

Driving Higher Education Sustainability: Investigating Practices, Cultural Influence and External Pressures in Nigerian Higher Education Institutions

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

I am the sole author of Chapters 1 and 5 of this dissertation. Chapters 2-4 are based on academic research work and papers that were co-authored with other scholars and academic contributors. The Investigation of Campuses' Sustainability Practices in Nigerian Higher Education Institutions, which is the basis for Chapter 2, was co-authored with Amelia Clarke, Amr ElAlfy and Olaf Weber, where I was the lead author of this paper, which was published by the International Journal of Sustainability in Higher Education. Chapter 3 was co-authored with Olaf Weber and Amr ElAlfy. I was the lead author of this paper, which is under review at the Journal of Education for Sustainable Development. Chapter 4 was co-authored with Olaf Weber, Amr ElAlfy and Amelia Clarke, where I was the lead author, and it is still under review at the International Journal of Sustainability in Higher Education. Bibliographic citations for the paper and the co-authored chapters are based on the following:

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Abstract

While scholars have argued that Higher Education Institutions (HEIs) have the potential to help build a sustainable future, there remains a lack of understanding of what it means to strengthen sustainability practices and culture, especially in developing nations where multifaceted sustainability concerns exist. This dissertation uses the Sustainability Tracking and Rating System (STARS) framework to investigate campus sustainability practices and implementation barriers within the unique context of Nigerian HEIs, with a focus on understanding the influence of hierarchical organisation culture and external pressure – whether coercive, normative, and/or mimetic – on sustainability performance. Drawing on the Competing Value Framework (CVF) to identify institutional policies, leadership and management styles as the three major components of hierarchical culture, findings reveal the absence of a standard framework for measuring sustainability performance and the lack of distinct departments for sustainability teaching and research. While institutional policy and leadership style were found to promote sustainability initiatives, a rigid management approach affects adaptability and innovation, which are critical to sustainability project implementation. Additionally, external pressures were found to drive sustainability initiatives. This research advances the application and adaptation of sustainability theories within the Nigerian context, providing a novel framework for Africa and other developing countries, while offering practical recommendations for policy adjustment, institutional management techniques, and mechanisms for governments to promote sustainability performance in HEIs within the context of developing countries.

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List of Abbreviations and Acronyms

Abbreviation	Full Meaning
AASHE	Association for the Advancement of Sustainability in Higher Education
CESDEV	Centre for Sustainable Development
CSR	Corporate Social Responsibility
CVF	Competing Value Framework
EAM	Environmental Activity Management
EMAS	Ecomanagement and Audit Scheme
EMS	Environmental Management System
EU	European Union
GASU	Graphical Assessment of Sustainability in Universities
GRI	Global Reporting Initiative
HEIs	Higher Education Institutions
HESI	Higher Education Sustainability Initiative
ISO	International Standard Organisation
JOSEM	Journal of Sustainability and Environmental Management

NUC	National University Commission
OCAI	Organisational Culture Assessment Instrument
OECD	Organisation for Economic Cooperation and Development
RMSEA	Root Mean Squared Error of Approximation
SADC	Southern African Development Community
SPSS	Statistical Package for Social Sciences
STARS	Sustainability Tracking and Rating System
WCED	World Commission on Environment and Development

Chapter One

1.0 Introduction

As nations worldwide encounter increasing environmental, social, and economic issues, the conversation on the significance of sustainability and its integration into the operation and culture of enterprise is of interest in the global space. Officially, sustainability can be traced to the 1987 report of the World Commission on Environment and Development (WCED), set up by the United Nations, chaired by Gro Harlem Brundtland, a former prime minister of Norway where she defined “sustainable development” as the ability to “meets the needs of the present without compromising the ability of the future generations to meet their own needs” (WCED, 1987, p. 16). This definition prioritises the urgent need for sustainable solutions to ensure the planet's and humans' wellness. The urgency is evident in global frameworks like the United Nations Sustainable Development Goals (SDGs), among which SDG 4 – Quality Education and SDG 13 – Climate Change underscore the critical role of education in advancing sustainability and addressing issues around climate change.

Since education provides individuals with adequate knowledge and skills needed for transformative shifts, its relevance as an essential tool for advancing sustainability should be recognised and explored. Higher Education Institutions (HEIs), as the custodians of these skills, knowledge, and values, play a significant role in this pursuit by operating as a catalyst for research, creativity, and leadership growth (Mbithi et al., 2021; Rusok et al., 2021). It is therefore necessary that HEIs model sustainability and equip students through teaching, research and operational procedures to confront global challenges. In an attempt to align with global standards, HEIs

globally are integrating sustainability into their operations, teachings and social responsibility for ethical and sustainable practices.

As the world becomes more focused on sustainability and environmental responsibility, higher education institutions must adapt and integrate sustainability into their operations and curriculum (Abo-Khalil, 2024; Angelaki et al., 2023). The call on HEIs to deal theoretically, conceptually, critically, methodically, and reflectively is required to address challenges and transformation processes for sustainable development (Rieckmann & Bormann, 2020). Higher education institutions not only shape the future of individuals, communities, and society but also play an important role in fostering environmental stewardship and furthering sustainability (Clarke, 2006). However, integrating sustainability into the culture and operations of HEIs continues to be difficult; hence, the call for investigation into sustainability performance in HEIs.

Sustainability performance is defined as the ability of an organisation to function responsibly, considering all facets of sustainability impact while preserving long-term viability (Zimek & Baumgartner, 2024). This explains the ability of the institutions to achieve success in different facets– economic, social and environmental – while ensuring a sustainable future and good resource control. In HEIs, sustainability success is not limited to financial outcomes but the ability of the institutions to reduce their ecological footprint and promote ethical teaching, research, and operation (Valls-Val & Bovea, 2021; Žalėnienė & Pereira, 2021). Therefore, sustainability is critical to the general performance of the institutions as it encourages creativity, collaboration, and stakeholder trust, minimises risk and improves efficiency.

As a key player in promoting sustainability, HEIs, being a centre for knowledge creation, creativity and social transformations, rely on their capacity to deliver sustainability objectives. The

leadership commitment during the Talloires Declaration of 1990 substantiated the early readiness of HEIs (Committee, 2021; Ramirez, 2015) where 499 presidents and chancellors of universities from 54 nations voiced their worries on how environmental degradation, pollution, and resource depletion threaten life on Earth (Adams et al., 2018; ULSF, 2015) and signed the declaration as of 2016. The positioning of HEIs at the core of environmental, social and economic transformation by the SDGs has created a significant expansion of the obligations of HEIs and boosted the push for sustainability in the global space (Galán-Muros, 2023; Lim, 2024). The provision of an integrated SDGs framework for sustainable development has enhanced the importance of sustainability, though faced with both renewed interest and fresh challenges in recent years (Fallah Shayan et al., 2022; Quaye et al., 2024). Efforts towards post-pandemic recovery and increasing climate threats are good examples to substantiate their importance, while financial constructs in some parts of the world, especially developing nations and geographical disputes, remain challenges to global dedication (Filho et al., 2023; Gef, 2021). However, HEIs remain critical actors in the achievement of the 2030 Agenda.

The 17 SDGs are a set of goals prioritised by the United Nations to tackle the most critical issues facing the world, such as hunger, poverty, falling education, climate challenges, unemployment, insecurity, etc. (United Nations, 2015).

Based on the Sustainable Development Solutions Network, HEIs are expected to promote and encourage the push towards sustainability and, by implication, the implementation of the SDGs through the integration of sustainability into HEIs' curricula, research, and operations (Angelaki et al., 2023). In an effort by nations to comply with the sustainability objectives, HEIs are saddled with the responsibility of integrating sustainability into academic curricula, institutional core values and operations. Following the global pandemic of COVID-19 and the rising climate change

concerns, the centrality of HEIs as leaders in the promotion of sustainability has increased significantly (Dwivedi et al., 2022; Purcell & Lumbreras, 2021). HEIs are redesigning their sustainability plan to show more commitment and alignment with the global agenda of 2030 (Acciona, 2019; Dwivedi et al., 2022). This is an indication of the understanding that comprehensive and creative strategies required by sustainability concerns globally must begin with awareness through education and research, which are major roles played by HEIs (Žalėnienė & Pereira, 2021).

This is because global concerns require a completely innovative response and HEIs are at the centre of leading sustainability transformation. Multiple concerns, including embracing sustainability practice, addressing cultural complexity and addressing external influence, face the Nigerian HEIs as a major player in driving societal development. The complicated interplay of these factors was addressed by this thesis to show how HEIs can achieve and lead in accomplishing the urgent need of sustainable development.

In Nigeria, for example, efforts have been made to launch sustainability projects, incorporate sustainability into the curriculum and engage in sustainability practices (Abenu et al., 2024). However, this effort is confronted by specific socio-economic actuality, organisational core value conflict and external factors, resulting in an extremely complex environment to successfully establish sustainability practices.

The socio-economic actuality of sustainability performance in the Nigerian HEIs was realised through the adoption of the “Sustainability Tracking, Assessment and Rating System” (STARS) (STAR, 2023) for a comprehensive analysis of its sustainability activities. The STARS framework gave a structural approach for tracking, assessment and improvement with the need for adaptation of the framework to capture the peculiarity of the Nigerian HEIs' socio-economic and cultural

context. Customising the framework to address specific issues like limited resources and infrastructural constraints is crucial to ensure relevance and success in realising sustainability objectives.

1.1 Summary of the STARS Framework

There are several tools and approaches for reporting sustainability metrics; some of the commonly used are Global Reporting Initiatives (GRI), the International Standard Organisation (ISO) 140 Series, ECOManagement and Audit Scheme (EMAS) (Lozano, 2004). STARS was considered in this study as the only framework designed mainly to capture the sustainability performance of HEIs. STARS is a programme developed by Advancement of Sustainability in Higher Education (AASHE), a transparent, self-reporting tool designed to measure the sustainability performance of the entire range of HEIs, from community colleges to research universities (Krzmarzick, 2008). It is flexibly designed to be adaptable to different contexts, countries, regions, etc. (AASHE, 2022; Krzmarzick, 2008). The idea was established in 2006 by a joint team of faculties, facility managers, students and sustainability officers, with the first pilot version 1.0 in 2008 having over 90 HEIs using this system to provide substantial data on sustainability practices at their campuses (Krzmarzick, 2008). With the release of STARS Version 2.0 in 2013, the initial reporting architecture was enhanced, and STARS was made available to all HEIs globally (Urbanski & Filho, 2014).

STARS's objectives are (STARS, 2019, p. 1):

- “Provide a framework for understanding sustainability in all sectors of higher education.

- Enable meaningful comparisons over time and across institutions using a common set of measurements developed with broad participation from the campus sustainability community.
- Create incentives for continual improvement toward sustainability.
- Facilitate information sharing about higher education sustainability practices and performance.
- Build a stronger, more diverse campus sustainability community”.

Scoring Pattern for Institutions

The framework has five major categories with sub-categories awarding up to 100 points to deserving HEIs. An award of platinum, gold, silver or bronze is awarded to HEIs based on their points, which remain valid for three years.

Table 1: STAR Scoring Pattern

Category	Sub-category	Examples	Points
Academics	Curriculum	Available sustainability courses offered, and the percentage of research produced by the HEIs	40
	Research		18
Engagement	Campus Engagement	Student engagement informs of training and orientation; public community collaboration	21
	Public Engagement		20
Operation	Air & Climate	Energy usage, water usage, GHG emission, waste management,	11
	Buildings		8
	Energy		10
	Food & Dining		8
	Grounds		4

	Purchasing		6
	Transportation		7
	Waste		10
	Water		8
Planning and Administration	Coordination & Planning	Inclusion and diversity in the planning and management process, sustainability planning, and sustainable investments	9
	Diversity & Affordability		10
	Investment & Finance		8
	Wellbeing & Work		7
Innovation and Leadership	Innovation and Leadership	Innovative ideas and creativity do not exist	4

Another challenge is the need to understand the prevailing culture (Akanji et al., 2019) in Nigerian HEIs and how this can help in actualising sustainability objectives. Most Nigerian HEIs have largely centralised decision-making processes, focusing power at the top level of management (Ohioresanya & Eboreime, 2014). This structure could impede staff and student engagement in sustainability initiatives and prevent creativity and collaboration. Top-down decision-making and centralised authority significantly influence sustainability outcomes. The formal and controlled nature of policies in these HEIs is equally captured by the culture and the need to understand the institutional policies to provide structured frameworks to guide sustainability initiatives is important (Makaryan, 2023). This explains how the internal policies and structure of HEIs in Nigeria affect the realisation of sustainability projects.

External Pressure is another major factor that substantially influences sustainability performance in Nigerian HEIs. Government policies and requirements for accreditation force HEIs into compliance with sustainability principles, especially when a penalty or reward is attached. Professional associations, global best practices and social norms are other types of external pressure that can influence sustainability initiatives. Also, the intention and ability to imitate successful sustainability templates from similar institutions should be considered to mitigate the risk associated with an isolated process, which can result in duplicate efforts and inefficiency. HEIs learning from one another's best practices, successes and failures will improve innovation, accelerate progress and make informed decisions towards sustainability goals.

Therefore, the dissertation is anchored on identifying and comprehending the motivators and barriers impacting sustainability performance in Nigerian HEIs. It concentrated on these three major parameters, namely: campus sustainability practices, the influence of the prevailing institution culture in HEIs on sustainability initiatives and the effect of external pressures in promoting sustainability initiatives. The examination of these linked topics offers a holistic view of the variables that promote or hinder efforts towards sustainability in Nigerian HEIs. The effort to integrate sustainability into HEIs is the responsibility of both institutions and the societal imperative (Abo-Khalil, 2024). Institutions have a responsibility as the hub for innovation, knowledge transfer and leadership, but this can only be achieved by addressing structural challenges such as limited resources, established institutional culture and the need to comply with global standards (Leal Filho et al., 2019). Through theoretical and practical contributions, the dissertation reveals effective solutions to these identified concerns to guide sustainability policies in Nigerian HEIs and globally.

1.2 Research Gap

Despite the global conversation and improvement on sustainability initiatives, Nigeria, the most populous nation in Africa (Vitalis Jafra Pontianus & Oruonye E.D., 2021), continues to face limited empirical research on the integration and implementation of sustainability initiatives within its HEIs (Erin et al., 2024; Oweibia et al., 2024). The lack of empirical research hinders attempts to assess the status of sustainability practices in Nigerian HEIs at the moment, pinpoint obstacles to sustainability integration, and create evidence-based plans to promote sustainability in Nigerian HEIs (Abenu et al., 2024). Nigerian HEIs lack a standardised framework to assess and evaluate sustainability performance. The majority of the HEIs lack a dedicated sustainability unit or department, hindering their capacity for teaching and research in this area. However, the creation of such a unit or department alone may not improve sustainability performance if HEIs do not ensure resources, capacity and institutional integration for teaching, research and operations. Therefore, there is a need for assessment and evaluation of the effectiveness of its creation and not mere existence (Zimek & Baumgartner, 2024). This study employs the use of the STARS framework to evaluate sustainability performance and discover the specific challenges impeding sustainability performance in the Nigerian context.

There is a significant amount of research connecting organisational culture and sustainability performance, but few empirical studies have considered the hierarchical culture – the prevailing culture in the Nigerian HEIs (Akanji et al., 2019; Anicich et al., 2015) and how it influences the sustainability performance in developing countries such as Nigeria. The concentration of existing research is primarily on external factors such as government regulations, with little attention on the internal workings of the organisation that influence sustainability initiatives. Though the

competing value framework has been applied on different occasions to different types and levels of organisational performance, its application in assessing sustainability performance in HEIs is understudied (Abbett et al., 2010; Linnenluecke & Griffiths, 2010). This study considers this gap through the investigation of variables of hierarchical culture on sustainability performance in Nigerian HEIs and delivery contributions that are context-specific beyond the Western model. A model that usually prioritises decentralised leadership, reliable data management, and an established office for sustainability and institutional autonomy, which are completely lacking in many African HEIs,

Additionally, the growing global conversations on sustainability have not considered the unique contextual factor of external pressures – coercive, normative and mimetic and their influence on developing nations like Nigeria. Regulators, government agencies, and other formal institutions apply coercive pressures to regulate and moderate institutional activities and operations through policies, regulations, and standards (Hersberger-Langloh et al., 2021). Normative pressure is associated with “professionalisation in the sense that methods and working conditions are defined from a group of members who share a profession” (Cardona Mejía et al., 2019, p. 62). Mimetic pressures, on the other hand, arise from a copycat phenomenon in which organisations replicate the activities and systems of other successful organisations in their field (Martínez-Ferrero & García-Sánchez, 2017). While institutional isomorphism has received wide exploration on sustainability performance in developing countries, there is a paucity of empirical evidence concerning its application and operation in developing nations, particularly in Nigeria (Gabriel, 2019; Iredele et al., 2019), where economic strength, legal framework and cultural variations are significantly different. Also, the reason behind some HEIs being more proactive in their effort towards sustainability than others is not so clear as to how limited resources affect the adoption of

sustainability practices. Studies focus more on the integration of sustainability into the curriculum, research, operations and students' engagement, without much consideration of how government regulations, professional standards and the imitation of established frameworks affect sustainability performance (Abo-Khalil, 2024; Angelaki et al., 2023; Fuertes-Camacho et al., 2019). HEIs have been identified as important promoters of sustainability (Karatzoglou, 2013) but the level of awareness and readiness in developing countries, particularly in Nigeria, has been underexplored. HEIs bear the social duty of advising the host community, teaching students, encouraging staff and the general public on sustainable development because their actions or inactions influence the “economic, social, and environmental” components of the immediate and extended communities (Leal Filho et al., 2019). It is therefore pertinent to address this gap to establish a tailored and embedded policy within a local context, navigating challenges on implementation and boosting potentials towards sustainability through an expanded policy structure and stakeholders' participation.

1.2 Research Questions

This dissertation housed three studies intending to address a set of predefined questions while collectively contributing to the literature on sustainability performance, organisational culture and institutional theory.

The following research questions and sub-research questions addressed each of the studies:

1. What is the current state of sustainability practice in Nigerian higher education institutions?
2. What is the relationship between hierarchical culture and sustainability performance in Nigerian HEIs?
3. What influence does external pressure have on sustainability performance in Nigerian HEIs?

1.3 Organisation of the Thesis

This section presents a comprehensive account of the thesis structure as follows: Chapter 1 comprises the introduction to the essentials of this research, the research and sub-research questions, the research gaps, the thesis contribution to knowledge and the summary of the three research papers. Chapter 2 presents research work that investigates the campuses' sustainability practices in Nigerian HEIs. It investigates the existence and extent of the barriers and strategies to sustainability practices on Nigerian campuses by providing answers to these questions: 1. Can the “Sustainability Tracking, Assessment, and Rating System” (STARS) be used to assess the sustainability practices of Nigerian universities? 2. What are the barriers to sustainability practice in Nigerian HEIs? Leveraging and adapting the STARS framework to collect data from selected HEIs in Nigeria through a semi-structured interview. The results emphasise the nonexistence of a dedicated sustainability department/unit and identify different types of unintentional sustainability practices and the lack of sustainability assessment and monitoring frameworks. This chapter stresses the need for dedicated sustainability policies and support from institutions to integrate sustainability and SDGs into teaching, research and operation of the HEIs in Nigeria.

Chapter 3 analyses the impact of organisational culture on sustainability performance in Nigerian HEIs. Adopting the Competing Value Framework (CVF) as a theoretical lens, hierarchical culture was identified as the prevailing culture in the Nigerian HEIs and outlined the research questions based on the hierarchical culture elements – institutional policies, management and leadership style and how they influence sustainability performance. This chapter describes the significance of institutional policies and leadership style on sustainability, while management style shows limited influence. The multifaceted nature of sustainability requires a balanced approach that incorporates

adaptable policies, creative leadership and participatory management. Specifically, the hierarchical culture describes the internal factors.

Chapter 4 explores the influence of external pressures on sustainability performance in HEIs. It contributes to the literature on institutional theory by leveraging institutional isomorphism and it identifies coercive, normative and mimetic pressure as factors influencing sustainability performance in Nigerian HEIs. These insights were drawn through in-depth interviews with sustainability professionals and academic leaders from 9 government-owned HEIs in the southwestern region of Nigeria. The chapter describes how coercive pressure shapes government policy and how normative pressure streamlines professional standards to strengthen sustainability initiatives. Additionally, mimetic pressure reduced the risk with experimentation by adopting established strategies, models or frameworks from other institutions. The chapter calls for tailored policies, collaborative mechanisms and clear strategies to boost sustainability initiatives and contribute to the knowledge gap by enriching the theory and providing practical solutions for promoting sustainability. Finally, chapter 5 presents the research conclusion, contribution to knowledge, practical and policy implications and highlights some future research directions.

1.4 Interconnection among Papers on Sustainability in Nigerian HEIs

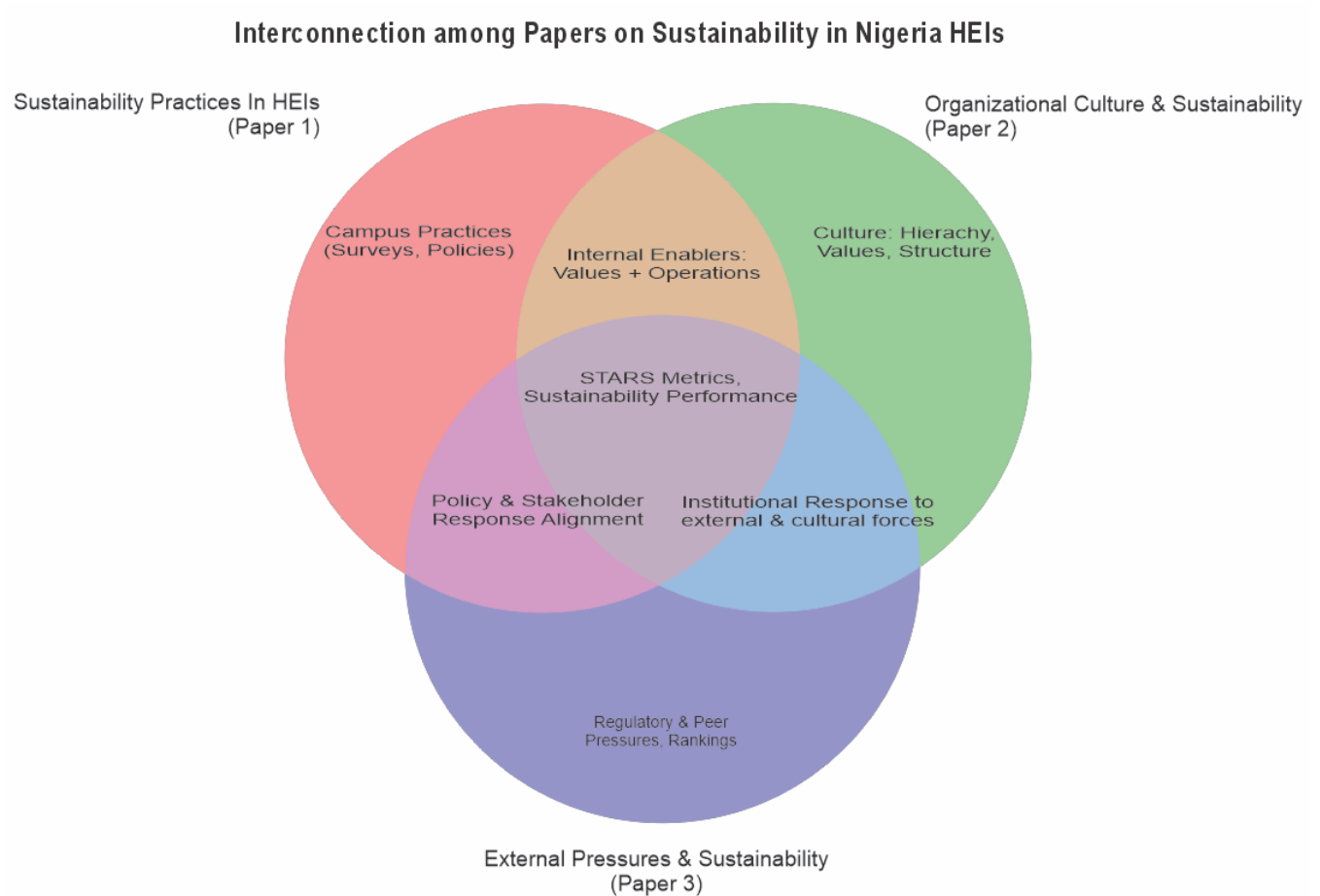


Figure 1: Interconnection among Papers

Collectively, the three papers in this dissertation investigate sustainability performance in Nigerian Higher Education Institutions (HEIs), through different but interconnected dimensions, with a view to creating an in-depth comprehension of the approach and strategies for a sustainable academic atmosphere in Nigerian HEIs. These research efforts incorporate policies, internal culture and external pressure that influence HEIs' performance towards sustainability.

