrieve and utilize them to make decisions or solve problems. On the other hand, limited accessibility may lead to difficulties in retrieving and incorporating relevant information into mental processes.

3. Utilization of Resources: Utilization refers to the effective use or application of available resources. Within the Information Processing Model, utilization is reflected in the active manipulation and transformation of information during attention, perception, and encoding stages. The ability to effectively utilize resources, such as applying knowledge or skills to solve problems, contributes to efficient learning and decision-making processes.

Overall, the availability, accessibility, and utilization of resources influence how individuals engage with the cognitive processes outlined in the Information Processing Model, shaping their learning,

problem-solving, and decision-making abilities.

The second theoretical framework underpinning this study is the Theory of Planned Behavior. The theory is developed by Icek-Ajzen (1991), a social psychologist. It proposes that behavior is influenced by three factors: the individual's attitudes, subjective norms, and perceived behavioral control. This theory is nuanced because it takes into account both individual and social factors that influence behavior. In relation to the availability, accessibility, and utilization of environmental resources, we can link them as follows:

1. Availability of Environmental Knowledge Resources: This refers to the presence or of information and resources related to the environment in the context of the theory of planned behavior, if an individual has easy access to various environmental knowledge resources such as books, online articles, and educational programs, it may positively influence their attitude towards engaging in environmentally friendly behaviors. This availability of knowledge resources can enhance their intention to act in a sustainable manner.

2. Accessibility of Environmental Knowledge Resources: This construct refers to the ease with which individuals can access and obtain environmental knowledge resources. If the resources are easily accessible, such as being readily available online or within close proximity, it can increase the likelihood of individuals seeking out and using this

information. The theory of planned behavior suggests that increased accessibility of environmental knowledge resources may positively impact an individual's attitude, subjective norms, and perceived behavioral control, thereby influencing their intention to adopt environmentally friendly behaviors.

3. Utilization of Environmental Knowledge Resources: This construct refers to the actual use or application of environmental knowledge resources by individuals seeking out information, learning from it, and incorporating it into decision-making processes. In relation to the theory of planned behavior, the utilization of environmental knowledge resources can contribute to the formation of positive attitudes, influence subjective norms, and increase perceived behavioral control. Individuals who actively utilize these resources are more likely to have stronger intentions to engage in environmentally friendly behaviors.

Overall, the theory of planned behavior suggests that the availability, accessibility, and utilization of environmental knowledge resources can play a significant role in shaping an individual's intentions and subsequent behaviors related to the environment. These theories lend credence to this study because of it places emphasis on knowledge management. The information processing framework is the main theory that underpins the study, while the theory of planned behavior supports the information processing framework. In other words, the information processing framework provides the overall

framework for the study, while the theory of planned behavior helps to explain specific parts of the framework.

3. Methodology

To carry out the investigation, the paper recommends for the employment of a mixed-methods strategy that integrates qualitative and quantitative research approaches. This choice is supported by several factors: firstly, it enables the triangulation of data; secondly, it facilitates the comprehensive exploration of the research issue. Qualitative data on employees' green behavior and their attitudes towards environmental knowledge resources can be gathered through interviews, while quantitative data on the availability, accessibility, and utilization of such resources, as well as on green behavior, can be obtained through a survey. Lastly, a blend of statistical and thematic analysis should be applied to scrutinize the collected data.

4. Conclusion

The results of the study open up a new avenue for future researches on the relationship between EKM using proxies such as (AvEKR, AvEKR, UEKR and EGB in tertiary institutions in Nigeria. A broader range of literature is required for future research in order to gain a comprehensive understanding of environmental knowledge management practices. The authors believe that this conceptual work will add to and enhance existing literature for the benefit of research, it will have a significant impact on the management and policymakers of tertiary institutions in Nigeria.

upcoming researchers. On completion of the research, it will have a significant impact on

the management and policymakers of tertiary institutions in Nigeria.

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