Chapter two leverages the Sustainability Tracking, Assessment and Rating System (STARS) Framework for the provision of measurable indicators to assess campuses' sustainability practices in Nigerian Higher Education Institutions (HEIs). The paper employed a qualitative method, where

faculty, administrators and sustainability officers were interviewed. The results show weak integration of sustainability into the HEIs' operations, a lack of established frameworks for monitoring sustainability performance and the absence of departments committed to sustainability teaching and researching, among other challenges.

Chapter three explores the Competing Values Framework (CVF) in analysing the influence of hierarchical organisational culture dimensions - leadership, policies, and management styles on sustainability performance. A quantitative approach was employed, in which data were obtained from teaching staff across universities in Nigeria. The study reveals that rigid institutional policies emphasising control and formal procedures positively impact sustainability performance, providing structured frameworks to guide initiatives. Leadership styles, defined by top-down decision-making and centralised authority, influence sustainability outcomes. However, rigid management styles focused on predictability and conformity may slow down sustainability outcomes, suggesting a greater need for flexible, participatory approaches.

The third paper applies institutional isomorphism parameters from institutional theory (Coercive, Normative, and Mimetic Pressures) to investigate the influence of external pressures on sustainability performance. This paper adopts a qualitative approach through the engagement of sustainability professionals and academic leaders in Nigerian HEIs in in-depth interviews. The results reveal that government policy is a major driver of sustainability projects in Nigerian HEIs, with concern for academic freedom and autonomy of the HEIs. The conformity of professional bodies and accreditation agencies with national and global norms strengthens sustainability initiatives. Adapting established sustainability frameworks and practices from leading institutions reduces the risk associated with experimentation and promotes creativity.

Connections between the Studies

A bidirectional and mutually complementary relationship exists between the studies; they all present an in-depth understanding of sustainability concerns and prospects in Nigerian HEIs. Studies 1 and 2 demonstrate that strong institutional policies can promote culture to drive sustainability and that the adoption of sustainability may be impeded by a rigid culture and management approach. Therefore, to achieve substantial sustainability results in HEIs, there is a need for structured policies and a supportive culture to support and guide sustainability practices in Nigerian HEIs. Studies 1 and 3 show that external pressures are major drivers of sustainability policies; for example, governments and professional bodies influence policies and decisions around sustainability. Therefore, HEIs should integrate external demands with sustainability practices while preserving institutional freedom. Studies 2 and 3 reveal that rigid forms of culture may affect the acceptability of sustainability practices, as a flexible culture promotes innovation, which is more open to change. Therefore, HEIs should promote a flexible organisational culture to address external pressures on sustainability. Finally, the three papers demonstrate the need for synergy between robust institutional policies, a culture that promotes sustainability and proactive external engagement to promote a comprehensive blueprint for sustainability performance in Nigerian HEIs.

1.5 Contribution to Knowledge

The need to understand how the African HEIs, particularly Nigerian being the most populous nation in the continent, adopt and implement sustainability is will enhance the understanding of other institutions and nations facing similar concerns and opportunities, at a time when most that is understood of campus sustainability is comes from well resourced western universities, Significant future enrolment growth and infrastructure development will happen in places like sub-

Saharan Africa. Analysing sustainability drivers like culture and both internal and external pressures simultaneously will identify the marriage of factors that produce robust sustainability results.

This thesis identifies six significant contributions to knowledge across the chapters. The first confirmed the possibility of incorporating sustainability practices in Nigerian HEIs through the use of the STARS framework. It was used in the presentation of the descriptive analysis in chapter 3, while chapters 4 and 5 relied on the dataset as their dependent variable. The adoption of the STARS framework as a benchmark tool to evaluate sustainability practices in Nigerian HEIs encourages advancement and promotes global compatibility. This thesis equally contributes to the pathway for sustainability in Nigerian HEIs by identifying barriers and suggesting possible solutions to enhance sustainability initiatives. Lack of awareness among stakeholders, financial constraints and attitude limitations are a few of the barriers identified. Addressing these barriers helps to bring a better comprehension of the factors that influence sustainability practices in HEIs.

Chapter 3 offers a novel contribution by leveraging the CVF to assess the impact of organisational culture on sustainability performance within a developing country context. This extension beyond the western boundaries produces a practical insight for HEIs in developing countries. Another unique contribution that offers practical recommendations for HEIs leaders from the second study is the introduction of a new perspective by underscoring the possibility of integrating institutional policy models and versatile management combined with dynamic leadership to enhance sustainability efforts.

The fourth chapter presents a theoretical contribution with the application of institutional isomorphism to sustainability performance in developing countries like Nigeria. The marriage

between sustainability performance and institutional theory in the developing countries' context improves comprehension of factors that influence change in institutional behaviour. This research also provides practical contributions to policymakers and academia by addressing knowledge gaps through advocating for tailored and embedded policies, explicit strategy and strengthened collaborative mechanisms, which will equally improve sustainability outcomes in developing countries' HEIs.

This dissertation produces one of the few empirical studies on HEIs in Nigeria. The majority of the previous research focused on the Western HEIs contexts. This dissertation concentrates on the unique culture, socioeconomic and pressures driving sustainability performance in Nigerian HEIs through the application of existing frameworks such as STARS, CVF and institutional isomorphism to HEIs in Nigerian contexts. This enriches the conversation around campus sustainability and provides comparative views in a global discussion.

Chapter Two

An Investigation of Campuses' Sustainability Practices in Nigerian Higher Education

Institutions

The impetus for campus sustainable practices is growing, spurred by the understanding that institutions can help society develop a more sustainable future. This chapter dives into the unique context of Nigerian universities, exploring their roles in terms of campus sustainability practices and the challenges they face while implementing sustainability initiatives. This chapter investigates sustainability practices through in-depth interviews with HEIs in developing countries. Experts from eight government-owned universities in the southwest region of Nigeria were selected through purposive sampling. The Sustainability Tracking and Rating System (STARS) framework was leveraged as the basis for determining potential sustainability management indicators tailored to the context of Nigeria. The manuscript identifies gaps in present sustainability practices in Nigerian HEIs. This includes a lack of established frameworks for monitoring sustainability performance and the absence of distinct departments committed to sustainability teaching and research. It also clarifies the possibility of assessing sustainability practices in Nigerian HEIs using the STARS framework. The findings show that HEIs adopt a diverse range of sustainability approaches, with a limited degree of engagement and implementation in Nigeria. Therefore, there is an underlying need for concerted efforts to improve sustainability activities in Nigerian HEIs. This manuscript contributes to the body of literature by shedding light on the challenges faced by Nigerian HEIs as their understanding of sustainability practices grows, which has received little attention in previous literature. The manuscript focuses on sustainability initiatives in Nigeria, which may be underrepresented in the literature. It examines sustainability practices within the unique cultural and geographic context of Nigeria, providing

valuable insights into how sustainability is integrated into the operational aspects of universities. It contributes to the Sustainable Development Goals (SDGs), particularly SDG4 (Quality Education), SDG17 (Partnership for the Goals), and SDG11 (Sustainable Cities and Communities), by highlighting the crucial role that HEIs play as unique communities capable of advancing global sustainability through their operations. Examining sustainability practices in Nigerian HEIs sheds light on sustainability approaches within Nigerian campuses and supports a comprehensive understanding of sustainability in HEIs globally.

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MANUSCRIPT BEGINS

2.1 Introduction

Over the past 40 years, HEIs have increasingly sought to play a role in addressing global sustainability challenges. Universities are key players in promoting sustainable practices within their campuses and communities because of the growing awareness of the pressing need to address environmental, social, and economic concerns (McCowan et al., 2021; Schmitz et al., 2010). Nigeria, a nation that is rapidly urbanising and growing in population, has sustainability issues that call for engagement from sectors, including its HEIs (Oyeleye, 2020).

HEIs are considered to have the insight, know-how, and authority to steer the transition and bring about the adjustments necessary for this new paradigm (Arsenault, 2021). Currently, HEIs are encouraged to achieve sustainability by assessing their practices to boost campus sustainability action and convey this intention to their students, workers, and the general public (Faghihi et al., 2015; Ralph & Stubbs, 2014; Žalėnienė & Pereira, 2021).

HEIs have been among the first to sign sustainability declarations. The Talloires Declaration of 1990 was the first statement of university leaders' commitment to sustainability in HEIs, where the leaders of HEIs voiced their profound worries about how environmental degradation, pollution, and resource depletion threaten life on earth (Adams et al., 2018; ULSF, 2015). 499 chancellors and presidents of universities from 54 countries had signed the Declaration as of 2016 (ULSF, 2015). The creation of 17 Sustainable Development Goals (SDGs) has thus created a significant expansion of the obligations of HEIs on both the students and community, thus positioning HEIs as key players in the sustainability journey (UNESCO, 2022; United Nations, 2015). The SDG4-quality education, SDG17-Partnership, and SDG11-sustainable cities and communities have highlighted the vital role HEIs play as unique communities with the potential for exploring and advancing sustainability on a global scale through operations, research, teaching, and knowledge transfer (Dawodu et al., 2022). Therefore, it is expected that the mission and activities of HEIs should embrace sustainability ideals (Ramísio et al., 2019). In addition to promoting environmental stewardship, the incorporation of sustainability principles into HEIs' operations, research and curricula also helps students, faculty, and staff develop a culture of social responsibility and economic resilience (Lambrechts et al., 2013).

However, sustainability in HEIs has taken a variety of forms in different countries. In the global north, it emerged as a student-driven movement in the late 1980s and 1990s. For example, the conversation between Muir and Pinchot on the usage and management of land in the United States, as referred to, has the root of environmentalism, which was traced to the ultimate and romantic movement of writers such as Thoreau (1854) (Vercoe & Brinkmann, 2012). Whereas in the global south, where issues of campus financing, infrastructure, curriculum development, and professional development at universities differ, campus sustainability has been approached more recently as a

scholarly and professional field (Beringer et al., 2008; Yazdani & Dola, 2013). In both contexts, the idea is to align campus practices with the institutions' teaching, research, and service missions, thereby supporting the education of students and the sustainability of the wider community (Harris, 2014). However, the concept and movement of campus sustainability now need to be understood in a global context. With universities worldwide being interconnected and interacting, there is a need to understand the similarities and differences in campus sustainability in different regions, so that best practices can be identified and shared (Dawodu et al., 2022). This paper takes a step in assessing campus sustainability in the Nigerian higher education context.

Nigeria is part of the global South countries and is the most populous country in Africa, with about 223.8 million individuals (Statista, 2023). Nigerian HEIs operate in a distinct sociocultural, economic, and political environment (Emenike Iroegbu & Maxwell, 2017). Their activities are impacted by this feature because of unique organisational dynamics, possibilities, and challenges. Research on Nigeria's HEIs enables the identification of the problems that these institutions confront, thereby facilitating local initiatives aimed at improving the current situation. Despite this global upsurge in sustainability initiatives, little is known about how much Nigerian HEIs have adopted and applied sustainable methods (Y. A. Adenle et al., 2021). Gaining insight into Nigerian institutions' operations will broaden the body of information about campus sustainability around the world. This enables one to juxtapose other countries' experiences, thus facilitating cross-cultural education and the sharing of ideas.

According to UNESCO's (2014) examination of HEIs in Nigeria, as well as other HEIs in sub-Saharan Africa, education for sustainable development is still a relatively new idea. This suggests that if HEIs want to be relevant in the twenty-first century and be able to provide the kind of education that has been adopted in other areas of the world, especially developed countries, this

aspect of education must be given significant attention (B. Samuel, 2016). Nigeria has a wealth of natural resources and a diverse population, but the nation also faces serious resource depletion, social inequality, and environmental deterioration (Gutti et al., 2012), which highlights the urgent need for sustainable development. Many have claimed that sufficient and purposeful education is necessary to tackle the complicated nature of sustainable development (Y. A. Adenle et al., 2021), Thus making most countries position their HEIs as a major player in setting the course for a sustainable future through the development of young people, the values, knowledge, and skills necessary to help society as a whole move towards sustainable lifestyles (Babalola, 2016).

However, despite the growing emphasis on sustainability in higher education around the world, Nigeria, being a developing nation, is struggling with several economic, social, and environmental issues impeding sustainable development (B. Samuel, 2016). In addition, there is a paucity of empirical studies and research findings on the state of sustainability practices in Nigerian HEIs. The absence of adequate empirical research impedes attempts to evaluate the status of sustainable practices on campuses at the moment, pinpoint obstacles to sustainability integration, and create evidence-based plans for sustainability promotion in Nigerian universities. Also, HEIs have been identified as important promoters of sustainability (Karatzoglou, 2013) but the level of awareness and readiness of HEIs in such countries has not been adequately explored. Tertiary institutions bear the social duty of advising the host community, teaching students and encouraging staff and the general public on sustainable development because their actions influence the “economic, social, and environmental” components of the immediate and extended communities (Leal Filho et al., 2019).

This research contributes to the literature by providing insight into Nigerian HEIs' emerging knowledge of sustainability practices. The study identifies challenges to sustainability in Nigerian

HEIs, including a lack of awareness of sustainability concepts among stakeholders, as well as financial constraints and attitude limitations. Examining these barriers helps to bring a better understanding of the factors that influence sustainability practices in HEIs (Alhazmi et al., 2023; S. Babalola, 2016).

2.2 Background

This section focuses on campus sustainability background by discussing sustainability in HEIs, the roles of HEIs in sustainability initiatives, and sustainability indicators for HEIs practices, particularly in Nigeria, before discussing the STARS framework.

2.2.1 Sustainability in HEIs

Sustainable HEIs seek to foster a culture of sustainability and aid in the global transition to a more resilient and sustainable future by incorporating sustainability concepts into their teaching, research, operations, and community engagement (Gómezgutiérrez & Sepúlveda, 2017; Serafini et al., 2022). According to Velazquez et. al. (2005), theoretically speaking, the process of transforming a HEI into a sustainable institution begins when an individual or a collection of individuals in the facility dreams or imagines that the members and stakeholders behave in accordance with the ideology of “sustainable development” as defined by the Brundtland Commission in 1987.

The way sustainability is integrated into HEI has transformed over the past few decades. It is the result of shifting social demands, increased knowledge of global ecological issues, and acceptance of universities as catalysts for social change (Wright & Nyberg, 2017). HEIs’ early sustainability initiatives typically concerned environmental management (e.g., energy conservation, waste minimisation, pollution prevention) and had ‘decontextualised’ sustainability as HEIs’ primary

responsibility (Leal Filho et al., 2019). More recently, there has been an increasing awareness of sustainability as encompassing three equally important dimensions, environmental, social and economic, and many HEIs are responding to this by pursuing campus-level operational or group approaches to sustainability that integrate the three dimensions more comprehensively into campus operations, academic programmes and institutional culture (Lambrechts et al., 2013). The motivations for a specific HEI to embark on sustainability initiatives include institutional goals, student desires, faculty engagement, regulatory obligations and community demands (Lozano et al., 2015).

The United Nations and its partners launched the Higher Education Sustainability Initiative (HESI) to respond to and evaluate the 2030 Agenda for Sustainable Development at the international scale, seeks to bridge the gap between higher education, science, and policymaking by increasing the sector's visibility in promoting sustainable development, organising multi-stakeholder conversations and initiative, and exchanging best practises (UN, 2022). For instance, the HESI special event initiative in 2021 concentrated on education for sustainable jobs through curriculum updates to create a workforce for a sustainable and equitable future, improving education, career advising, and job placement procedures to encourage sustainable careers and improve processes for communication between employers and educators (UN, 2022). These emphasise even more the necessity for HEIs to step up sustainability initiatives.

Despite the growing efforts by numerous institutions of higher learning working to integrate sustainability into their systems for instruction, research, governance, and physical operation during the past 20 years (Figueiró & Raufflet, 2015; Hoque et al., 2017; Lozano et al., 2015; Ramos et al., 2015), there are still obstacles to be resolved through the use of national and international

policy architectures that leverage the platforms provided by HEIs to achieve sustainability (Horhota et al., 2014).

Sustainable institutions do not avoid responsibility in the pursuit of a better future; instead, they take part in the production and dissemination of scientific knowledge and exhibit leadership that promotes fundamental change (Too & Bajracharya, 2015). It is essential to recognise that the sustainability concept encompasses more than just the use of sustainability literature in academic writing. The pedagogical method and techniques, which may include thematic conferences, declarations, letters, or initiatives, will also decide how much sustainability is represented in educational programmes (Lozano et al., 2015).

2.2.2 Sustainability and HEIs in Nigeria

Sustainability in HEIs in Nigeria is gaining traction, despite ongoing obstacles. Universities in Nigeria are progressively recognising the relevance of sustainability and incorporating it into their policies and practices (A. Babalola & Olawuyi, 2021). The University of Ibadan, for example, has developed the Centre for Sustainable Development (CESDEV), which focuses on sustainability research, training, and community participation (the University of Ibadan, n.d.).

Similarly, the Centre for Sustainable Development (CSD) at the University of Lagos has integrated sustainability into its curriculum, offering courses on environmental management, climate change, and sustainable development (University of Lagos, n.d.). Furthermore, certain Nigerian institutions are implementing environmentally friendly practices such as energy conservation, waste management, and green building initiatives (Onwuliri, 2022).

Despite obstacles that exist in incorporating sustainability into Nigerian HEIs, such as restricted finances, poor infrastructure, and a lack of faculty competence, there is a growing

acknowledgement in Nigerian HEIs of the necessity for sustainability education and awareness (Onwuliri, 2022). In order for Nigeria's HEIs to remain relevant in the twenty-first century, they must unavoidably intensify their operations in order to adhere to accepted standards for attaining sustainable development on campus (B. Samuel, 2016).

Sustainability has been a major priority in Nigerian HEIs, with many universities and polytechnics making efforts towards launching sustainability projects, incorporating sustainability into their curriculum, and engaging in sustainable practices (Abenu et al., 2024).

2.2.3 Sustainability Indicators for HEIs Practice

Nixon (2002) asserts that when analysing and promoting campus sustainability, the primary objectives should be to link the institution's stance on sustainability to sustainable goals; identify the problems and techniques that enhance institutional performance; and enable the development of a sustainability-focused culture.

In HEIs, it is customary to evaluate sustainable performance as it opens up new avenues and encourages academics to share their empirical research findings (Leal Filho et al., 2023; Lozano et al., 2015). The use of sustainability indicators is expanding across several businesses, including higher education (Hassan & Morrison, 2011). A meaningful assessment of sustainability requires three areas of sustainability since sustainable development cannot be thought of without visualising a balance between the environment, society, and economics (Silva & Almeida, 2019).

These indicators are connected to Elkington's (1998) “Triple Bottom-Lines” concept, which encompasses environmental, social, and economic elements that are commonly referred to as the “three pillars of sustainability” (Hacking & Guthrie, 2008). The need for the “integration—particularly of social, economic and ecological considerations — is the essence of the concept of

sustainability and must be a central consideration in the design and implementation of sustainability-based assessment” (Gibson, 2006, p. 277).

Although the indicators for every institution focus on environmental, social, and economic, and participants are the same across institutions, there are unique procedures for the different institutions that must be taken into consideration (Moganadas et al., 2013). The Organisation for Economic Cooperation and Development (OECD) started managing environmental indicators in 1989 with the goal of evaluating environmental advancement in its member nations (OECD, 1993). It defines an indicator as “a parameter or a value derived from parameters, which provides information about a phenomenon” (OECD, 1993, p. 5).

Sustainability indicators are viewed as suitable mapping tools for the environmental knowledge base. Additionally, they aid in developing public policies, simplifying research and reports, and contrasting various local and national circumstances (Silva & Almeida, 2019). Indicators are used to quantify the gap between a community's existing situation and its targets. It should be used as a tool to help promote sustainable practices and realistic public policies (Silva & Almeida, 2019). Therefore, using sustainability indicators may be beneficial in supporting decision-making, assisting organisations in fund attribution, allocating valuable natural resources, comparing processes and situations, noting trends, alerting about and foreseeing future circumstances, and many other purposes (Silva & Almeida, 2019).

HEIs utilise a variety of approaches to report sustainability metrics. The International Standard Organisation (ISO) 14000 series, particularly ISO 14031, EMAS (ECOManagement and Audit Scheme), Social Accountability 8000 standard, and Global Reporting Initiatives GRI principles are the most commonly utilised manuals in 2004 (Lozano, 2004). The GRI (Global Reporting Initiative) is the finest alternative among the several guidelines, but it is crucial to note

that this technique was not created by educational institutions, which is why it has to be modified for use with tasks carried out in these institutions (Lozano, 2004, 2006; Morhardt et al., 2002). The GRI approach has the potential to combine the many approximations of diagnostics and sustainability reporting techniques being used in HEIs (Adkins et al., 2003; Lozano, 2006). The GRI framework offers a lot of helpful information in its reporting programmes. However, its relevance to HEIs is not total and needs to be modified to take into account other dimensions, including teaching, research and operations (Moggi, 2023).

In a study by Silva and Almeida (2019), it was observed that the majority of the ideas from the instruments examined did not take into account the social, environmental, and economic components of sustainability. Even though some authors, including Cole (2003), Lozano (2006) and Oliveira (2015), attempted to develop a method for evaluating the sustainability of HEIs, in a broad sense, the tools either focused on just one or two dimensions or were impractical because of the numerous indicators put forth. To create an instrument that considered the three dimensions of sustainability, taking into account the distinctive features underlying the reality of institutions of higher education, including teaching, research, and extension activities, Silva and Almeida (2019) consider six items: academic, administrative, operations and services, teaching, research, and extension. In their articles, 37 indicators are taken into consideration to help with the assessment of sustainability in HEIs (Silva & Almeida, 2019). It is a plan built on research from both domestic and international studies that outlines changes to provide quantifiable indicators, diagnose the current state of affairs at the institutions under study, and function as a benchmark for comparison between other HEIs. The STARS is one key framework specifically designed for HEIs to measure sustainability outcomes. STARS is a comprehensive framework for monitoring and reporting sustainability outcomes in HEIs (Lidstone et al., 2015).

2.2.4 Sustainability Tracking, Assessment & Rating System (STARS)

The sustainability performance of higher educational institutions like colleges, polytechnics and universities is assessed and measured using a comprehensive framework known as “STARS” (STARS), which was developed by the “Association for the Advancement of Sustainability in Higher Education” (AASHE). HEIs may analyse their sustainability performance using the Sustainability Tracking, Assessment & Rating System (STARS), a thorough self-reporting methodology (AASHE, 2022). Through community colleges to research universities, STARS aims to involve and honour all levels of HEIs (Lidstone et al., 2015). STARS, which was first released in 2009, has gained recognition as a reliable data source that offers a comprehensive picture of campus sustainability (Urbanski & Filho, 2014). With the release of STARS Version 2.0 in 2013, the initial reporting architecture was enhanced, and STARS was made available to all HEIs globally (Urbanski & Filho, 2014).

The framework includes both entryways for recognition for institutions making their initial steps toward sustainability, as well as long-term sustainability goals for institutions that excel (AASHE, 2022). Its analysis assists HEIs in determining which measurable characteristics will become an aspect of the sustainability culture that is growing in the HEIs that are participating in this effort (Wigmore & Ruiz, 2010). Participating HEIs provide information about their institution's commitments to sustainability and performance, logging that information in the online Reporting Tool, securing confirmation that the information is true and fulfils credit criteria, and finally providing a report to gain public recognition (STARS, 2019).

STARS's objectives are (STARS, 2019, p. 1):

- “Provide a framework for understanding sustainability in all sectors of higher education.

- Enable meaningful comparisons over time and across institutions using a common set of measurements developed with broad participation from the campus sustainability community.
- Create incentives for continual improvement toward sustainability.
- Facilitate information sharing about higher education sustainability practices and performance.
- Build a stronger, more diverse campus sustainability community”.

In the scholarly literature on sustainability evaluation and disclosure in higher education, this method has gained several accolades (AASHE, 2022; STARS, 2019). Addressing sustainability challenges in Nigeria requires a framework for the evaluation of campus sustainability within the HEIs' campuses in Nigeria (Y. Adenle et al., 2020). To accomplish these massive duties, it is necessary to put up sustainable appraisal indicators that correspond with the conditions found on Nigerian campuses.

The STARS framework was chosen not only because there is no existing framework to measure sustainability performance in Nigerian HEIs, but also for its HEIs assessment usage. It has over 900 participants from 40 countries, demonstrating its global reach and acceptance by HEIs all over the world (AASHE, 2023). STARS was identified as one of the two most widely used HEI sustainability assessments in developing a sector-specific indicator set alongside UIGreenMetric (Horan & O'Regan, 2021). Participating in STARS allows Nigerian universities to compare their performance with other institutions around the world and measure their sustainability initiatives against global standards. Global benchmarking encourages knowledge exchange, identifies optimal practices, and calls for ongoing improvement in sustainability

performance. Through the utilisation of STARS, Nigerian HEIs can enhance their sustainability efforts and contribute to national and global sustainability goals.

The literature on the contributions of Nigerian HEIs to the advancement of sustainable practices is scarce, especially when it comes to the application of frameworks such as STARS. Nonetheless, a wealth of research exists on sustainability evaluation and disclosure in HEIs throughout the world, but more of it needs to examine sustainability performance and the difficulties associated with it in HEIs in Nigeria. Therefore, the paper aims to investigate the role of Nigerian HEIs in advancing sustainable practices, as well as the challenges these institutions encounter in doing so. In light of this, the research questions this paper raises include:

1. What adaptations are needed for the Sustainability Tracking, Assessment, and Rating System (STARS) to be effectively used in Nigerian universities
2. What are the barriers to sustainability practice in Nigerian HEIs?

2.3 Methodology

The study adopts a qualitative approach utilising semi-structured interviews to address the research questions. A purposive sampling (Nyimbili & Nyimbili, 2024) of experts from government-owned universities in the southwest region of Nigeria was used. The research questioned if the “Sustainability Tracking, Assessment, and Rating System” (STARS) could be used to assess the sustainability practices of Nigerian universities and, if so, what challenges stand in the way of doing so. This is because the southwest region has the oldest and highest number of HEIs (Doris, 2023), and the lead author has over a decade of work experience in some HEIs in the region. Selection criteria for interviewees included expertise, involvement in campus sustainability initiatives and/or representation from the administrative or management team. These criteria allowed the researcher to gather a variety of perspectives that reflect the multidimensional nature

of campus sustainability initiatives, including views on technical expertise, strategic leadership perspective and practical expertise. This approach improved the richness and depth of the research findings and aided a more comprehensive understanding of the dynamics, challenges, and opportunities related to campus sustainability. The semi-structured interview guide comprised open-ended questions and prompts designed to explore participants' perspectives on sustainability practices within their Nigerian university. The interview guides cover areas of STARS indicators such as current sustainability initiatives, best practices, institutional policies, challenges and barriers and opportunities for improvement.

The Southwest region of Nigeria has 18 government-owned universities, which were all contacted for interviews either by phone or email. However, only eight universities responded and participated (see *Table 1*). They are “University of Lagos, Akoka; University of Ibadan, Ibadan; Federal University of Technology, Akure; Olabisi Onabanjo University, Ago Iwoye; Ladoko Akintola University of Technology, Ogbomoso; Lagos State University, Ojo; Tai Solarin University of Education, Ijebu Ode; and Osun State University, Osogbo”. Some universities excused their attendance on the grounds of their hectic schedules, adherence to university regulations, or lack of experience in the sustainability field.

Table 1a: Sample Frame

S/N	University Name	Location	Response Status
1	Adekunle Ajasin University	Ondo	Not Responded
2	Ekiti State University	Ekiti	Not Responded
3	Federal University of Agriculture, Abeokuta	Abeokuta	Not Responded
4	Federal University of Health Sciences	Ila Orangun	Not Responded

5	Federal University of Oye-Ekiti	Ekiti	Not Responded
6	Federal University of Technology	Akure	Responded
7	Ladoke Akintola University of Technology	Ogbomoso	Responded
8	Lagos State University	Ojo	Responded
9	Lagos State University of Science and Technology	Lagos	Not Responded
10	Obafemi Awolowo University	Ile-Ife	Not Responded
11	Olabisi Onabanjo University	Ago-Iwoye	Responded
12	Ondo State University of Science and Technology	Okitipupa	Not Responded
13	Osun State University	Osogbo	Responded
14	Oyo State Technical University	Ibadan	Not Responded
15	Tai Solarin University of Education	Ijebu Ode	Responded
16	University of Ado Ekiti	Ado	Not Responded
17	University of Ibadan	Ibadan	Responded
18	University of Lagos	Akoka	Responded

Source: Researchers Computations, 2024

One interviewee was chosen from either the management team, faculty, staff, or administrator of each of the eight universities who were knowledgeable about the campus sustainability programmes to respond to questions in the interview guide (see Appendix 1

). Some of these interviews were conducted and recorded physically and virtually with the permission of the respondents. The interviewees were high-profile and experienced members of the university – they are either members of the management teams or faculty, staff, or administrators who are informed on sustainability-related matters and activities. Also, no

interviewee has stayed less than 10 years in the service of their respective universities. The interviewer assured the participants of confidentiality and anonymity and that all data collected would be used for research purposes.

After the recorded interviews were transcribed, the transcriptions were imported into the NVivo software, where they were sorted into nodes for various themes, coded by assigning nodes to text (excerpts), and then analysed to find patterns, relationships and themes (Naeem et al., 2023). It was subjected to thematic analysis (Braun & Clarke, 2012) to find recurring themes, patterns, and significant insights regarding sustainability practices and the barriers affecting their actualisation in the Nigerian context. The sampled universities were assigned the letter “U” during the analysis. e.g. U1, U2, U3, etc. After the summary of the interviewees’ details (see *Error! Reference source not found.*), the two sections of the results address each of the research questions. Conducting data analysis with NVivo offered a framework for carrying out thorough, repeatable, and effective qualitative research as well as mixed-methods research (Allsop et al., 2022; Chan & Ananthram, 2020).

Table 2b: Demographic Data

University's ID	Sex	Age	Educational Level	Years of Experience
U1	Male	>=46	Ph.D	11 to 15
U2	Male	>=46	Ph.D	26 to 30
U3	Male	41 to 45	Ph.D	11 to 15
U4	Female	>=46	Ph.D	26 to 30
U5	Male	>=46	Ph.D	26 to 30
U6	Male	>=46	Ph.D	21 to 25

U7	Male	>=46	Ph.D	21 to 25
U8	Male	>=46	Ph.D	26 to 30

Source: Researchers Computations, 2024

2.4 Results

The main themes that emerged after conducting the thematic analysis process include general sustainability practices, framework, management and governance, engagement, curriculum, innovation and research. These themes arose as the analysis progressed – that is, as researchers coded the data, noticed similarities and then grouped them into meaningful themes. **Error! Reference source not found.** in the section one area shows the outcomes relating to research question one; **Error! Reference source not found.** in the section two area shows the outcomes of research question 2. The details that accompany these figures provide an overview of the sampled universities' sustainability initiatives as well as the challenges associated with implementing these initiatives.

Project Map for RQ1

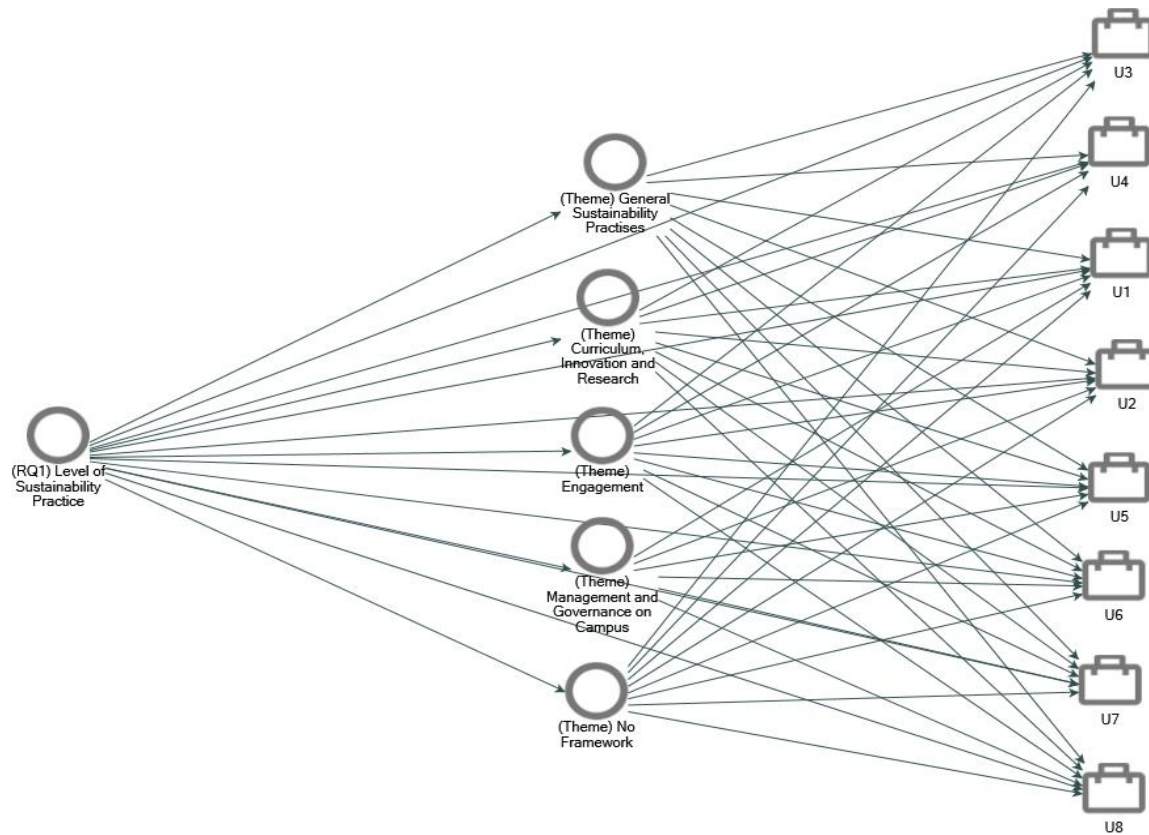


Figure 2: Project Map for RQ1

All eight universities engage in at least one sustainability practice. However, some are intentional while some are unintentional, U3 said, “As I said, they are not termed sustainability, but in a way, they relate to sustainability”, while U1 noted that “some activities are there unintentional for the university”. Two of the universities have adopted the SDGs. In fact, U5 has a unit set up for that purpose. The findings also revealed that some universities understand the concept of sustainability. For example, U1, U6, U7 and U8 key into the global view and vision of sustainable development. This was confirmed by U1 that “the university has a vision which the present Vice Chancellor had also taken firm on, that the university is a future-ready university”.

Based on the data analysed, all the universities included sustainability ideas in their institution's academic curriculum and programmes, U3 affirmed this when he stated that “we do have elements of sustainability and sustainable practices in some of the courses that we teach, equally

U6, U7, and U8 reiterated that all of their respective institutions have mandated that students learn about sustainable relevant topics in their courses.” However, none of the universities have courses or fields on sustainability. U1 said, “But to centralise a curriculum that is sustainable in focus, not aligning or being biased to a particular course, does not presently exist”. Only U5 assured that improvement has been made at the postgraduate level to introduce courses by their next academic session. “We have developed some postgraduate courses on sustainability. So, these courses now will soon be approved by the centre of the university and will be starting,” and U4 said, “we do not have a department that is dedicated to that”. They all agreed that the management of their institutions encourages their staff to conduct research and innovation that is sustainability-focused. Please see *Table 3* for more information.

Table 3: Summary of Themes on the Level of Sustainability Practice

Themes	Initial Codes	Universities								Results	
		U1	U2	U3	U4	U5	U6	U7	U8	Yes	No
Sustainability Practices	Sustainable vision	✓	×	×	×	✓	✓	✓	✓	5	3
	Conservation of resources	×	✓	×	✓	×	✓	✓	✓	5	3
	Adoption of SDGs	✓	×	✓	×	✓	×	×	×	3	5
	Sustainability units or programmes	✓	×	✓	×	✓	×	×	×	3	5
	Unintentional sustainability practices	✓	×	✓	×	×	×	×	×	2	6
	Courses on sustainability	✓	✓	✓	✓	✓	✓	✓	✓	8	0

Curriculum, Research and Innovation	Existing field or department on sustainability	x	x	x	x	x	x	x	x	0	8
	Sustainable innovative idea	✓	✓	✓	✓	✓	✓	✓	✓	8	0
	Sustainable research is encouraged.	✓	✓	✓	✓	✓	✓	✓	✓	7	1
Engagement	Public engagement	x	✓	x	x	x	x	✓	x	2	6
	Student engagement	✓	x	✓	x	✓	✓	✓	✓	6	2
	Partnership with external institutions	✓	x	x	✓	x	✓	✓	x	4	4
	Town and gown relationship	x	✓	✓	x	x	✓	x	✓	4	4
Management and Governance on Campus	Supportive management	✓	x	x	x	✓	✓	x	x	3	5
	Sustainable structure	x	✓	x	x	x	x	✓	✓	3	5
Framework	Framework	x	x	x	x	x	x	x	x	0	8
	Other methods apart from the framework	x	✓	✓	✓	x	x	x	x	3	5

Talking of engagement, a few of the institutions engaged with external institutions and organisations, while some did not. U1 engaged with waste management bodies for recycling and there are “bodies who have also come on campus to do what's known as recycling bazaar”. U7

understands the need for universities to collaborate with external organisations when he said, “I will tell you authoritatively that for this type of programme to be sustained, there must be effective and strategic collaborations with other institutions.

Students’ engagement is another theme generated during analysis. Six of the universities engage students in sustainability activities, “there is a collaboration between the staff and students, so they can train our students on those areas of sustainability,” U8 stated. “With some students who are committed to committing their time and effort into practising the different aspects of sustainability on campus,” said U1. The town and gown relationship is another name used by four of the universities (i.e. U2, 3, 6 and 8) to represent public engagement that engages in the activity. It is usually a forum where issues connecting the university and community are discussed. According to U8, “At present we have an institution and community forum where the issue of student welfare and disposal system or manager management system is being discussed and how we control erosion from the school to the town.”

Six of the universities have institutional management structures that are in support of sustainability initiatives, but the other two do not have such institutional structures in place. In response to the research on institutional management structure, U1 stated that “the university has now developed a culture of environmental sustainability, where a unit is now championing the cultural behaviour, the material evaluation and infusing communal participation in environmental sustainability and sustainability as a whole.”

None of the universities has a framework to track the sustainability practices on campus. In response to the question: Is your institution currently using a framework to assess and track sustainability initiatives? U7 and U1, respectively, responded: “Presently there is no framework for measuring or for tracking the activity of sustainability, but we are trying to improve on that”,

and “The university had not established a definite framework for assessing its compliance with sustainability indicators.” However, some universities employ some informal methods of tracking sustainability performance, for example, U3 stated, “Talk of things that are informal, like maybe you see some management people go around and then if they realise the campus is dirty or whatever, they call on the unit that is supposed to work on them.”

Section Two

This section delves into the exploration of the barriers to the implementation of sustainability practices in Nigerian HEIs. This is important for identifying the issues that need to be addressed to ensure the successful integration of sustainability initiatives. Barriers refer to the set of factors that stand in the way of adopting and integrating sustainability practices in universities and colleges. They can be different, ranging from lack of awareness, financial constraints, Government and institutional policies and other challenges. These barriers must be identified and addressed to successfully integrate sustainable practices into Nigeria's HEIs.

Project Map for RQ2

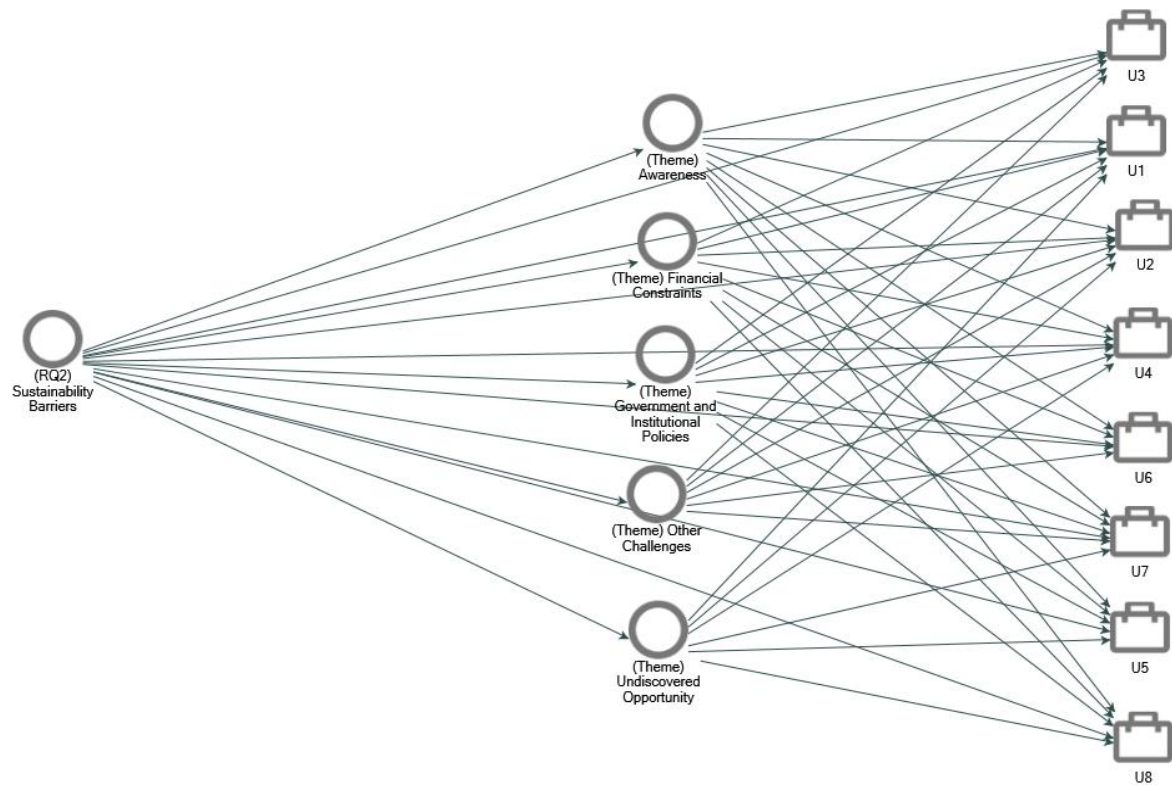


Figure 3: Project Map for RQ2

The level of awareness of what sustainability represents is very low in most of the universities sampled in Nigeria. U5, one of the two universities with a sustainability unit, said: “A lot of people, even in academia, do not understand what it is all about and in the whole of the country, now I am sure not the majority of the universities are not doing anything on sustainability.” However, U4 confirmed that the university is making efforts through training and workshops to create awareness. Please see **Table 4** for more information.

Table 4: Summary of Themes on Sustainability Barriers

Themes	Initial Codes	Universities								Results	
		U1	U2	U3	U4	U5	U6	U7	U8	Yes	No
	Low Awareness	✓	✓	✓	✓	✓	x	x	✓	6	2

Lack of awareness	More Awareness	x	x	✓	x	x	✓	✓	x	3	5
Financial Constraints	Less Funded	✓	✓	✓	✓	✓	✓	✓	✓	8	0
	Looking Elsewhere for Funding	x	✓	x	✓	✓	x	✓	x	4	4
Government and Institutional Policies	Government Supportive Policy	✓	✓	✓	✓	✓	✓	✓	x	7	1
	Institutional Strategy and Policy	✓	x	✓	✓	✓	✓	x	✓	6	2
Other Challenges	Attitude Problem	✓	✓	x	✓	x	✓	✓	x	5	3
	Leadership Problem	x	✓	x	x	x	x	x	x	1	7
	Non-Appreciation of Sustainability	x	x	✓	x	x	x	x	x	1	7
Undiscovered Opportunity	Create more Jobs	x	x	x	x	x	x	✓	x	1	7
	Food Security	x	x	x	x	x	x	x	✓	1	7
	Ownership System	✓	x	x	✓	x	x	x	x	2	6
	Scholarship Opportunity	x	x	x	x	✓	x	x	x	1	7
	Sustainable Health	x	✓	x	x	x	x	x	x	1	7

To respond to the question on financial constraints, all the universities sampled agreed that the level of financial support by the government is abysmally poor. According to U1, “Nigerian institutions are less funded”, U2 “the federal government find it difficult to fund Nigerian universities effectively” and U3 “I believe that funding is a constraint to implementation of our

sustainable practices.” In an effort to get funding universities had to look elsewhere, U5 said: “We have been looking for funding outside now, we have not succeeded in doing that, but we are already doing that. Get in touch with our partners and agencies” and U2 said, “what university do was to eventually look inward to be able to generate funds to be able to maintain any of these to sustain many of these innovations.”

Despite little or no funds, the government has put in place policies and strategies to promote sustainability initiatives. This was confirmed by U5 when he said: “Nigeria has bought in this because at the Presidency we have SDG office, we have a special adviser, and they have been doing lots in terms of training of physical structures in our universities.” U6 explained, “I would say government policies are supporting the promotion of sustainability and sustainable management and we've gotten directives from the Federal government and State government on how we should go.” Equally, the leadership of the universities are in support of sustainability initiatives through policies and strategies. U4 mentioned that: “we have a very supportive governing Council and so the administration can really go ahead with all their lofty policies of sustainable goals, and we are doing that beautifully well.”

Apart from awareness and funding, attitude is another problem facing the actualisation of sustainability initiatives in some of the sampled universities. According to U7, “attitude problem but I think we are now overcoming it. When you introduce change, about people's attitude, something that we have already become perpetual for them to have that attitude change, it takes time.” U6 said, “People are used to their old habits and change is something that must come, that will always come and then because of that, there is a need for us to engage in change management activities.”

In response to questions on undiscovered opportunities for furthering sustainability efforts on campus, job creation, food security, sustainable health, and scholarship opportunities were mentioned by some of the universities.

2.5 Discussion

The primary objective of this chapter is to investigate how Nigerian universities may integrate sustainable practices through the application of the Sustainability Tracking, Evaluation, and Ranking System (STARS). Also, what are the barriers to sustainability practices in Nigerian HEIs?

The result of this research demonstrates a diverse scenario of sustainability practices among the Nigerian HEIs (HEIs), and their sustainability engagement is emphasised with practices that are both intentional and unintentional. One university is building its course materials on the UN Sustainable Development Goals (SDGs), demonstrating its consciousness of sustainable development. Some truly help achieve sustainability goals, while others do not overtly declare their sustainable methods. This degree of heterogeneity highlights the need for more focused, uniform measurements that apply to all departments and may be utilised to coordinate efforts with sustainability objectives (Tumbas et al., 2015; U. N., 2017).

One critical aspect is that university representatives need to get a proper grasp of sustainability principles (Hoque et al., 2017). However, most of the universities do uphold the concepts, although some substantiate them according to their vision or dream of sustainability. This aspect of sustainability is crucial because otherwise there is no way to make sure that local activities provide substantial contributions to the development of global sustainability (Leal Filho et al., 2019).

These findings about the incorporation of sustainability education into academic curricula were supported by interviews. It is an undeniable reality that all universities incorporate sustainability

ideas into some of their programmes and curricula. Ironically, not one of them has a unit established specifically to provide sustainability as a major course. This gap indicates opportunities for institutions to improve their sustainability course content by offering specialised courses or modules that aim to offer a comprehensive understanding of sustainability issues. This corroborates the view of others that teaching sustainability as an independent subject or course would be more beneficial (Gamage et al., 2022). However, for effective and efficient learning, there is a need for the combined application of the principles of “interdisciplinary, trans-disciplinary, and self-regulated learning” (Scarff, Seatter & Ceulemans, 2017).

The majority of implementation models were adopted by the universities, which helped with the research and development of sustainability-focused initiatives. The research focus underlines the fact that research is an essential tool for achieving this goal by advancing the technological capacity and knowledge intended to address these kinds of challenges along the way. However, some universities do not have distinct departments or offices devoted to sustainability research, which suggests that this area needs to be improved. One way to do this is by creating centres or units for sustainability research, which would serve as the focal point for sustainability research initiatives. A dedicated unit should be given charge of spearheading the initiative and delivering the desired outcomes (Filho et al., 2019).

The themes of community collaboration and partnership with outward-facing organisations come up as very topical in ensuring that sustainability in the Nigerian HEIs is incoming. There are some universities that are seriously connected with outsiders and organisations on sustainability efforts and might benefit more if they developed a stronger partnership to equip themselves with the resources and experience. Partnerships can provide the range and adaptability needed to address difficulties more successfully. Cross-sector partners can produce more comprehensive and long-

lasting solutions to current environmental concerns by cooperating and utilising their respective expertise while pooling resources (Clarke & MacDonald, 2019; Nagy, 2017; N. Samuel & Clarke, 2022). Besides, student engagement also significantly helps to build a culture of sustainability with both on-campus and off-campus developments (Brugmann et al., 2019; Cairo, 2011).

No existing apparatus for monitoring sustainability practices can be considered a key discovery of this study. Whilst some universities apply their unofficial measurements to check sustainability performance, these measurements are not formalised, thus the possibility of evaluating progress and identifying weaknesses is hindered. However, doing so would require putting together relevant schemes, very likely based on existing models such as the STARS (Urbanski & Filho, 2014). In HEIs, it is customary to evaluate sustainable performance as it opens up new avenues (Leal Filho et al., 2023; Lozano et al., 2015). This could yet accelerate the process of making their sustainability practices more sustainable.

Discussing the barriers to sustainability practice in Nigerian HEIs, one significant barrier identified by this study is the reduced degree of knowledge of sustainability principles among stakeholders in Nigerian HEIs. Despite efforts to raise awareness through workshops and training, many individuals, including academia, lack a clear understanding of what sustainability requires. It is imperative that faculty members play a key role in enhancing the awareness and understanding of sustainability in higher education (Alkhayyal et al., 2019). This absence of understanding hinders the fostering as well as execution of sustainability practices within institutions (Lopes et al., 2018).

Financial constraints arise as a considerable barrier to sustainability practice in Nigerian HEIs. The inadequate funding by the federal government poses difficulties in preserving sustainability efforts (Suryanarayanan, 2021), together with applying needed facilities and programmes. Subsequently, universities are forced to look for different sources of financing, frequently with collaborations,

outside firms, as well as companies, to maintain their sustainability initiatives (Oteyi et al., 2023). Although federal government policy supports sustainability initiatives, the degree of monetary assistance given might not suffice to execute these efforts. Nonetheless, institutional management plays an essential function in driving sustainability by encouraging policies combined with techniques. Despite the difficulties presented by financing restraints, universities with helpful governing councils as well as management teams can efficiently pursue sustainability goals.

Attitudinal barriers present obstacles in applying sustainability efforts, as resistance to change, as well as entrenched routines, interrupt development. Conquering these perspectives would require joint initiatives in administration together with continuous awareness-building tasks (Ayarkwa et al., 2022). While some universities recognise the demand to resolve mindset troubles, it continues to be a recurring obstacle that calls for continual initiatives to address. However, the attitude was found to be an “insufficient condition for the achievement of sustainability goals” (Leiserowitz et al., 2008). Regardless of the barriers encountered, there are possibilities for advancing sustainability initiatives within Nigerian HEIs. These changes include job creation, improving food security, promoting sustainable health practices and leveraging scholarship chances. Discovering and profiting from these possibilities can help overcome existing barriers and progress sustainability agendas within institutions.

This discussion provides several insights into the scholarly literature on sustainability practices at Nigerian universities. These include the many sustainability practices used by HEIs in Nigeria and the corresponding prevalence of both intentional and unintentional engagement. The observed diversity sheds insight into the complexities of Nigerian HEIs' evolving understanding of sustainability practices, which have not received much attention in the existing literature. Additionally, the research highlights barriers to sustainability in Nigerian HEIs, such as a lack of

awareness of sustainability principles among stakeholders, financial constraints and attitude limitations. Therefore, this study contributes to a deeper awareness of factors influencing sustainability practices in HEIs.

Equally, the study demonstrates the existence of gaps in the current sustainability practices in Nigerian HEIs. This involves a lack of standardised measures or a framework for monitoring sustainability performance, and no specific departments or offices to promote sustainability teaching and research. By showing the gaps, the study also paves the way for potential research to help identify and address these gaps and develop strategies for the improvement of sustainability practices in Nigerian universities. The study further emphasises the necessity of collaborations between diverse actors in the local and host communities in improving sustainability in Nigerian HEIs, demonstrating the value of partnerships with other sectors in enabling more comprehensive and sustainable solutions to sustainability concerns.

2.6 Limitations and Suggestions for Further Studies

It is important to acknowledge the limitations of this work since they may present avenues for further study. This study may be limited by sample size and representation. The coverage is limited to a particular region in Nigeria, which means the findings may not truly represent the entire landscape of sustainability practice across HEIs in Nigeria. This provides direction for studies in other areas of the country or from a larger or more representative sample to ensure broader insight. Also, these findings might only apply to the Nigerian context and therefore, may be difficult to extrapolate to other countries or regions with distinct institutional and socioeconomic settings. As such, care should be taken when extrapolating these results to other contexts. Considering other stakeholders' points of view—students, outside partners, etc.—may help to comprehend the potential, difficulties, and priorities surrounding sustainability in higher education. Including

stakeholders in the research process may also increase support and buy-in for sustainable actions (Chakraborty et al., 2019). Inspecting the role of government regulations and policies fit sustainability methods within Nigerian HEIs might offer useful understandings into the more comprehensive institutional as well as systemic elements affecting sustainability application.

The adoption of STARS, a globally recognised framework, calls for a reflection in an environment where persistent funding is a challenge, policy inconsistencies and relatively low sustainability integration. STARS assumed an institutional environment where access to the data management system is robust and in the sustainability offices. These characteristics are lacking or nonexistent in the Nigerian HEIs. This is why there is a need for critical modification of the evaluation process, manual collection of data and focusing on surrogate metrics. Though the process will boost local relevance, it will decrease comparability of rating to HEIs in an environment rich in resources.

2.7 Conclusion

This chapter clarified the possibility of incorporating sustainability practices in Nigerian HEIs through the use of the STARS framework. The findings demonstrate the wide range of sustainability practices used by HEIs, with differing degrees of engagement and implementation. A formalised approach or resources allocated specifically for sustainability projects are lacking in some universities, despite others exhibiting a strong commitment to sustainability initiatives through deliberate practices associated with the United Nations SDGs.

It also provides the need for a more comprehensive understanding of sustainability principles among university representatives. While sustainability concepts are upheld by most institutions, there is a lack of uniformity in their application, emphasising the necessity for standardised measurements and coordinated efforts towards sustainability objectives. Additionally,

incorporating sustainability education into academic curricula remains an area for improvement, with the opportunity to offer specialised courses or modules focused on sustainability issues.

The findings highlight how crucial research and development are to the advancement of sustainability programmes in HEIs. Creating a special centre or institute for sustainability research could spur innovation and creativity in this field. Establishing collaborations and partnerships with other institutions is vital for augmenting sustainability endeavours, as it grants entry to the requisite resources and expertise required to tackle intricate environmental challenges. Even with the recognised obstacles—such as limited awareness of sustainable principles, financial limitations, and attitude barriers—HEIs can nevertheless progress their sustainability agenda by overcoming these difficulties. Through effective change management practices, fostering awareness, obtaining adequate funding, and combating resistance to change, HEIs can take advantage of possibilities to advance sustainability, improve society, and support global sustainability goals.

MANUSCRIPT ENDS

Chapter Three

Analyzing the Impact of Organizational Culture on Sustainability: How Hierarchical Organizational Culture Impacts Sustainability Performance in Nigerian Higher Education Institutions

This chapter investigates the impact of hierarchical organisational culture on sustainability performance in Nigerian higher education institutions (HEIs) using the Competing Values Framework (CVF). It explores the influence of three critical components of hierarchical culture—institutional policies, management styles, and leadership—on sustainability performance. Survey data collected from 171 teaching staff across 13 HEIs in Nigeria were analysed using quantitative methods, including regression and structural equation modelling. Findings reveal that institutional policies emphasising control and formal procedures positively impact sustainability performance, providing structured frameworks to guide initiatives. Leadership styles, defined by top-down decision-making and centralised authority, significantly influence sustainability outcomes. Conversely, rigid management styles focused on predictability and conformity showed a limited direct impact on sustainability performance. This manuscript extends CVF by linking it to sustainability, particularly in the context of developing countries, to provide actionable insights into fostering sustainability in HEIs through adaptive policy, leadership, and management strategies.

This chapter was adapted from: **Jimoh, I. B., Weber, O., & ElAlfy, A. (2025).** Analyzing the Impact of Organizational Culture on Sustainability: How Hierarchical Organizational Culture Impacts Sustainability Performance in Nigerian Higher Education Institutions. *Under review, Journal of Education for Sustainable Development.*

MANUSCRIPT BEGINS

3.1 Introduction

Higher education institutions (HEIs), as agents of change and development, are expected to integrate sustainability into their operations and curricula. HEIs shape the future of individuals, communities, and society and play an essential role in fostering environmental stewardship and sustainability (Clarke, 2006; Pimpa, 2024). HEIs bear the social duty of advising the host community, teaching students, and encouraging staff and the general public on sustainable development because their actions influence the immediate and extended communities' economic, social, and environmental situation (Leal Filho et al., 2019). In addition, Clarke (2006) emphasises the importance of engaging the campus community in the Environmental Management System (EMS) process and using it as an educational tool for achieving the desired level of awareness among students (Sugiarto et al., 2022).

An essential factor that emphasises work practices and behaviour, the standard of performance, attitude, and value orientation in a workplace is the organisational culture (Adebayo et al., 2020; Deborah et al., 2015; Fietz & Günther, 2021; Racelis, 2010). Organisational culture entered the context of academic organisations in the late 1970s and achieved prominence in management and academia in the 1980s and 1990s (Trudel, 2020). It has been linked to the effectiveness and efficiency of organisational performance (Lozano et al., 2013; Trudel, 2020), and it can shape workers' behaviours, attitudes, and values toward sustainability in higher education institutions (Schein, 2010). Organisational culture is defined as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration (Schein, 2010, p. 17)."

These assumptions drive members' conduct, attitudes, and beliefs towards sustainability. Focusing on the influence of organisational culture on sustainability performance is crucial in assisting higher education institutions with their sustainability initiatives. For example, an organisational culture that prioritises sustainability and fosters innovation and cooperation may be more effective than a culture that is resistant to change or compartmentalised (Cameron & Quinn, 2021; Schaltegger & Wagner, 2011). Considering the sustainability awareness and education level, especially in Africa (Gbadeyan & Omolekan, 2015), higher education institutions should prioritise environmental sustainability and incorporate sustainability into their policies and practices (Hoque et al., 2017). However, integrating sustainability into the culture and operations of HEIs continues to be challenging (Bittencourt & Figueiro, 2022).

Though HEIs have been integrating sustainability, there is a need to adjust the traditional operational patterns for a complete internalisation of sustainability practices (Blanco-Portela et al., 2017). To emphasise their role in advancing development, HEIs should incorporate sustainability into all teaching, learning, research, and administrative operations (Guadagnin et al., 2023).

Miska et al. (2018) examine how organisational culture can undermine sustainability performance, highlighting uncertainties around the ideal cultural attributes needed to enhance sustainable outcomes. The study raises questions about the specific elements a sustainability-focused culture should encompass and how these attributes translate into tangible improvements in sustainability performance. However, previous research outcomes and empirical studies must be further developed to know how organisational culture impacts sustainability performance (Assoratgoon & Kantabutra, 2023).

The competing value framework (CVF) was considered appropriate for this study as it offers an in-depth perspective for investigating different types of organisational culture and how it influences organisational performance. This CVF theory, propounded by Quinn and Rohrbaugh (1981), classified organisational culture into adhocracy, clan, market, and hierarchy. Each of these cultures represents different management approaches and organisational standards. In the Nigerian HEIs context, studies have affirmed hierarchical culture as the most effective and prevalent type of culture because of its formation, structure, and control. For example, Akanji et al. (2019) and Omogeafe & Friday (2014) concluded that the Nigerian HEIs operate in an extremely controlled and regulated atmosphere with defined rules and regulations, procedures, and processes, which are crucial components of hierarchical culture.

Based on the CVF and the overwhelming dominance of hierarchical culture as the prevailing culture in Nigerian universities (Akanji et al., 2019), which can be traced to the colonial legacy of the education system, where authority is centered, obedience is enforced and questioning is discouraged (Nyamnjoh, 2012), this study assessed the influence of hierarchical culture on sustainability performance in Nigerian HEIs. The main question addressed by this study was how hierarchical culture affects sustainability performance in HEIs in Nigeria.

There is a lack of studies exploring the influence of organisational culture on sustainability performance. Studies have shown the importance of organisational culture in other areas like performance and productivity (Ben Saad & Abbas, 2018; Kehinde et al., 2012). Limited research has been carried out on how the prevailing organisational culture in the context of Nigeria has influenced sustainability performance. Also, a few existing empirical studies focus on external factors (like government regulations and policies) that disregard the internal cultural dynamics (like management and leadership style) that can affect the implementation

and management of sustainability initiatives in Nigeria. Hence, a need for an organisational culture that emphasises norms, values, job behaviours, and performance standards that focus on sustainable development and also cater to the needs of the stakeholders with distinct incorporation of "economic, social, and environmental" dimensions.

Additional research is needed into the mechanisms by which organisational culture drives (or constrains) sustainability practices, policies, initiatives in HEIs, and outcomes. Although organisational culture has been linked to sustainability, it has received limited empirical attention and warrants further investigation (Abbett et al., 2010; Linnenluecke & Griffiths, 2010). The examination of the impact of organisational culture on sustainability performance in Nigerian higher education institutions is critical for designing successful sustainability strategies and policies in these institutions.

This research offers a novel contribution by employing the CVF to examine the influence of organisational culture on sustainability performance within a developing country context. By extending sustainability research beyond Western frameworks, this study provides practical insights for institutions in other developing regions. While prior studies have explored sustainability practices in HEIs, this research uniquely focuses on the hierarchical culture characteristic of Nigerian HEIs and its specific impact on sustainability outcomes. Furthermore, this study introduces a new perspective by highlighting the potential of integrating policy frameworks with flexible management and adaptive leadership to strengthen sustainability efforts.

Further, these gaps led to significant research questions on how hierarchical culture can influence sustainability performance in HEIs in Nigeria. Question one considered the influence of institutional policies on the achievement of sustainability projects within the Nigerian HEIs. Question two focuses on how management style impacts the effectiveness of sustainability

projects in Nigerian HEIs. The third question strives to understand how leadership style affects the sustainability performance of Nigerian HEIs.

The hypotheses were tested with institutional policies, leadership, and management style forming the independent variables, while the dependent variable was measured based on sustainability performance indicators. We used a questionnaire to elicit information from teaching staff in the sustainability units and environmental faculty of thirteen universities across the southwest states of Nigeria, using a convenience sampling technique through an online platform (Qualtrics). We used descriptive and inferential statistics to analyse the data.

The results suggest that HEIs in Nigeria have substantial formal control over their activities, which can be defined by institutional policies and regulated practices that help achieve sustainability outcomes. Most of the participants believe that policies and rules are germane to promote sustainability initiatives, although some criticised these based on the rigidity of operation. Also, a leadership style characterised by a top-to-bottom decision-making process focused on maintaining control and a clear authority structure is significant to the success of the sustainability initiative within the Nigerian HEIs. Contrarily, since sustainability frequently advocates flexibility, creativity, and adaptability, a management style prioritising predictability, strict adherence, and structured procedures was not beneficial in fostering sustainability initiatives. However, the combined effect of these predictors – institutional policy, leadership, and management style is significant. This result suggests the multifaceted nature of sustainability, which requires a comprehensive and context-sensitive approach.

Theoretically, this research deepens our knowledge of competing value frameworks (CVF) by providing their applicability to sustainability practices in developing countries, specifically Nigerian HEIs. It gives an insight into how hierarchical culture influences sustainability

activities in developing countries through institutional policies, leadership, and a flexible management style.

The following sections present a literature review, followed by the theoretical framework, then the development of hypotheses, followed by methodology, results and interpretation, discussion of findings, conclusion, and finally limitations and suggestions for further studies.

3.2 Literature Review

Examining the relationship between organisational culture and sustainability performance, focusing on three higher education institutions in Ilorin, Nigeria, Raimi (2020) presents empirical evidence from different fields highlighting the significance of developing an organisational culture that supports sustainability. To ensure a more sustainable workplace, organisational processes can be integrated.

Adebayo et al. (2020) provide evidence that organisational culture impacts employees' behaviour and sustainability performance. Ben Saad & Abbas (2018) analysed the relationship between organisational culture components like managing change, achieving goals, teamwork, and cultural strength and job performance. Except for customer orientation, which negatively correlates with job performance, the results showed that all others are positively correlated with job success.

Also, O'Reilly et al. (1991) suggest that three organisational culture characteristics—teamwork, creativity, and attention to detail—are related to particular Environmental Activity Management (EAM) characteristics. By giving managers insight into the organisational culture that supports the implementation of EAM, they add to the contingent literature on the factors influencing the adoption of environmental cost initiatives (Baird et al., 2017).

Akanji et al. (2019) empirically investigated how organizational culture, size, and structure mediate the association between resilience and innovations in a subset of Nigerian colleges. The findings indicate that the fundamental features of organisational culture, which influence the selection of leadership philosophies in the administration of Nigerian universities, are hierarchical, patriarchal, subservient, and based on interconnected values. The results suggest the university administration's adoption of a hierarchical approach as a culture.

Ohioorenaya & Eboreime (2014) studied the connection between performance and organisational culture types by investigating accredited universities in Nigeria that underwent the Nigerian Universities Commission's (NUC) accreditation procedure. The results revealed that variations in organisational culture caused variations in organisational performance. One potential answer for organisations is to create an organisational culture focused on sustainability, involving staff in the shift towards sustainability and cultivating leadership that encourages staff participation. According to the study, there is a shift in the cultures of companies both at the artefact level and, to a lesser extent, at the values and beliefs level (Negro & Vargas, 2019).

Gutterman (2020) investigated how various aspects of corporate behaviour and performance results are affected by a corporate culture of sustainability. The study discovered that organisations that freely implemented environmental and social policies by 1993 are called "High Sustainability Companies". They differ significantly from a matched sample of businesses that adopted virtually none of these policies (referred to as "Low Sustainability Companies"). The study also discovered that senior management rewards are more likely to be based on sustainability indicators and that the boards of directors of these organisations are more likely to be in charge of sustainability.

Muriithi (2021) examined cultural components essential to organisational performance. The findings prove that organisational culture and sustainable competitive advantage are strongly

correlated. The study explores organisational culture, a topic that has been misunderstood and ignored for many years, but without it, successful corporate operations in the future are unthinkable. Adams et al., (2018) propose and apply a conceptual framework to guide the design, execution, and evaluation of efforts to accelerate the integration of cultures for sustainability. The authors combine literature on journeys to sustainability with organisational culture studies.

Adams et al. (2018) argue that a sustainable organisational culture grows over time because of actions taken in the observable layer, like behaviours, policies and are probably expressed differently among subcultures. Soini & Dessein (2016) guide research and policy initiatives on sustainability by proposing an interdisciplinary framework for recognising the various roles of culture. The framework comprises three representations: culture in sustainability, culture for sustainability, and culture as sustainability. The paper shows that the three representations are somewhat related and that variations may exist in the system's dynamics and the interface between humans and nature.

Covaş (2019) investigated the relationship between hierarchical cultures and the sustainability level of organisations. She found that organisations with higher sustainability levels had lower hierarchical scores and considerably higher scores in adhocracy, market, and clan culture. Given that several institutions still operate within hierarchical structures, there is a need for further study to examine how hierarchical cultures can support or limit sustainability performance. The findings justify the need to investigate the impact of hierarchical culture on sustainability performance in Nigerian higher education institutions since hierarchical culture is prevalent in Nigerian HEIs (Akanji et al., 2019; Omogeafe & Friday, 2014). Consequently, this study examines how hierarchical culture impacts sustainability performance in Nigerian HEIs. Ultimately, this will help

us understand how hierarchical culture can either promote or obstruct sustainability initiatives within the Nigerian higher education sector.

3.3 Theoretical Framework: Competing Value Framework

The Competing Value Framework (CVF) was initially proposed by Quinn and Rohrbaugh in 1981 (Cameron & Quinn, 2006; Quinn & Rohrbaugh, 1981; TWOWP, 2019). The framework has strengthened the assessment and understanding of organisational culture concepts. As a theoretical framework, it defines the criteria for evaluating organizational effectiveness, such as productivity, flexibility, planning, and stability (Choi et al., 2010). It has been used in studying organisational culture, leadership effectiveness, change management, and human resource development (Choi et al., 2010; Shilbury & Moore, 2006). CVF has been regularly utilised to investigate business, management, education, and government organisational culture. It is also confirmed as one of the prominent and regularly used models in organisational culture research (Choi et al., 2010; Covaş, 2019; Rus et al., 2018). The implementation of sustainability initiatives or practices can be influenced by the different types of organisational culture, depending on the organization and situation (Covaş, 2019). Organisational cultures are classified using a four-box model created by Robert Quinn and Kim Cameron (TWOWP, 2019). Because it contrasts various conflicting objectives that businesses may have, the concept is called a "competing values framework"



Figure 4: Competing Values Framework

Source: Mulder (2017)

The four-cell CVF demonstrates the conflicting requirements of an organisation's different and competing aspects (Ford, 1985), such as internal, external, flexibility and stability. If an organisation focuses on its internal dynamics, like staff growth or the needs of its external environment, such as customer needs, the internal-external dimension aids organisations in clear terms on how to balance its competing focus (Joseph & Kibera, 2019). The competing value framework is a well-tested framework that has been extensively embraced throughout the years by scholars and professionals as a tool for evaluating organisational culture. It is one of the most prominent and widely applied frameworks in "organisational culture" research (Covaş, 2019). Although the widely utilised framework (CVF) has received much attention in the literature and

has proven beneficial in addressing organisational culture, its link to sustainability in the education sector has received less attention.

The internal, external, flexibility and stability are the four key concepts that describe the competing nature of the CVF. Each of these concepts described a core value at one point as opposed to the value at the other point (Cameron & Quinn, 2021). While flexibility focuses on openness, innovation and adaptability, stability focuses on control, standard and consistency. Internally focused organisations prioritise workforce capacity development, collaboration among staff and employee satisfaction, while externally focused organisations are more concentrated on competitors, customers and other external stakeholders. This competing nature of CVF can be contradictory or competing on the diagonal (Cameron & Quinn, 2021; Zeb et al., 2021).

The competing value framework approach categorises organisational culture into four distinct kinds to facilitate empirical research (Linnenluecke & Griffiths, 2010). These cultures are adhocracy culture, clan culture, market-orientation culture, and hierarchical culture. They illustrate how an organisation runs, how people interact, and the organisation's values (Mulder, 2017).

According to CVF, organisational complexity creates multiple forms of culture (Westrum, 2004), and a single type of culture cannot differentiate an organization (Choi et al., 2010). Firms make overt and implicit choices in the degree to which their cultures exhibit values and norms representative of four different cultural orientations to balance the requirements of various stakeholders (Choi et al., 2010; Morgan & Vorhies, 2018). The different types of culture are described in the following paragraphs:

- Adhocracy cultures (Create) emphasise creativity, innovation, and risk-taking to achieve business sustainability through an integrated, all-encompassing corporate sustainability

plan (Fietz & Günther, 2021). In these organisations, ongoing innovation is essential to remain prominent in the market. Employees are urged to strive for innovation and use their imagination to generate new ideas in a dynamic, ambitious, and creative work environment (Mulder, 2017).

- Clan cultures (Collaboration) emphasise social engagement, interpersonal ties, staff training and development, and skill-building efforts to enable sustainability. People's relationships are crucial in these organisations (Abbett et al., 2010). There is a pleasant working atmosphere in which staff share many interests. These organizations' CEOs are mentors or role models whom staff may engage with ease. Loyalty and tradition hold these organisations afloat (Mulder, 2017).
- As a business sustainability strategy, market cultures (Complete) target lower costs, process optimisation, and reducing waste (minimising input and maximizing output). It is all about outcomes and achieving the goals of these organizations. Employees are goal-oriented and competitive individuals. The organisation focuses on success and winning by meeting specific goals and objectives to stay ahead of competitors. Market share and penetration are indicators of success (Mulder, 2017).
- Hierarchical cultures (Control) strongly emphasise stable environments where tasks and functions can be integrated and coordinated and uniformity in goods and services can be upheld. (Cameron & Quinn, 2021). Hierarchical cultures are highly formal and regimented in the workplace. Procedures determine employee activities, and the emphasis is on monitoring control systems. Formal rules and procedures help to keep the organisation stable. It has an organised work procedure to ensure activities are under control for the smooth running of the organisation (Fietz & Günther, 2021; Mulder, 2017).

Hierarchical culture, defined by formalised structures, clear lines of authority, and centralised decision-making procedures, is commonly identified as the leading organisational culture in Nigerian universities (Akanji et al., 2019; Ohioorenoya & Eboreime, 2014). This dominance can be ascribed to various historical, social, and institutional factors shaping Nigerian universities' landscapes. Understanding the features of organisational behaviour, management, practices, and monitoring procedures within Nigerian HEIs requires acknowledging the prevalence of hierarchical culture inside these institutions (Makaryan, 2023).

The HEIs follow an internally focused control by formalising and centralising their operations to a sufficient degree to ensure stability and continuity and achieve predictable performance results (Rus et al., 2018). Findings suggest that a hierarchical culture is necessary to foster collaboration and minimise university hostility (Paltoglou, 2021). Hierarchical culture focuses on institutional rules, policies and procedures, leadership, and management style (Cameron & Quinn, 2021; Mulder, 2017; TWOWP, 2019). It would be excessive to abolish formal hierarchy in educational institutions. In addition to the potential for inefficient informal hierarchies to develop, difficulties could result from the distribution of responsibility (Paltoglou, 2021). However, to benefit from various circumstances and environmental changes, a mixture of culture types could be preferable (Omogeafe & Friday, 2014), but the standard framework for viewing the universities' organisational culture is hierarchical (Beytek et al., 2010). Given the CVF and the dominance of hierarchical culture as the prevailing culture in Nigerian universities, this study assessed the influence of hierarchical culture on sustainability performance in Nigerian HEIs.

3.4 Development of Hierarchical Culture and Sustainability Performance Hypotheses

This study investigates the influence of hierarchical culture on sustainability performance in Nigerian HEIs by developing and testing the following hypotheses.

3.4.1 Institutional Policies and Sustainability Performance

Understanding the dynamic nature of sustainability within the Nigerian HEIs necessitates a clear comprehension of how institutional policies, particularly hierarchical culture, affect sustainability performance. Hierarchical culture is deeply rooted in the Nigerian HEIs. Therefore, there is a need for the assessment of institutional policies (Akanji et al., 2019) on sustainability performance. Hierarchical culture is prominent in formal and centralised decision-making processes (Ohioresanya & Eboreime, 2014), which depend mainly on regulations, control, predictability, procedure, and rules (Linnenluecke & Griffiths, 2010; Mulder, 2017). The strict form of hierarchical culture shows that strict compliance is necessary to establish procedures that may either help or hinder sustainability efforts. Policies are essential tools for forming a standard framework in a particular institution (Marcel et al., 2024). Implementing institutional policies in HEIs globally is anticipated to be significant in active learning and professional competencies rather than relying on grades (Idsardi, 2020). Frantz et al. (n.d.) discovered that to promote research productivity and contribute to sustainability performance, HEIs should establish institutional policies that prioritise research productivity, foster an institutional research culture, support research publications, and manage research performance. Institutional policies openly encourage the emphasis on learning and may jeopardise implementations in the HEIs when there are contradictions (Alghazo & Pilotti, 2021). Therefore, it is significant to investigate institutional policies and their impact on sustainability initiatives.

Hypothesis 1: *The perceived existence of institutional policies has a positive impact on sustainability performance in Nigerian HEIs.*

3.4.2 Management Style and Sustainability Performance

Management style and decision-making process as products of organisational culture affect performance (Sulich et al., 2021). Management styles have undergone dynamic transformations over time. Organizations need to adjust their working conditions and the settings of established relationships (Bulgaru, 2015; Kulhanek & Sulich, 2018; Zema & Sulich, 2019) to suit society's demands as a socio-economic atmosphere, which is beneficial to employees and customers (Sulich, 2019) because the work conditions and environment are the results of the management style adopted by the organization which will impact the organizational efficiency and increase competitive advantage (Rutkowska & Kamińska, 2020). This leads to improved performance and promotes organisational reputation. A comprehensive assessment of managers' attitudes in Chinese settings shows a lack of development in the relationship between management style and decision-making (Beaudoin et al., 2012). The sustainability performance evaluation must equally consider the management style (Cameron & Quinn, 2021) adopted by HEIs, which mostly follow a hierarchical culture (Mulder, 2017; TWOWP, 2019). Since control and efficiency are prioritised by hierarchical culture, this may directly affect the adoption of sustainability practices. The connection between management style and sustainability performance may be achieved if we dive into how management choice affects the sustainability environment within the HEIs. Therefore, this hypothesis focuses on how important it is to understand the interaction between management style and sustainability outcomes within the Nigerian HEIs.

Hypothesis 2: *Perceived management style positively impacts sustainability performance in Nigerian HEIs.*

3.4.3 Institutional Leadership and Sustainability Performance

Organisational leaders are responsible for good governance and effective leadership. "While all leaders should have a vision and desire to inspire their followers to take collective action to make it happen, sustainability leaders can be distinguished as people who inspire and support action to identify and develop innovative sustainable solutions, business models, and practices that will lead to a better world" (Gutterman, 2023, p. 1). Institutional leadership, a major influencer of sustainability initiatives, is the driving force behind how universities make decisions. Because the prevalent organizational culture within the HEIs in Nigeria is hierarchical (Akanji et al., 2019; Feye & Gebre-Egziabher, 2022), the leadership of the institutions bears a significant responsibility to set a benchmark for sustainability initiatives (Dickert, 2020; Gutterman, 2023). The success of an organisation is determined by the organisational leadership style and skills, while its capacity to make intelligent decisions on activities hinges on existing strategies and approaches of the leadership (Kehinde et al., 2012). Understanding how the leadership philosophy of HEIs impacts sustainability performance is necessary for finding pragmatic ways to enhance sustainability outcomes. Therefore, examining the link between sustainability performance and institutional leadership sheds light on the roles of leaders in facilitating the transition to sustainability in Nigerian HEIs.

Hypothesis 3: *Perceived leadership style positively impacts sustainability performance in Nigerian HEIs.*

3.5 Methodology

We systematically investigated the influence of organisational culture and sustainability performance using a survey-based quantitative analysis. We used descriptive statistics to summarise the data obtained, while inferential statistical techniques such as product-moment correlation and regression were used to analyse the data collected. "Statistical Package for the

Social Sciences" (SPSS) was used for data analysis and finally, a structural equation model was calculated.

Institutional policies, leadership, and management style formed the independent variable, while the dependent variable was measured based on some sustainability performance indicators. The survey items were adapted from validated existing instruments (Organisational Culture Assessment Instrument (OCAI) and Sustainability Tracking, Assessment, and Rating System). The questionnaire is divided into two sections. Section A, with 4 items, was structured to collect demographic information of the respondents, while Section B, with 22 items, collected data on both the dependent and independent variables. The questions on hierarchical culture were adapted from OCAI to represent items for institutional policies, management, and leadership style, while questions on sustainability performance were adapted from the STAR framework.

We used the survey to gather information from teaching staff in the sustainability units and environmental faculty of thirteen universities across the government-owned southwest states of Nigeria. The focus on the teaching staff as the audience allows for a valuable insight into the operations of the university and their potential roles in advancing sustainability roles. A convenience sampling technique was adopted to distribute the online survey through WhatsApp platforms to collect data from 171 respondents within the southwestern state of Nigeria. The country's southwest region has the oldest and highest number of HEIs (Doris, 2023). Participants were informed and allowed to provide informed consent focused on voluntary participation and confidentiality.

3.6 Results

The section presents the results of the analyses. It will start with presenting the demographic data of the sample. As the next step, the section presents the survey results concerning institutional policies, management, and leadership styles. Finally, we present the results of the regression analyses addressing the three hypotheses.

Table 5 presents the overview of participant characteristics over four significant characteristics, i.e., gender, age, educational level, and years of experience. The table displays the frequency and percentage for each variable.

Table 5: Respondents' Profile

Variables	Category	Freq.	%
Gender	Male	99	57.9
	Female	72	42.1
Age	20-25	3	1.8
	26-30	6	3.5
	31-35	13	7.6
	36-40	50	29.2
	41-45	65	38.0
	46 and above	34	19.9
Educational Level	*H.N.D/Bachelor's degree	21	12.3
	Master's degree	48	28.1
	Ph.D.	102	59.6

Years of Experience	1-4	27	15.8
	5-10	55	32.2
	11-15	27	15.8
	16-20	24	14.0
	21-25	26	15.2
	26-30	12	7.0
Total		171	100

Source: Researchers Computations, 2024

*Higher National Diploma equivalent to B.Sc. awarded by the Nigerian Polytechnic

The table shows that most respondents are male, with a sample of 57.9%, while female respondents make up 42.1%. The age of the respondents is scattered. The dominating age group is 41-45 years old (38.0%), which represents the mode (5), closely followed by 36-40 years old (29.2%), while the 20-25 years age group has the lowest response (1.8%). Most of the respondents have a PhD (59.6%), followed by a master's degree (28.1%), with HND/BSc (12.3%) being the least frequent education level. With 32.2%, those who have spent between 5 and 10 years with their various institutions constitute the most prominent group, followed by those respondents with 1-4 and 21-25 years of experience (15.8% and 15.2%), respectively.

Table 6: Hierarchical Culture

S/No.	Research Question Items	SA (%)	A (%)	N (%)	D (%)	SD (%)	PNA (%)	Mean	Std. Dev.
Institutional Policies									

1	The institution is a very controlled and structured place. Formal procedures generally govern what people do	83 (48.5)	66 (38.6)	2 (1.2)	3 (1.8)	16 (9.4)	1 (0.6)	4.17	1.188
2	The glue that holds the institution together is formal rules and policies. Maintaining a smooth-running institution is important.	77 (45.0)	70 (40.9)	3 (1.8)	1 (0.6)	19 (11.1)	1 (0.6)	4.10	1.230
3	The institution emphasizes permanence and stability. Efficiency, control and smooth operations are important.	59 (34.5)	89 (52.0)	4 (2.3)	2 (1.2)	17 (9.9)	0	4.00	1.148
4	The institution defines success based on efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.	56 (32.7)	82 (48.0)	12 (7.0)	5 (2.9)	16 (9.4)	0	3.92	1.165
Total								4.05	1.183
Management Style									
5	How much does the management style in your institution promote conformity and predictability in work processes and relationships?	56 (32.7)	60 (35.1)	48 (28.1)	6 (3.5)	0	1 (0.6)	3.99	.881

6	From your perspective, does our organisation's management style prioritise maintaining standard activities and duties with an emphasis on following defined procedures and maintaining connection security?	87 (50.9)	58 (33.9)	12 (7.0)	5 (2.9)	7 (4.1)	2 (1.2)	4.28	1.019
7	How would you rate the level of formality and adherence to hierarchical structures within our institution, where authority and decision-making processes are clearly defined and centralised?	72 (42.1)	49 (28.7)	43 (25.1)	7 (4.1)	0	0	4.09	.913
Total								4.12	.937
Leadership Style									
8	How much do you think top-down decision-making processes and well-defined frameworks define leadership in our organization?	69 (40.4)	58 (33.9)	33 (19.3)	9 (5.3)	2 (1.2)	0	4.07	.955
9	How highly would you rank the management of your institution's emphasis on maintaining order	56 (32.7)	70 (40.9)	36 (21.1)	8 (4.7)	1 (0.6)	0	4.01	.884

	and security, even if doing so means sacrificing innovation and flexibility?								
10	In your opinion, does our organisation's management prioritise maintaining control and authority over adhering to well-established norms and treatments?	90 (52.6)	52 (30.4)	10 (5.8)	8 (4.7)	7 (4.1)	4 (2.3)	4.30	1.073
Total								4.13	.970

Source: Researchers Computations, 2024

SA – Strongly Agree, A – Agree, N-Neutral, D – Disagree, SD – Strongly Disagree, PNA – Prefer not to answer

In Table 6, we examined how the three (3) predictors of hierarchical culture – institutional policies, management style, and leadership style are perceived within the Nigerian HEIs. Concerning institutional policies, with item 1 showing an average score of 4.17 (addition of SA and S), the participants perceived the institution as a highly controlled and structured place where people's operations and engagement are controlled by formality and procedure. Rules and policies are considered the tools for effective and efficient operation based on the average score of 4.10 in item 2. With average scores of 4.00 and 3.92, the respondents believe that their institutions placed a high value on control, stability and efficiency for seamless operations and that their success depends on these factors.

The second research question focused on how management style impacts the effectiveness of sustainability performance in Nigerian HEIs (Items 5, 6 and 7). Conformity and predictability

in operations and interaction within the institutions are a strong focus of the management style, according to the survey participants. With a total average score of 4.12, participants believe that standard activities and compliance with defined procedures are the management's priorities.

The last question considered leadership style as a variable of hierarchical culture and how it affects the operations in Nigerian HEIs. The results emphasise that top-to-bottom decision-making processes are adopted by the leadership of institutions, where authority and control are prioritised, even at the expense of innovation and adaptability. A total mean score of 4.12 shows that a high percentage of the respondents agreed that the primary objective of leadership is to guarantee stability and order within the institution.

Table 7: Perceived Sustainability Performance

S/No.	Research Question Items	SA (%)	A (%)	N (%)	D (%)	SD (%)	PA (%)	Mean	Std. Dev.
11	Our university has a dedicated office or department responsible for overseeing sustainability initiatives.	54 (31.6)	81 (47.4)	19 (11.1)	9 (5.3)	6 (3.5)	2 (1.2)	4.02	1.003
12	The university regularly conducts sustainability assessments or audits to monitor progress and identify areas for improvement.	51 (29.8)	82 (48.0)	17 (9.9)	17 (9.9)	4 (2.3)	0	3.93	1.003
13	There are clear sustainability goals and targets established by our university to guide our initiatives.	47 (27.5)	93 (54.4)	18 (10.5)	10 (5.8)	3 (1.8)	0	4.00	.881

14	Sustainability principles are integrated into the university's strategic planning and decision-making processes.	54 (31.6)	88 (51.5)	13 (7.6)	13 (7.6)	3 (1.8)	0	4.04	.926
15	Our university allocates sufficient financial resources to support sustainability projects and initiatives.	49 (28.7)	75 (43.9)	18 (10.5)	24 (14.0)	4 (2.3)	1 (0.6)	3.84	1.081
16	Faculty members receive adequate training and support to integrate sustainability concepts into their teaching and research.	42 (24.6)	77 (45.0)	24 (14.0)	21 (12.3)	5 (2.9)	2 (1.2)	3.80	1.073
17	The university actively promotes sustainable transportation options, such as public transit, biking, or carpooling.	37 (21.6)	77 (45.0)	23 (13.5)	24 (14.0)	8 (4.7)	2 (1.2)	3.68	1.135
18	There are opportunities for students to engage in sustainability-related extracurricular activities and projects.	49 (28.7)	78 (45.6)	20 (11.7)	19 (11.1)	5 (2.9)	0	3.86	1.048
19	Our university implements energy-efficient practices and technologies to reduce its carbon footprint.	41 (24.0)	78 (45.6)	27 (15.8)	18 (10.5)	7 (4.1)	0	3.75	1.063

20	Waste management systems within the university effectively promote recycling and waste reduction efforts.	53 (31.0)	78 (45.6)	17 (9.9)	12 (7.0)	10 (5.8)	1 (0.6)	3.91	1.113
21	The university collaborates with local communities and stakeholders to address sustainability challenges and initiatives.	59 (34.5)	74 (43.3)	15 (8.8)	16 (9.4)	7 (4.1)	0	3.95	1.086
22	Our university effectively communicates its sustainability achievements and progress to the wider community and stakeholders.	42 (24.6)	90 (52.6)	19 (11.1)	12 (7.0)	8 (4.7)	0	3.85	1.021
Total								3.89	1.036

Source: Researchers Computations, 2024

SA – Strongly Agree, A – Agree, N-Neutral, D – Disagree, SD – Strongly Disagree, PNA – Prefer not to answer

After assessing the perceived institutional policy, management, and leadership style, we assessed the perceptions about the HEI's sustainability activities and performance (see Table 7). The results suggest that the HEIs' performance in most sustainability practices and initiatives is perceived as high, though based on perception. The HEIs demonstrate high perceived performance in waste management, community collaboration, strategic planning, and the administration of sustainability actions. However, there is a need for progress in areas like financial resource distribution and allocation, employee training and development, and the adoption of sustainable transportation.

Across the sustainability efforts, the total mean of 3.89 shows a favourable impression of the sustainability initiatives in the institutions.

Table 8: Correlations between Hierarchical Culture Predictors and Sustainability

Performance

		Institutional Policy	Management Style	Leadership Style	Sustainability Performance
Institutional Policy	Pearson Correlation	1	.398**	.302**	.190*
	Sig. (2-tailed)		.000	.000	.013
	N	171	171	171	171
Management Style	Pearson Correlation	.398**	1	.534**	.145
	Sig. (2-tailed)	.000		.000	.058
	N	171	171	171	171
Leadership Style	Pearson Correlation	.302**	.534**	1	.205**
	Sig. (2-tailed)	.000	.000		.007
	N	171	171	171	171
Sustainability Performance	Pearson Correlation	.190*	.145	.205**	1
	Sig. (2-tailed)	.013	.058	.007	
	N	171	171	171	171

**.	Correlation is significant at the 0.01 level (2-tailed).
*.	Correlation is significant at the 0.05 level (2-tailed).

Source: Researchers Computations, 2024

Table 4 shows the correlations between institutional policy, management style, leadership style, and sustainability performance. For the total scores used in the statistical analyses, the calculation of the variables is based on a composite score which represents the sum or average of responses obtained from various Likert scale items in each of the construct resulting in a total score for every participant. The table reveals a moderate positive correlation between institutional policy and management style with $r = .398, p < .01$. This means HEIs operating formal policies should enhance management practices that comply with rules. Also, there is a positive relationship between institutional policy and leadership style with $r = .302, p < .01$. This implies that HEIs with strict rules are likely to operate a top-down leadership style. In addition, there is a high correlation between management and leadership styles ($r = .534, p < .001$). These significant correlations could create autocorrelation issues if the variables are used as independent variables in a regression analysis.

To address our three hypotheses, we used three regression analyses to check the relationship between the three independent variables (i.e., institutional policy, management style, and leadership style) and sustainability performance.

The results reveal that the relationship between institutional policy and sustainability performance is significantly positive with $r = .190, p < .05$. This implies that institutional policy significantly influences sustainability performance. The relationship between leadership style and sustainability performance is statistically significant with $r = .205, p < .01$. Again, the results suggest that leadership style influences sustainability performance. The reason might be that strong leadership

supports clear standards and maintains control of initiatives that promote sustainability. However, there is no significant relationship between management style and sustainability performance with $r = .145, p < .058$, suggesting that a strict management practice prioritising compliance and predictability may not directly impact HEIs' capacity to achieve sustainability goals.

Table 9: Test of Hypotheses

Consolidated summary of the regression analysis for the three predictors of Hierarchical Culture (Institutional Policy, Management Style, Leadership Style) on Sustainability Performance (dependent variable)

Variable	R Square	Adjusted R Square	Std. Error of the Estimate	Sum of Squares (Regression)	F	Sig.	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	p-Value
Institutional Policy	0.036	0.03	0.77075	3.758	6.33	0.01	0.158	0.19	2.52	0.013
Management Style	0.021	0.015	0.7767	2.202	3.65	0.06	0.17	0.145	1.91	0.058
Leadership Style	0.042	0.036	0.76837	4.379	7.42	0.01	0.225	0.205	2.72	0.007

Source: Researchers Computations, 2024

With an adjusted R-squared of 0.036, leadership style provides the highest explanation of variance in sustainability performance. With an R Square = 0.036, institutional policy has the second-

highest ability to explain the variance in sustainability performance, before management style, with an R Square = 0.021.

Finally, we calculated a structural equation model. We used leadership, management, and policies as the independent variables. In addition, we added gender, age, the number of students per HEI, and professional experience as control variables to the equation. We built the model to achieve the highest possible saturation. Therefore, we removed non-significant variables and connections between variables.

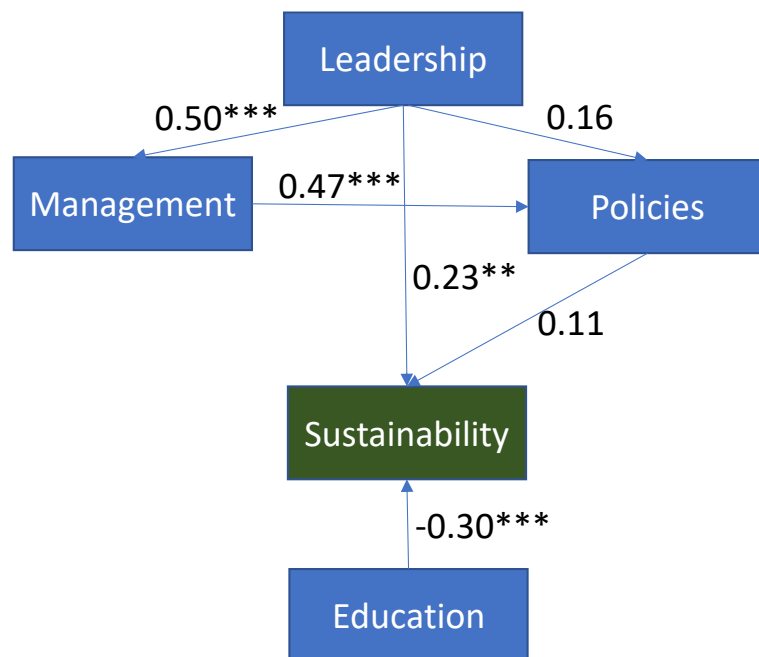


Figure 5: Structural equation model

Source: Researchers Computations, 2024

The overall r^2 of the model, also called the Coefficient of Determination, is .36. The result of the Likelihood Ratio Test ($\chi^2(3) = 0.44$, $p = 0.9309$) suggests no significant difference between the model and the saturated model. This result implies that the model fits the data well. Also, the Root

Mean Squared Error of Approximation (RMSEA) is significant ($p < .001$) and suggests a good model fit.

The values and significance of the individual variables indicate that several variables influence sustainability performance. A higher value in leadership style leads to higher sustainability performance ($p < 0.01$, coef. = 0.23). The same is true for policies. The coefficient is only significant at a 10% level ($p = 0.09$, coef. = 0.11). However, removing policies from the equation decreases the model's overall fit. The only control variable that significantly impacts sustainability performance is the level of education ($p < 0.001$, coef. = 0.30). With a higher level of education, the perceived sustainability performance decreases. The reason could be that people with higher education can better analyse sustainability performance and, therefore, are more critical.

In addition, we found that perceived leadership positively influences management ($p < 0.001$, coef. = 0.50) and that perceived management influences organisational policies ($p < 0.001$, coef. = 0.47). However, the association between perceived leadership and organisational policies is positive but insignificant ($p < 0.13$, coef. = 0.16).

3.7 Discussion

The presented study investigated the influence of hierarchical organisational culture on sustainability performance in Nigerian higher education institutions (HEIs) using the Competing Values Framework (CVF). HEIs are vital agents of societal change, tasked with integrating sustainability into their operations and curricula. However, achieving this integration is challenging, particularly in environments like Nigeria, where a hierarchical culture dominates. This study examines how institutional policies, management styles, and leadership—key components of hierarchical culture—impact sustainability initiatives and outcomes in Nigerian HEIs. The CVF classifies organisational culture into four types: adhocracy, clan, market, and

hierarchical. Hierarchical culture, characterised by formalised structures, centralised decision-making, and an emphasis on stability and control, is the prevalent model in Nigerian HEIs. While such a culture supports order and predictability, it may hinder the flexibility and innovation required for sustainability initiatives.

The study employed a quantitative approach, using survey data collected from 171 teaching staff in sustainability units and environmental faculties of 13 Nigerian universities. The survey used validated instruments to assess perceptions of hierarchical culture elements (institutional policies, management style, and leadership) and sustainability performance. Data analysis included descriptive statistics, regression analysis, and structural equation modelling.

Our key findings are that policies emphasising formality, rules, and control positively influence sustainability performance. Respondents agreed that institutional policies are central to defining operational efficiency and promoting sustainability practices. Marcel et al. (2024) affirmed the link between institutional policy and forming a standard framework for institutions. Furthermore, Management in Nigerian HEIs prioritizes conformity and procedural adherence, reflecting the hierarchical culture. While this ensures predictability, its direct impact on sustainability performance was insignificant. A leadership style characterized by centralized authority and top-down decision-making significantly impacts sustainability performance. Strong leadership was linked to setting clear standards and maintaining control over sustainability initiatives (Dickert, 2020; Gutterman, 2023). Concerning sustainability performance, HEIs showed strong performance in areas like waste management and community collaboration but lacked progress in sustainable transportation and faculty training. Finally, we identified leadership, policies, and influential factors contributing to sustainability performance.

HEIs in Nigeria are characterised by a reasonable degree of formal control and structure. Most respondents acknowledged that policies and rules are crucial in maintaining operational effectiveness and achieving sustainability objectives. The result shows a high degree of institutional policy, indicating strong compliance with formal approaches and structured procedures. Even though formality and institutional control are the predominant methods of operations, there are a few respondents who share different opinions about the rigid nature of operations in their institutions. Linnenluecke and Griffiths (2010) highlight the fact that institutional operations depend mainly on control, predictability, regulations, rules, and procedures. Marcel et al. (2024) also affirmed that institutional policies are significant tools in forming a structured framework. This suggests that HEIs in Nigeria are characterised by institutional policies which contribute to sustainability performance and that the efficiency of sustainability depends largely on the continuous applications and alignment with institutional objectives.

While the Management style adopted by the organization is a significant force in determining the work conditions and environment, which will impact the efficiency and effectiveness of the organization and increase competitive advantage (Rutkowska & Kamińska, 2020), these findings demonstrate that a management style that focuses on predictability, strict compliance, and standard procedure would not be beneficial in fostering sustainability initiatives since sustainability frequently advocates flexibility, creativity, and adaptability. This is why Cameron and Quinn (2021) opined that the adopted management style must be considered when evaluating sustainability performance in an organisation. Sulich et al. (2004) affirmed that the management style implemented by an institution influences the decision-making process, which in turn affects its performance. The absence of a significant connection displayed by this study could suggest that

the management style characterised by adherence, which is adopted by the Nigerian HEIs, may restrict the possibility of creative approaches or remedies to sustainability problems. HEIs in Nigeria may consider the adoption of participatory management practices to foster effective sustainability efforts.

The results perceived leadership style characterised by a top-to-bottom decision-making process focused on maintaining control and a clear authority structure as significant to sustainability initiative success within the Nigerian HEIs. This implies that leadership is crucial in shaping the success of sustainability initiatives' success. This is because leaders who prioritize control and clear directives are considered influencers of sustainability initiatives, presumably by ensuring well-planned and monitored sustainability projects that agree with institutions' goals (Ordonez-Ponce et al., 2024). This finding was corroborated by Gutterman's (2023) affirmation that the leadership of the institutions shoulders an essential responsibility of driving the benchmark for sustainability initiatives. The relationship between leadership style and sustainability performance is particularly strong; this could mean that leadership drives the necessary framework, such as stakeholders' engagement and institutional support, necessary for sustainability projects. Therefore, sustainability leaders are distinguished as people who support the identification and development of innovative sustainable remedies (Gutterman, 2023).

The results further substantiate the multifaceted nature of sustainability, which requires a comprehensive approach, in this case, a well-defined and structured institutional policy, flexible management style, and effective leadership. The institutional policy designed and developed a framework for sustainability projects, the leadership pushed the execution, and the management style supported and maintained innovation and adaptability. To achieve optimal performance in

sustainability, there is a need for a holistic approach to strike a balance among all factors, as there is no single formula for sustainability success (Accenture, 2009).

Hence, the study makes several significant contributions to the Competing Values Framework (CVF) (Yu & Wu, 2009), particularly in the context of sustainability performance within Nigerian Higher Education Institutions (HEIs). First, the study expanded the usage of the framework, initially developed for Western organisational contexts, into a developing country setting, specifically within Nigerian HEIs. The study highlights these institutions' unique challenges and dynamics of hierarchical culture and shows the strong impact of the hierarchical culture, characterised by structured decision-making, formalised policies, and centralised leadership, on sustainability performance. This adds a geographical and cultural dimension to CVF research.

A second contribution of the study is the link between CVF and sustainability performance. The literature about the connection between CVF and sustainability performance is still sparse. Historically, CVF mainly focused on operational performance, leadership, and adaptability. Some studies, however, addressed the connection between CVF and sustainability activities (Abbett et al., 2010; Osei et al., 2023), but none also addressed sustainability performance. The presented study is the first to address the connection to actual performance, suggesting that particular management and leadership styles and policies increase sustainability performance. Hence, it adds to CVF literature by testing and adapting the framework to include sustainability as a measurable performance outcome, enriching its utility beyond traditional organisational performance metrics. Thirdly, the study clarified that hierarchical organisational policies could support sustainability performance. Rules and procedures associated with a hierarchical culture can promote sustainability if well-designed. It can be an enabler of structured, predictable performance outcomes. In contrast to the leadership style, a hierarchical management style only significantly

affects sustainability performance. This result confirms earlier results in CVF research suggesting that leadership, particularly in top-down structures, is crucial in shaping organisational priorities and outcomes. This is also valid for sustainability outcomes.

Furthermore, the study highlights the importance of leadership and policy in fostering sustainability within educational institutions, emphasising that these areas are critical levers for change. Usually, CVF research focuses on business organisations that are structured differently.

3.8 Conclusion

This paper examines the influence of hierarchical culture on sustainability performance in Nigerian HEIs, measuring hierarchical culture with institutional policy, management style and leadership style. The findings reveal the critical roles played by institutional policy in fostering sustainability performance, considering formal procedures and established rules necessary to preserve operational efficiency while reaching sustainability goals. The institutional policy provision of necessary frameworks for sustainability initiatives was exposed by the participants' agreement on rules, formal procedures, and control methods driving institutional activities, which are essential for sustainability performance. The study also revealed that leadership style plays an essential role in improving sustainability performance, which emphasised the significance of innovative and visionary leadership in encouraging sustainability practices. Interestingly, management styles that are focused on conformity and rigidity have little or no influence on sustainability efforts. Although management structures are significant tools in enduring operational standards, they may not have a direct effect on boosting sustainability outcomes in Nigerian HEIs; there is a need for shifts in the style, like ensuring a more flexible, participatory and collaborative approach. Therefore, the

combined influence of these predictors – institutional policies, leadership and management style accounts for a reasonable significance in influencing sustainability outcomes.

3.9 Recommendations, Limitations and Suggestions for Further Studies

Based on the results, we recommend focusing on leadership as it influences management style and sustainability performance. Therefore, it has a strong influence on sustainability performance. HEIs could invest in leadership programs to enhance their sustainability performance.

Similar to other studies, this research has certain limitations. Future research might address other variables that could influence the sustainability performance of HEIs that are not related to management and leadership, such as institutional impact.

A key limitation of this study is its concentration on Nigerian HEIs; this may restrict the applicability of its findings to other environments and contexts, especially to regions with different institutional frameworks, organisational cultures, and sustainability concerns. Also, the study examined predominantly the influence of hierarchical culture on sustainability performance. Still, it deliberately overlooked the impact of other culture types as identified by CVF, such as market, clan and adhocracy culture, which may equally influence sustainability performance. Because of the constantly changing nature of culture and sustainability concerns, the adoption of a cross-sectional approach may lower the chances of capturing this dynamism. Therefore, a longitudinal kind of research that provides for the long-term effect of organisational culture and sustainability performance may be considered by future research. Future research can also consider a comparative study across regions and countries for a deeper comprehension of the influence of organisational culture and sustainability performance in HEIs.

MANUSCRIPT ENDS

Chapter Four

Exploring the Influence of External Pressures on Sustainability Performance in Higher Education Institutions (HEIs)

This chapter examines the influence of external pressure on sustainability performance in Nigerian Higher Education, leveraging the theoretical lens of institutional isomorphism, a major concept in institutional theory. HEIs have been playing a leading role in the promotion of sustainability both for the members of their institution and society. However, factors like adherence to government policies, stakeholders' needs on sustainability and the impact of global initiatives on sustainability have proven to be a driving force in controlling efforts of Nigerian HEIs towards sustainability. This study examines the impact of the three institutional isomorphisms – coercive, normative and mimetic pressures on sustainability performance in Nigerian HEIs. A qualitative study involving in-depth interviews with sustainability professionals and academic leaders from nine government-owned HEIs in the southwestern region of Nigeria was undertaken. The results reveal that coercive pressure in the form of government policies is a major driver of sustainability projects in Nigerian HEIs, with concern for academic freedom and autonomy of the HEIs. Normative pressure strengthens sustainability initiatives through professional bodies and accreditation agencies' conformity with national and global norms. Mimetic pressure reduces the risk of experimentation and creativity by adopting and adapting established sustainability frameworks and practices from similar institutions. However, inadequate resources, policies and frameworks due to the emerging nature of sustainability initiatives in Nigerian HEIs raise questions about the effectiveness of these pressures in achieving sustainability performance. This study, therefore, suggests the need for both tailored and embedded policies, an explicit strategy and strengthened collaborative mechanisms to address the knowledge gap and offers innovative insight for boosting sustainability initiatives in

developing countries' HEIs. This research enriches the institutional theory and provides practical recommendations for promoting sustainability in developing countries' HEIs.

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MANUSCRIPT BEGINS

4.1 Introduction

Sustainable development is widely defined as “the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p. 48) and has become recognised as an important factor across industries around the world. It includes environmental, social and economic factors and focuses on the achievement of long-term remedies that improve well-being while conserving natural resources (Ashrafi et al., 2019; Owen, 2008). In recent years, the concept of sustainability has become a global conversation among players in the industrial sector, while government and institutions recognise their roles and responsibilities in confronting global problems such as depletion of resources, environmental degradation, climate change and social inequality (Wu & Tham, 2023).

Within the framework of HEIs, the term sustainability captures the inclusion of sustainable initiatives into the curriculum, environmentally friendly practices and social responsibility programmes that support both institutional sustainability and global environmental conservation (Abo-Khalil, 2024; Afshan et al., 2024). HEIs are major players in awakening the consciousness of the present generation, who are future leaders that would drive sustainability practices in society

(A. Babalola & Olawuyi, 2021; Tomasella et al., 2022). HEIs' contributions towards sustainability include but are not limited to integrating and teaching sustainability initiatives, encouraging energy conservation, ensuring appropriate waste management, as well as student and staff engagement in sustainability practices (Leal Filho et al., 2019; Viera Trevisan et al., 2024). HEIs are responsible for building environmentally conscious citizens and building a societal culture that promotes sustainability while advocating policies and practices on a broader global stage (Filho et al., 2024). This implies that HEIs are not only educators but champions in executing and promoting sustainability initiatives on campus, within the host community and the society at large. Operational costs reduction, resulting from efficient use of energy, encourage local revenue generation through green business backing and innovative culture development to address pressing global issues like climate change and diminishing resources, are some of the socioeconomic advantages of HEIs efforts towards sustainability (Barros et al., 2021; Geels et al., 2018).

The United Nations Sustainable Development Goals (SDGs) have encouraged HEIs to integrate sustainability into teaching, research and their strategies for operation to suit global standards (Abo-Khalil, 2024; Leal Filho et al., 2023; Viera Trevisan et al., 2024). In an effort to attain the international standard, government institutions, regulatory agencies and professional bodies across the globe have transformed these goals into rules and regulations, rewards, and built a legal structure for HEIs to promote sustainability initiatives and practices (Abo-Khalil, 2024; Purcell et al., 2019).

In a time where preserving the environment has become crucial, HEIs are not only committed to developing the next generation of leaders, but they are also under scrutiny to model sustainable practices within their operations. Sustainability performance in HEIs is becoming more significant given that these HEIs develop future leaders and foster societal growth (Abo-Khalil, 2024). As

public preference shifts and sustainability concerns increase, HEIs confront growing pressures to embrace sustainability practices (Žalėnienė & Pereira, 2021). External pressures in the form of government regulations, professional standards and competition from similar organisations are factors influencing the achievement of sustainability, particularly in developing countries (Bell, 2002; Wan Ahmad et al., 2016). This research investigates the influence of external pressure on sustainability performance in Nigerian HEIs via the examination of institutional isomorphism, a major concept in institutional theory. Institutional isomorphism indicates that organisations, including HEIs, are impacted by external pressure that requires them to conform to societal standards and guidelines, leading to the homogenization of practices across the sectors (Cardona Mejía et al., 2019).

The absence of empirical research that investigates the unique dynamics between external pressures like government policy, societal standards and competitive force and the emergence of sustainability within HEIs is responsible for the knowledge gap concerning the subject. In the global space, external coercive, normative and mimetic pressures are extensively reported. However, little is being established on how these pressures primarily influence sustainability performance within Nigerian HEIs, which operate in a different economic status and regulatory context.

Apart from the limited research on how Nigerian HEIs respond to these pressures. Some Nigerian universities have made efforts towards sustainability projects (Abenu et al., 2023), but the reasons for the acceptance and efforts by some HEIs than others remain unclear. Thus, the need to address the gap by exploring the influence of pressure on sustainability is necessary to improve sustainability performance in Nigerian HEIs. This will equally enable the stakeholders to better tailor interventions towards the unique challenges and potential that suit the developing countries'

context, and HEIs will be better prepared to implement sustainability strategies, engage players and guarantee compliance with local and international environmental goals. This study, therefore, examines the nature of external pressure, evaluates its impact on sustainability performance and determines potential remedies for mitigating harmful influences.

This study investigates the influence of the three institutional isomorphic factors and sustainability performance in Nigerian HEIs by developing and analysing the following research questions.

RQ1: How do coercive pressures drive sustainability performance in Nigerian HEIs?

RQ2: How do normative pressures motivate sustainability performance in Nigerian HEIs?

RQ3: In what way do mimetic pressures drive sustainability performance in Nigerian HEIs?

The next sections feature a literature review, the theoretical framework, followed by methodology, results, discussion of findings and conclusion with limitations and suggestions for further studies.

4.2 Institutional Theory and External Pressure

Institutional theory was initially offered as a theory to explain that organisations are not autonomous rational actors (DiMaggio & Powell, 1983; Stål, 2015). The theory was then established with a significant amount of literature, filled with ideas and models to describe the influence of structures on organisations (Arranz et al., 2022; Stål, 2015). The institutional theory demonstrates the organisational need for acceptance and legitimacy, through the adoption of certain practices, behaviour or systems that are consistent with the societal standards, values and expectations of the institutions for societal environmental or financial impact (Alnaim & Metwally, 2024; Arranz et al., 2022; Cardona Mejía et al., 2019).

This theory focuses on encouraging a better understanding of the development, processing and execution of institutions' operations and activities to improve their legitimacy in society (David et al., 2019; Smelser & Baltes, 2001). The theory equally focuses on the host institution's external environment and its influence on the operation of the organisation (Krajnović, 2018; Shubham et al., 2018), describing how external factors affect the institutional operations, strategies and policies (David et al., 2019; Starik & Kanashiro, 2013). It provides a successful framework for evaluating the impact of external pressure on the holistic performance of HEIs, which includes sustainability performance (Galleli et al., 2020; Pramono Sari et al., 2023). A major ingredient in institutional theory is **Institutional isomorphism**. This concept is referred to as the homogenization of organisation, a practice where one institution is expected to resemble other institutions involved in similar operations and environments (Cardona Mejía et al., 2019). Institutional characteristics change to enhance their suitability with the sustainability characteristics (DiMaggio & Powell, 1983). The three isomorphisms that inspire institutional homogenization are coercive, normative and mimetic. Coercive pressures are regulations applied by government institutions and similar agencies with the capacity to apply regulations and standards (*Institutional Isomorphism and Nonprofit Managerialism*, n.d.). Normative isomorphism is a product of professional values and the rising legitimate professional practices. The combination of these cores gave rise to normative pressure (Ansmann & Seyfried, 2021). Mimetic pressures, on the other hand, arise from a copycat phenomenon in which organisations replicate the activities and systems of other successful organisations in their field (Martínez-Ferrero & García-Sánchez, 2017).

4.2.1 Coercive Pressure and Sustainability Performance

Coercive pressures have an impact on the “financial stability” and “sustainability performance” of the organisation (Alguindigue Ruiz & Weber, 2021). The most evident institutional explanation

for organisations' socially responsible behaviour has been cited as the state's regulatory sanctions (Shubham et al., 2018). Coercive pressure is one of the major drivers of sustainability in the global space (Latif et al., 2020). Government policy, accreditation requirements, and statutory legal regulations on corporations are examples of sustainability guidelines in Nigerian HEIs (Masocha & Fatoki, 2018). For example, if the Nigerian government requires institutions to either include sustainability education in their curricula or report on their sustainability performance. Organisations frequently regard compliance as essential to their survival and legitimacy (Parella, 2020). Globally, the United Nations SDGs, Paris Accord and carbon neutrality agreements (Colangelo, 2024) are a few of the regulations and policies that compel HEIs to conform to sustainability goals. Compliance with these policies has proven to have a blend of mandatory and voluntary practices. A major concern is the rigid nature of the regulation, which could hinder innovation as the priority of the HEIs is on compliance rather than innovative alternatives (Ibiyeye et al., 2024). The approach guiding compliance should take into account the formation of a dynamic policy context that allows for the incorporation of local features (Hsu et al., 2021). This provision of approaches that will encourage innovation while complying with the established rules on sustainability initiatives is required.

4.2.2 Normative Pressure and Sustainability Performance

Normative pressure ensures that organisations comply in order to be portrayed as engaging in legitimate activities (Glover et al., 2014). When organisations adopt particular practices, systems, or procedures as a result of the norms and values or the growth of their professional careers, this form of isomorphism takes place. When graduates enter the workforce, they can bring the conventions they learned in school with them. Additionally, the development of professional connections that extend organisation through which novel approaches spread quickly and formal

education, generate normative pressures that encourage organisations to implement standard procedures and behaviour (Arranz et al., 2022). Societal expectations, cultural norms, and professional standards impact an organisation's behaviour. In the case of sustainability projects in Nigerian higher education institutions, normative constraints may arise from widespread societal expectations that universities demonstrate their commitment to social responsibility and environmental protection (DiMaggio & Powell, 1983; *Institutional Isomorphism and Nonprofit Managerialism*, n.d.; Martínez-Ferrero & García-Sánchez, 2017). Since normative pressures influence socially appropriate behaviours and practices, developing nations often consider it a driver that impacts norms and a sense of responsibility (Latif et al., 2020). The areas of professionalisation that can produce isomorphism in HEIs are professional networks and experts from the university through the establishment and promotion of appropriate practices of the institutions and professional conduct that are disseminated (Cardona Mejía et al., 2019).

4.2.3 Mimetic Pressure and Sustainability Performance

Mimetic pressures promote imitation due to uncertainty or ambiguity of the goals and procedures of an institution with the intention of replicating a successful model (Arranz et al., 2022; Cardona Mejía et al., 2019). Some institutions or business owners copy the ways and procedures of similar progressive institutions (Glover et al., 2014). This is a process whereby strategies, processes, procedures, methods or structures of a successful organisation are adopted by a rival organisation. This kind of isomorphism can be caused by uncertainty and a lack of understanding about the best practices, which encourages organisations to copy what they think other people are doing successfully (Glover et al., 2014; Baumann, 2018). Mimetic pressure is a major driver in sustainability performance as HEIs desire to embrace established sustainability practices employed by similar organisations. The risk that comes with experimentation and creativity can be eliminated

by organisations that leverage established sustainability frameworks (Cardona Mejía et al., 2019). However, replicating the established approaches can lead to the superficial adoption of initiatives with no consideration for adaptation to suit the institutional core values (Borrás et al., 2020). It is worth noting that developing nations such as Nigeria, which are at the emerging stage of pursuing sustainability in a way that has proven effective, may be limited in this approach.

In Nigeria, HEIs' operations are affected by regulatory, economic and social factors. Some institutions in Nigeria have partially embraced sustainability practices, while others remain behind owing to some external forces (Abenu et al., 2024). These differences may be conquered through a critical comprehension of how institutional isomorphisms influence sustainability performance. This approach is essential at a time when Nigerian environmental concerns, in the form of deforestation, indiscriminate dumping of waste and flooding, are on the increase (Echendu, 2023; Onuoha et al., 2022). Therefore, this study leverages institutional isomorphism to explore the influence of external pressure on sustainability performance in Nigerian HEIs.

4.3 Methodology

The study adopts a qualitative approach with semi-structured interviews to explore the impact of external pressure on sustainability performance in Nigerian HEIs. It leverages the theoretical framework of institutional theory, which describes institutional isomorphism.

This research focuses on the southwestern part of Nigeria with 18 government-owned universities (Mogaji, 2019); nine of these HEIs responded to our invitation for an interview (see *Table 1*).

Table 10: Sample

S/N	University Name	Location	Response Status
1	Adekunle Ajasin University	Ondo	Not Responded
2	Ekiti State University	Ekiti	Not Responded
3	Federal University of Agriculture, Abeokuta	Abeokuta	Responded
4	Federal University of Health Sciences	Ila Orangun	Not Responded
5	Federal University of Oye-Ekiti	Ekiti	Not Responded
6	Federal University of Technology	Akure	Responded
7	Ladoke Akintola University of Technology	Ogbomosho	Not Responded
8	Lagos State University	Ojo	Responded
9	Lagos State University of Science and Technology	Lagos	Not Responded
10	Obafemi Awolowo University	Ile-Ife	Responded
11	Olabisi Onabanjo University	Ago-Iwoye	Responded
12	Ondo State University of Science and Technology	Okitipupa	Not Responded
13	Osun State University	Osogbo	Responded
14	Oyo State Technical University	Ibadan	Not Responded
15	Tai Solarin University of Education	Ijebu Ode	Responded
16	University of Ado Ekiti	Ado	Not Responded
17	University of Ibadan	Ibadan	Responded
18	University of Lagos	Akoka	Responded

Source: Researchers Computations, 2024

The southwestern region houses some of the oldest and most prestigious universities in Nigeria (Doris, 2023). Also, the region has the highest number of HEIs, with the lead author having more than a decade of work experience in some HEIs in the region. Some of these universities refused

to be part of the interview process on the grounds that their institutional policies do not allow such, while others claim scheduling conflicts.

Semi-structured interviews were conducted with these key individuals from the universities who agreed to be part of the interview. This interview provided an in-depth understanding of how external pressure affects sustainability performance and equally identified other factors influencing sustainability performance in Nigerian universities. The three institutional isomorphisms- coercive, normative and mimetic were the basis for the questions. These semi-structured interviews were conducted in person in Nigeria with one representative each from the nine universities. The interviews, which lasted for 30-40 minutes, were recorded and transcribed. Aligning with qualitative research best practices, key informant methodology (Patton, 2015) was employed to select sustainability-experienced members of the university with a reasonable number of years of service in the university, either as management team members, faculty or administrators with expertise in the administrative workings of the university and sustainability-related matters and activities. These individuals include sustainability/SDGs directors, deans of schools, administrative officers, faculty members, etc. To ensure objective responses and maintain ethical standards, interviewees are assured of confidentiality and anonymity.

Additionally, the interviews were categorised into two parts, the first part uncovered the demographic information of the participant to know their age, education and level of experience. The second part of the items focuses on the three research questions – coercive, normative and mimetic on sustainability performance. The studied universities are denoted with the letter “C” for analysis and results, for example, C1, C2, C3, etc. The interviews were transcribed, files imported to NVivo software and thematically coded with a focus on institutional isomorphism and sustainability performance for analysis to identify patterns, relationships, and themes (Naeem et

substantiate and reinforce the major findings for better understanding (van Rensburg, 2023). It emphasises the significance of institutional isomorphism in promoting sustainability performance in Nigerian HEIs. For example, words like “policy”, “government”, “regulations” and “compliance” represent discussions around coercive pressure.

Table 11: Coercive Isomorphism and Sustainability Performance

Initial Codes	Description	Universities									Results	
		C1	C2	C3	C4	C5	C6	C7	C8	C9	Yes	No
Compliance with Government Regulations	Explore the impact of government policy on sustainability performance in Nigerian HEIs.	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0
Specific Policy	Identify specific policies of the government around sustainability in recent times.	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0
Regulatory body expectations	Investigate the expectations of the regulatory bodies on sustainability	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0

	initiatives from HEIs											
Penalty and Incentives	Understand if there are penalties or incentives driving sustainability compliance.	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0

Source: NVivo 14, Interview Data, 2025

Responding to research question 1: What role does coercive pressure play in shaping sustainability performance in Nigerian HEIs? Most of the HEIs reported that their compliance level is absolute given their reliance on the government for control, funding and other support. C1 stated that “as an institution of government, established, funded and run by the government, we have to adhere strictly to the government’s regulations and directives as related to sustainability practices.” C2 and C3 respectively affirmed that “we don’t have any choice but to comply with government directives”, and “if the government say we should do something, we have no option but to strictly adhere.” While some HEIs perceived that it is the right move to adjust to government regulation, especially sustainable initiatives, some feel it limits the autonomy possessed by the HEIs; this is why C3 said, “We adhere because it is a state institution, we do not have an option.” However, few HEIs emphasise that their compliance is based on sustainability concerns. C9 affirmed this when they replied, “I can say the university is adhering to policies that are directly or indirectly linked with sustainability.” The regulatory influence and compliance level are evidenced when words such as *regulations, policy, adhere, government, and compliance* top the frequency in the word cloud (see Figure 1). The majority of the participants acknowledge that there are penalties

for going against government regulation. C1 said, “When you go against any government directive, there is a direct penalty.” C6 and C9 were specific in saying, “If any of such is not in compliance, they will deny such an institution approval for accreditation.”, “I can say that there is an overt punishment and reward system for adhering to policy.” The regulatory bodies expected most of the institutions to comply with all regulations around sustainability. C2 affirmed that “for the regulatory body, one of their requirements is that your institution must comply with sustainability.” However, none of the HEIs could mention a specific policy on sustainability in recent times, as most claim that sustainability policies are embedded in other policies on construction, land regulation, public procurement, etc.

Table 12: Normative Isomorphism and Sustainability Performance

Initial Codes	Description	Universities									Results	
		C1	C2	C3	C4	C5	C6	C7	C8	C9	Yes	No
Influence of Professional Associations	Describes the influence of professional associations on the achievement of sustainability projects	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0
Accreditation Standards	Explore the standards set for accreditation by the professional bodies	×	✓	✓	×	✓	✓	×	✓	✓	6	3

Source: NVivo 14, Interview Data, 2025

In response to the research question 2: To what extent does normative pressure impact sustainability performance in Nigerian HEIs? Emphasis was placed on HEIs' conformity to sustainability practices for accreditation by concerned bodies, which was noted by some of the

HEIs sampled. For instance, C2 affirmed that “if you want to get accreditation for any course, it must conform with sustainability practices.” Similarly, C5 stated, “You are aware that the environment is part of the criteria that they need to come and assess, then you have to take care of the environment.” One key enabler of sustainability adherence is the accreditation process conducted by both government and professional governing bodies. This was reported by C3: “There are two accreditations we do in the university, especially for those departments that are professional departments, we do national accreditation separately, and we do professional bodies.” This is evidence that professional bodies have some level of influence on the sustainability performance of HEIs. Specifically, some of the professional bodies focus on environmental factors for approval and recommendation, according to the respondent from C2: “Every professional body that I have known for the past 20 years I have been here as a lecturer, has also been re-echoing sustainability practice.” Despite the professional associations' influence, rules are limiting their involvement in institutional operations, as stated by C6 that “there is a guiding rule that limits the involvement of all these professional bodies.” The word cloud frequency equally supported these results, with the high presence of words like *professional*, *environment*, *accreditation*, and *development* to show the connection between professional agencies and the adoption of sustainability projects.

Table 13: Mimetic Isomorphism and Sustainability Performance

Initial Codes	Description	Universities									Results	
		C1	C2	C3	C4	C5	C6	C7	C8	C9	Yes	No
Learning from Other Institutions	Understand how institutions learn from those perceived to be	✓	✓	✓	✓	✓	✓	✓	✓	✓	9	0

	better in sustainability practices.											
Comparative Practices	Investigate the comparative strategies used to improve sustainability initiatives.	✓	×	×	✓	✓	✓	✓	×	✓	6	3
Competitive Sustainability Initiatives	Examine the type and level of competition existing around sustainability practices.	✓	✓	×	✓	✓	✓	✓	✓	✓	8	1
Collaborative Interactions	Explore the level of collaboration with industries and similar institutions on sustainability projects.	×	✓	✓	×	✓	✓	×	✓	✓	6	3

Source: NVivo 14, Interview Data, 2025

In an effort to respond to research question 3: What is the impact of mimetic pressure on the achievement of sustainability performance in Nigerian HEIs? The majority of the respondents affirmed that they collaborate and emulate other institutions they perceived as being better than themselves in sustainability practices. C6 confirmed that: “We interact with other universities around”, C2 said “, Whenever we go to a particular institution, we see a particular model of sustainability practice, we can also come home and buy it,” and C1 said, “We emulate those that we think are better emulated.” Another significant point noted by the participants was that

comparison and collaboration with similar institutions and industries are essential for promoting sustainability projects. C6 confirmed that “Collaboration with the industry also enhances our sustainability strategies.” C7 equally said “It is important we compare our progress so far so that we can attain more” and C9 said “It is a great push because there is always a comparison of activity from one university to another university” However noted that “Peer influence on academic and environmental activities is not yet strong or widespread across Nigerian universities, as the concept of sustainability is still evolving in the Nigerian context.” Despite this, most of the institutions reported their intention to replicate successful ones. C1 reported that “our institution is competing favourably because when we see good things, we appreciate it, we emulate it.” C9 said, “We look way outside the university because, in most of our activity, we are often ahead of a lot of the university.” This connection between similar institutions and the emulation of successful practices was also indicated with words like *practices, like, embrace, and university* on the word cloud frequency.

4.5 Discussion of Findings

The primary objective of this study is to explore the influence of external pressure on sustainability performance in Nigerian HEIs. The findings were divided into two sections: A summary of the findings of the three research questions and the implications of the study.

Coercive pressure is a major force driving sustainability performance in Nigerian HEIs, especially through government regulations or policy. The high degree of adherence to government regulations was found to be a result of HEIs’ dependency on funding from the government and accreditation. Penalties in the form of accreditation denial and other limitations connected to non-compliance further strengthened the commitment. Most of the participant HEIs see coercive pressures as essential for the attainment of sustainability within the institutions. This is consistent with

Agyabeng-Mensah et al. (2022), who confirmed that pressure from regulatory institutions influences organisational dedication towards sustainability initiatives. This is because when some elements of coercion are introduced through policies and regulations, institutions are forced to address sustainability concerns (Borrás et al., 2020). However, some are worried that coercive pressure may erode institutional freedom and autonomy, which is contrary to the prevailing principle of sustainability, as the mandatory and legal nature of sustainability is still up for debate at different levels (Ingelson, 2019; Russell, 2024). Additionally, sustainability policies in Nigerian HEIs have been found to be incorporated into other regulations, such as regulations guiding procurement and construction, but not operating as independent policies with a main focus on sustainability projects or practices. These practices will not only undermine the clear focus on sustainability projects but also limit the establishment of a holistic policy on sustainability. Contrarily, incorporating sustainability into established principles can encourage effortless alignment with overall organisational design and extensive and efficient application (Guttermann, 2020; Oyetoro, 2024). However, maintaining a hybrid model where sustainability stands alone for relevance and is embedded in existing principles for wider implementation represents its importance.

Another major influence of sustainability practice in HEIs is the normative pressure, particularly that emanating from the process of accreditation and professional agencies. Departments with professional associations accreditation are required to focus on their teaching and research on sustainability standards to bridge the gaps between academia and industry. During the programme assessment process, professional associations play a major role in reinforcing the significance of sustainability practices in Nigerian HEIs and, by implication, it impacts the economy through sustainable policies, promotion of sustainable skills and sustainable core values (Jave & Saeed,

2018; Pasamar et al., 2023). The need for partnership between the professional agencies and HEIs was noted to be a booster of sustainability practices to align HEIs with industry-standard practices and expectations. This partnership will foster the achievement of sustainability initiatives aligning with goal 17 of the United Nations SDGs, which stressed partnership and its contribution to sustainability (N. Samuel & Clarke, 2022) and knowledge delivery (Omonijo et al., 2017). Fortunately, the current regulations enhancing professional associations' involvement in institutional activities may condition their holistic influence on sustainability initiatives. For example, the proposed energising education programme for universities by the Rural Electrification Agency in Nigeria is a signal of the improved partnership (Rural Electrification Agency, 2024). This implies that the expanded partnership without constraining regulations can deepen the influence of normative pressure through dialogue on sustainability strategies for accreditation and other related activities within the HEIs (Zhang et al., 2024).

The findings revealed that replications of sustainability practices from one institution to another-mimetic pressure have a significant influence on the promotion of sustainability culture and initiative in Nigerian HEIs. This indicates that institutions in Nigerian HEIs imitate one another for successful practices and procedures (Cardona Mejía et al., 2019). The appetite to learn and replicate effective sustainability approaches was reported by Nigerian HEIs adopting successful practices from other institutions and industries. It is pertinent to recognise the fact that the replication of the tested model will promote development and innovation and eliminate redundancy (Borrás et al., 2020). HEIs can reduce the risk associated with experimentation and improve development through the adoption of successful frameworks from similar institutions (Ansmann & Seyfried, 2021). The necessity for collaboration and comparison with similar institutions cannot be overemphasised in academic sustainability projects. However, the limitation

of peer influence on sustainability performance is discovered by this study due to the evolving stage of sustainability principles in the Nigerian context (Unegbu et al., 2024). Despite these identified concerns, the results underscore the possible roles of mimetic pressure in encouraging innovation and improving sustainability practices. Hersberger-Langloh et al. (2021) note that an effort to imitate other institutions without adapting it to the core institutional values may amount to an unclear plan and may not strengthen the sustainability performance. The impact of mimetic pressure can equally be improved by strengthening collaborations and encouraging knowledge sharing among HEIs in Nigeria. Finally, the majority of the respondents are optimistic about the promising future of sustainability in Nigerian HEIs. This is because many nations rely on their HEIs for insight and intention to drive the transformation and manage the adjustment process (Abo-Khalil, 2024; Arsenault, 2021; Tomasella et al., 2022).

By implication, the external pressures - coercive, normative and mimetic are major promoters of sustainability performance in Nigerian HEI. However, the establishment of clear, specific and embedded regulations, effective collaborative frameworks and commitment to sustainability projects would determine the success of these identified concerns (Akomolafe et al., 2024). The study further stressed the necessity for a cultural change in HEIs to recognise sustainability as an integral part of institutional value. The need to incorporate sustainability into institutional strategies, academic programmes and administrative frameworks while building a culture of constant adaptation and learning. A gaze into the future of sustainability in Nigerian HEIs seems promising as respondents expressed a high level of optimism concerning the increasing acceptance of global best practices and the assurance of collaborative institutional engagement in sustainability initiatives. There is a need for stakeholder priority on regulation clarity, collaborative

engagements and capacity building for the effective integration of sustainability practices in Nigerian HEIs.

The application of the institutional isomorphism concept to explore how coercive (government regulation), normative (professional association) and mimetic (imitating successful models from similar institutions) pressures impact the sustainability performance in Nigerian HEIs represents a significant theoretical plus. Positioning sustainability performance within the institutional theory framework offers an in-depth comprehension of how external pressure influences the change in institutional behaviour in the context of developing nations like Nigeria, opposing the usual literature focusing mainly on developed nations. The marriage between institutional theory and sustainability that bridges an essential gap through the recognition of the dual responsibility of the HEIs as academia and sustainability practices advocates is innovative. Highlighting external pressure influence for compliance legitimacy and creativity in sustainability projects reflects an empirical contribution to institutional theory. The incorporation of sustainability into institutional activities, approaches and culture offers practical contributions to policy-making and academic scholarship. Emphasis on the need for both tailored and embedded policies, explicit strategy and strengthened collaborative mechanisms not only address a knowledge gap but also offers innovative insight for boosting sustainability initiatives in developing countries' HEIs.

4.6 Conclusion

This paper employed the theoretical framework of institutional isomorphism to investigate the impact of external pressure (coercive, normative and mimetic) on sustainability performance in Nigerian HEIs. The findings described coercive pressure concerning government regulations and accreditation standards as a major factor driving sustainability initiatives through compliance within the Nigerian HEIs. However, concern has it that the autonomy enjoyed by the academic

community may be tampered with by this pressure. The findings also provide a comprehension of how normative pressure drives sustainability engagement through the incorporation of sustainability standards and principles by professional associations and agencies into academic and professional operations to align sustainability practices in HEIs with industry. Mimetic pressure stimulates the duplication of existing sustainability from successful peer institutions; this has the potential to reduce the risk connected with experimentation but might hinder localised creativity and innovation. The findings stress the critical roles played by these pressures in instilling institutional behaviour, encouraging legitimacy, and fostering creativity in sustainability practices.

Given these pressures, the findings highlight the challenges confronting sustainability performance in Nigerian HEIs. Limited policies on sustainability, low funding, and the absence of a holistic framework that supports sustainability are identified as constraints. Despite external pressures playing a significant role in encouraging institutions to embrace sustainability practices, it can only be sustained with the inclusion of adapted policies, strategic organisational dedication and improved mechanisms for collaboration among HEIs, government and professional agencies.

The study's uniqueness lies in its provision of empirical insights from the context of developing nations and its contributions to the literature on campus sustainability. To guarantee conformity with both local and global sustainability standards, the results demonstrate the need to integrate sustainability into HEIs' policies, activities and values. Additionally, the finding established the importance of a hybrid approach for both specific and embedded regulations, effective collaborations and training in boosting sustainability performance. The opportunity for radical transformation was established as the majority of the stakeholders voiced their optimism in the

promising future of sustainability in Nigerian HEIs through the adoption of global standards while confronting local concerns.

4.7 Recommendations, Limitations and Suggestions for Further Studies

Based on the findings of this study, we recommend sustainability policies that focus on promoting sustainable HEIs and incorporating sustainability into existing policies for institutional adoption. Additionally, to enhance efficiency and capacity, HEIs should encourage collaboration with professional bodies to close the gaps in knowledge, train both staff and students in relevant sustainability skills and foster partnerships with similar institutions, industries and communities for knowledge transfer and sustainability project implementation. A practical recommendation for policymakers, stakeholders and institutional leaders is to advocate, propose and promote clear policies, initiatives for capacity building and effective collaboration to enhance the adoption of sustainability. The Nigerian HEIs' journey towards sustainability should encourage a culture of institutional learning and adaptation to achieve their sustainability goals in environmental, social and governance.

This study was limited in scope to the southwestern part of Nigeria, with nine HEIs investigated; this may not fully represent the view of the entire nation on sustainability. This may not represent the perspectives of sustainability professionals and academic leaders in other regions or nations. Therefore, future studies should consider a comparative study across nations and regions for a broader understanding of external pressures on sustainability motivation in HEIs.

Additionally, this research engaged a particular set of stakeholders, specifically sustainability experts in HEIs. Although their perspectives gave significant insight into the research, they may fall short of the views of other stakeholders such as students, community members, government agencies and partners from the industry who may either have different or more robust views of

sustainability. Future research should consider expanding stakeholders' engagement in the HEIs for data collection and presenting their views on sustainability initiatives and related external pressure.

Lastly, tracking the change in sustainability behaviour as a result of external pressure is important to assess progress and development. Longitudinal studies may enhance the process and provide an in-depth perspective of sustainability initiatives and the adaptation process of HEIs over time. Tracking sustainability intervention over a reasonable length of period to analyse long-term influence should be considered in future research.

MANUSCRIPT ENDS

Chapter Five

Conclusion

This dissertation focuses on the exploration of sustainability practices in Nigerian HEIs. Specifically, exploring the roles and challenges facing the implementation of sustainability initiatives through internal and external pressures for a comprehensive understanding of how to drive higher education sustainability by investigating practices, cultural influence and external pressures in Nigerian HEIs.

Investigating the practices, this dissertation confirms the possibility of incorporating sustainability practices in Nigerian HEIs through the use of the STARS framework. The findings discover varying degrees of sustainability involvement and engagement by HEIs without a formalised approach or resources allocated specifically for sustainability projects. Some HEIs exhibit a strong commitment to sustainability initiatives through deliberate practices associated with the United Nations SDGs, but there is a lack of uniformity in their application, emphasising the necessity for standardised measurements and coordinated efforts towards sustainability objectives. This degree of heterogeneity highlights the need for uniform measurements that apply to all and may be utilised to coordinate efforts with sustainability objectives (Tumbas et al., 2015; U. N., 2017). The findings highlight the need to improve the process of integrating sustainability education into academic curricula, with an opportunity to offer specialised courses or modules focused on sustainability issues. Gamage et al. (2022) opine that teaching sustainability as an independent subject or course would be more beneficial. However, for effective and efficient learning, there is a need for the combined application of the principles of “interdisciplinary, trans-disciplinary, and self-regulated learning” (Scarff, Seatter & Ceulemans, 2017). Finally, different forms of obstacles like limited awareness of sustainable principles, financial limitations, and

attitude barriers needed attention to progress the sustainability agenda. The presence of several challenges hinders the fostering as well as execution of sustainability practices within institutions (Lopes et al., 2018).

Investigating cultural influence, the influence of hierarchical culture, institutional policy, management style and leadership style was considered on sustainability performance in Nigerian HEIs in this study. The findings reveal that institutional policy is a critical tool in the provision of necessary frameworks to promote sustainability performance, considering formal procedures and established rules necessary to preserve operational efficiency and economic growth while reaching sustainability goals. This is why Linnenluecke and Griffiths (2010) highlight the fact that institutional operations depend mainly on control, predictability, regulations, rules and procedures. The findings emphasise the significance of innovative and visionary leadership in encouraging sustainability practices. However, interestingly, management styles that are focused on conformity and rigidity have little or no influence on sustainability efforts. Although management styles are significant tools in enduring operational standards, they may not have a direct effect on boosting sustainability outcomes in Nigerian HEIs; there is a need for shifts in the style, like ensuring a more flexible, participatory and collaborative approach (Cameron & Quinn, 2021).

To investigate external pressures, a theoretical framework of institutional isomorphism - coercive, normative and mimetic was employed to understand their roles in instilling institutional behaviour, encouraging legitimacy, and fostering creativity in sustainability practices in Nigerian HEIs. The findings consolidate the need for specific and embedded regulations, effective collaborations and training in boosting sustainability performance. This corroborates Gutterman's (2020) and Oyetoro's (2024) opinions that incorporating sustainability into established principles can encourage effortless alignment with overall organisational design and extensive and efficient

application. It further offers practical suggestions that equip policymakers, stakeholders and institutional leaders with the necessary information to advance sustainability in HEIs. The opportunity for radical transformation was established as the majority of the stakeholders voiced their optimism in the promising future of sustainability in Nigerian HEIs through the adoption of global standards while confronting local concerns. This is because nations around the world rely on their HEIs for perspectives and intentions to drive the transformation and manage the process of adaptation (Abo-Khalil, 2024; Arsenault, 2021; Tomasella et al., 2022).

5.1 Theoretical Contribution

The manuscript confirmed the possibility of incorporating sustainability practices in Nigerian HEIs through the use of the STARS framework. The adoption of the STARS framework as a benchmark tool to evaluate sustainability practices in Nigerian HEIs closes the gap in the organised sustainability performance evaluation in Nigerian HEIs, encourages advancement and promotes global compatibility. The modification of STARS indicators to capture the Nigerian HEIs' realities, such as the limitation of resources, government concerns and factors related to culture, contributes to theoretical expansion. This adaptation makes STARS suitable for African HEIs, providing a novel framework for sustainability performance evaluation in developing countries.

The thesis offers a novel theoretical contribution by leveraging the CVF to assess the impact of organisational culture on sustainability performance within a developing country context. This extension beyond the western boundaries produces a practical insight for HEIs in developing countries. Another unique theoretical contribution is the connection with CVF to examine its immediate influence on sustainability efforts, which advocates a transformational leadership approach in Nigerian HEIs, as opposed to a rigid leadership structure and decision-making process, which might limit sustainability efforts. This dissertation has also contributed to the CVF theory

through its expansion to show how hierarchical organisational culture in HEIs has influenced the adoption of sustainability, as opposed to organisational culture mostly focusing on corporate sustainability within the business industry.

The application of the institutional isomorphism concept to explore how coercive (government regulation), normative (professional association) and mimetic (imitating successful models from similar institutions) pressures impact the sustainability performance in the context of a developing country like Nigerian HEIs represents a significant theoretical plus. The study contributes to institutional theory to analyse sustainability practices in HEIs. The extension of institutional theory demonstrates how isomorphic pressure operations in HEIs influence sustainability adoption in an environment with limited resources.

In contrast to the existing suggestion that hierarchical structures hinder sustainability initiatives, this dissertation demonstrates that when hierarchical culture is addressed with external pressure, it will drive sustainability adherence. This shows an integration between the CVF and institutional isomorphism. Negating the traditional application of institutional theory to corporate and public settings, the extension of institutional theory to HEIs demonstrates interactions between institutional isomorphism and organisational culture on sustainability performance.

Coercive pressure proves to be more effective with hierarchical HEIs, which is due to a centralised governance style, while normative and mimetic pressures prove to be more effective in a flexible culture (Omer et al., 2021). However, the dissertation has introduced a concept of Culture-Pressure Alignment, showing external pressure alignment with cultural orientation. Therefore, a policy-driven approach to sustainability can be achieved in HEIs if accompanied by flexible and innovative processes.

5.2 Specific Recommendations

1. For AASHE/International HE Sustainability Metrics (e.g., STARS):

International HE metric initiatives such as STARS should adapt indicators to better reflect non-Western contexts, considering concerns like resource constraints, governance challenges, and cultural dimensions.

Reduction in the over-reliance on self-reported data by integrating verification and qualitative measures like organisational culture and leadership style.

Allowing contextual flexibility so that institutions in developing nations can report sustainability performance that is not provided for by the current metrics.

2. The Nigerian Federal Ministry of Education should encourage the:

Establishment of a national sustainability framework for HEIs, aligned with Sustainable Development Goals but adapted to local realities.

Provision of sponsorship and funding incentives connected to measurable sustainability performance.

Incorporation of sustainability reporting into accreditation exercises and quality assurance with adaptation and localisation of STARS.

3. For Nigerian Universities Leaders and Management team:

Creation of an institutionalised sustainability unit, directorate or department with dedicated employees and funding.

HEIs strategic plans should incorporate sustainability initiatives and goals and connect them to performance assessment of units, departments and administrators.

Encourage faculties, staff and administrators' involvement in both global rating and locally adapted frameworks for measuring success.

4. For Nigerian Academic Staff:

Integration of sustainability principles into the teaching and learning process across disciplines, not limited to environmental studies.

Engagement of experiential learning projects (e.g., campus greening workshops and training, community sustainability outreach).

Advocate, conduct and publish sustainability-related research that directly informs institutional policy and practice.

5.3 Contribution to Knowledge

This dissertation identifies novel contributions to knowledge that advance practices, theory and methodology. This dissertation contributes to academic knowledge through the provision of empirical evidence on initiatives to promote sustainability efforts in developing nations. An area that has not received much attention in existing research. This study equally contributes to the pathway for sustainability in Nigerian HEIs by identifying barriers and suggesting possible solutions to enhance sustainability initiatives. Lack of awareness among stakeholders, financial constraints and attitude limitations are a few of the barriers identified. Addressing these barriers helps to bring a better comprehension of the factors that influence sustainability practices in HEIs.

By extending sustainability research beyond Western frameworks, this study provides contextual and empirical contributions to the global conversation by offering practical insights for institutions in other developing regions. While prior studies have explored sustainability practices in HEIs, this research uniquely focuses on the hierarchical culture characteristic of Nigerian HEIs and its specific impact on sustainability performance, which is one of the empirical studies in this area in Nigeria. Furthermore, this study introduces a new perspective by highlighting the potential of integrating policy frameworks with flexible management and adaptive leadership to strengthen sustainability efforts. Another unique contribution that offers practical recommendations for HEIs leaders from the second study is the introduction of a new perspective by underscoring the possibility of integrating institutional policy models and versatile management combined with dynamic leadership to enhance sustainability efforts.

Connecting sustainability performance and institutional theory in the developing countries' context improves comprehension of factors that influence change in institutional behaviour and closes a significant gap by recognising that academia and sustainability initiatives advocacy are the essential responsibility of the HEIs. External pressure influences for compliance legitimacy and creativity in sustainability projects highlighted in this thesis reflect a novel empirical contribution to institutional theory.

5.4 Practical and Policy Implications

Establishing a standardised sustainability framework like STARS would offer a structured approach for evaluating, monitoring progress and discovering potential for improving sustainability locally and meeting global standards. It provides the leadership of institutions with the direction to strengthen policy and incorporate sustainability into academic curricula and sustainability practices. The findings will equally offer faculty, staff and students the required knowledge to address sustainability concerns. Policymakers and institutions can employ alternative means of funding sustainability initiatives, like local and international grants, and international collaboration partnerships, since a lack of funding is a major barrier to sustainability.

To promote sustainable innovation and adaptability, HEIs should adopt collaborative, flexible and participatory management strategies, though this seems to contradict the traditional hierarchical culture of the Nigerian HEIs, but the findings suggested that a rigid management approach may not promote sustainability given its creative and flexible nature. Therefore, a balance between control and flexible leadership may offer better results for incorporating sustainability practices in an environment limited in resources. Additionally, institutional policy is a significant driver of sustainability. Therefore, Policymakers and institutional leadership should ensure sustainability-centric policies while harmonising them with the overall objectives of the institution. However, a

holistic approach that captures policies, leadership and management is important during integration and transition to sustainability, considering the multifaceted nature of sustainability.

To guarantee conformity with both local and global sustainability standards, this thesis demonstrates the need to integrate sustainability into HEIs' policies, activities and values. Additionally, the thesis established the importance of a hybrid approach for both specific and embedded regulations, effective collaborations and training in boosting sustainability performance. The opportunity for radical transformation was established as the majority of the stakeholders voiced their optimism in the promising future of sustainability in Nigerian HEIs through the adoption of global standards while confronting local concerns.

5.5 Limitations and Further Study Areas

While this thesis addressed essential insights into sustainability performance in Nigerian higher education institutions, there are several limitations that emphasise areas for concern during the interpretation of the findings and suggest further investigation. These are additional areas of research that can help to strengthen comprehension, widen theoretical perspectives and offer practical solutions that enhance sustainability in HEIs. This thesis addresses institutional practices, organisational culture and external pressures as drivers of sustainability performance. Future research might address other variables that could influence the sustainability performance significantly in HEIs.

First, because of the constantly changing nature of sustainability concerns and the long-term influence of sustainability policies, the adoption of a cross-sectional approach may not be enough to capture the measurable impact over time or lower the chances of capturing the sustainability initiative dynamism. Therefore, a longitudinal kind of research that provides for the long-term effect of sustainability outcomes may be considered by future research.

Second, the study focuses particularly on the southwest region of Nigeria, which may not fully represent the national landscape. Comparing sustainability efforts and implementation with HEIs in other regions or African countries will expose other best practices that can be adopted by Nigeria and can serve as a model to other developing nations. Overall, future research can consider a comparative study across regions and countries for a deeper comprehension of the influence of these drivers on sustainability performance in HEIs.

Third, this thesis focuses on specific stakeholders such as sustainability experts and academic staff in HEIs without considering the views of other stakeholders. However, the targeted audience perspectives were significant to the studies, but other stakeholders like students, community members, government agencies and professionals from industry may have more robust insight into sustainability initiatives. Future research should consider expanding stakeholders' engagement in the HEIs for data collection and presenting their views on sustainability initiatives.

Fourth, this thesis focused on assessing and evaluating sustainability performance on campuses; there is a need to consider the role of HEIs in promoting sustainability beyond the campus. Encouraging collaboration with the immediate and host community to promote sustainability initiatives. Therefore, further research is needed to assess the factors that can drive sustainability beyond campuses. Finally, focusing on sustainability practices in other sectors such as finance, manufacturing, aviation and oil and gas can control the ecological footprint in Africa and contribute to both theoretical and practical solutions.

This thesis closes by demonstrating that structural, cultural, and contextual challenges are major concerns to sustainability performance in Nigerian HEIs, despite efforts towards increasing awareness. This thesis has demonstrated that while Nigerian higher education institutions are increasingly aware of sustainability, their performance remains constrained by structural, cultural,

and contextual challenges. It emphasises the benefits and limitations of the current framework through a critical examination of international sustainability evaluation tools like STARS and its adaptation to suit the Nigerian context. The findings encourage the Federal Ministry of Education, university leadership and management to adopt global strategies with local content. Therefore, this research contributes to bridging the gaps between global sustainability conversation and local practices, establishing an opportunity for Nigerian HEIs to engage in global sustainability rating and develop a strong adaptive sustainability culture that prepares the next generations for radical change.

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Appendices

Appendix 1

Interview Guide

Topic: An investigation of campuses' sustainability practices in Nigerian HEIs

Demographic Information

Sex: Male (), Female ()

Age: 20-25 (), 26-30 (), 31-35 (), 36-40 (), 41-45 (), 46 and above ()

Educational level: H.N.D/Bachelor's degree () Master's degree () Ph. D ()

How many years have you been working in academia? 1 – 4 () 5 – 10 (), 11 – 15 (),
16-20 (), 21-25 (), 26-30 ()

Research Questions

RQ1: How can Nigeria HEIs incorporate sustainability practices using the Sustainability Tracking, Assessment, and Rating System (STARS)

Interview Guide

1. Can you provide an overview of the existing sustainability activities on your campus?
2. In your institution, how is sustainability defined and understood?
3. Is your institution currently using a framework to assess and track sustainability initiatives? If yes which framework
4. What impact has this framework had on the development and implementation of sustainable practices on your campus?
5. How does the institutional management structure support and promote campus sustainability initiatives?
6. What policies and strategies are in place to ensure the incorporation of sustainability practices within campus administration?
7. How are sustainability ideas included in your institution's academic curriculum and programmes?
8. Are there any courses or fields that concentrate on sustainability?
9. Does your institution encourage staff to conduct research that is sustainability-focused?
10. If yes, what is the outcome of the research?

11. How does the institution collaborate with the community to support sustainability initiatives?
12. Is there any collaboration or partnership with external institutions to improve sustainability efforts?
13. Concerning environmental sustainability, could you describe the institution's efforts to manage resources responsibly?
14. Can you share any innovative sustainability practices or projects that your institution has implemented?
15. How does the institution stay current on best sustainability practices?

RQ2: What are the barriers to sustainability practice in Nigeria HEIs?

16. To what extent are Lecturers, administrators, and students aware of and appreciate sustainable practices?
17. Is there a problem with educating and engaging the university community in sustainable practices, and if so, what is it?
18. How do financial constraints affect an institution's ability to apply sustainability practices?
19. Can you explain the distribution of resources for sustainability projects, as well as any problems posed by financial constraints?
20. How do institutional policies and governance structures promote or obstruct the incorporation of sustainable practices?
21. Is there any specific policy impediment to the advancement of sustainability activities inside the institution?
22. What challenges has your institution faced in implementing sustainability practices?
23. Are there any undiscovered opportunities for furthering sustainability efforts on your campus?

Appendix 2

Framework Matrix: Organising Themes and Excerpts from NVivo Analysis

Level of Sustainability Practice

Themes	Initial Codes	Excerpts
Curriculum, Research and Innovation	Courses on Sustainability, Sustainability Existing Field or Department, Sustainable Innovative Idea, Sustainable Research is Encouraged	There is a course on sustainability. But to centralize a curriculum that is sustainability in focus does not presently exist. Research that is sustainable focus is highly encouraged. The university is the first university to organize a student interactive sustainability activity called Sustainability Challenge. - University of Lagos Every five years and the curriculum are to review looking at what is operationalize what is in tandem globally so that we don't go about teaching students' moribund things. During the COVID 19-year Ibadan Academies committee had to develop sanitizer for members of the Community are talking about university community and people outside getting it. – University of Ibadan I'm not aware of any programme that is given the title sustainability or a cause that has sustainability. We do have elements of sustainability and sustainable practices in some of the courses that we teach. That is, if you have projects that relate to sustainability, you could apply to the government and compete with other people. A colleague I said is doing conversion of plastics to useful chemicals and fuel. – Federal University Technology Akure We encourage creative and scholarly research that have problem solving content. The NUC actually gave us that opportunity to include some courses that will have this tramp of our own uniqueness. We do not have a particular department that Dedicated to their votes in all our programs. VC has invited Them to reduce our dependence on diesel. – Olabisi Onabanjo University Most of departments introduces courses in the area of sustainability. We have developed some postgraduate courses on sustainability. Almost, 50% of those who presented at our conference are from the Lagos State University. – Lagos State University the institution has made it mandatory for students to be taught about sustainable related matters in every of the different courses. We also make sure that students are going to have to come up with innovative ideas that can help look at issues. We don't have a course on sustainability management as a department. – Tai Solari University of Education The institutions have ensured that every department in one way or other, must go back to their department and identify a particular project that can address societal problem. We have our innovations and incubation centre. Every course in the University of Technology like ours is incorporated. There is even compensations where you brings idea on sustainability. – Ladoke Akintola University of Education

		At present no course on sustainability but there is an improvement. 3 or 4 staff currently on research grants for environmental sustainability. Every student, every year must plant a tree and that is one of the major projects. - Osun State University
Engagement	Public engagement, Student Engagement, Partnership with external institutions, Town and gown relationship	Students are making efforts into practicing different aspect of sustainability on campus. We have collaborated with recycling bodies. I can boldly say almost 25% of our waste are being collected by external recyclers. We have a lot of engagement with an outside partnering with the community. University of Lagos Ibadan encourage professors to engage through public lectures. University is part of the community, community is part of the university, that is what we called town and gown relationship - University of Ibadan I have also seen occasionally group of students that will volunteer and try to clean up the campus. We are communicating our research findings to the general public - Federal University Technology Akure We promote academic industrial relation. - Olabisi Onabanjo University Our youth club clean up the community, apart from the main campus. - Lagos State University Students are taught and encouraged to fetch pet bottles for an income via meal tickets or transportation tickets. There is this town and gown relationship. We are looking at collaborating with UNDP and other innovation centres. - Tai Solari University of Education We engage our students here and there. The university we meet with immediate community. We have partners with organization and strategic collaborations which other institutions. - Ladoke Akintola University of Education At present we have institution and community forum where issue of student welfare and disposal system or manager management system are being discussed. - Osun State University
Sustainability Practices	Adoption of SDGs. Conservation of Resources. Sustainability Practices. Sustainability Units or programmes. Sustainable Vision. Unintentional sustainability practices	I head the environment waste management and circular economy for the university. Some that are there unintentional for the University. The university believe in material conservation they believe in inclusive management. There are both faculty and departmental based activities that also supports sustainability. - University of Lagos We have the serene green environment has handed over to us by the white people in the years past. - University of Ibadan We don't have such activities that are officially termed sustainability activities. But we do have things like waste management and others but in a way, they relate to sustainability. - Federal University Technology Akure We maintain stability presently on the campus and then make our provisions for the future. First thing VC did when he got to office was to clean the environment. Using our natural resources to actually ensure and

		promote sustainability. We adopted the news of sustainable Development Goals. - Olabisi Onabanjo University Because of the vision of our Vice Chancellor, the SDGs centre was set in December 2022. - Lagos State University There are sustainable waste management initiatives. We have also put to practice the green HR activities. We consider the present and the future generation by trying to conserve resources. - Tai Solari University of Education We incorporate several sustainability practices on campus, such as recycling waste unit. The practice on Eco Purchase and Eco Recycling. The university has standing modus operandi of effective position on utilization of resources. - Ladoke Akintola University of Education We have our green environments on our campus. We support the global view of sustainability. Like the school has a plan of not spending on fuel again. - Osun State University
Management and Governance on Campus	Supportive management. Sustainable Structure	The university has now developed a culture of environmental sustainability. We also have a kind of sustainability in the university culture. - University of Lagos We also have a kind of sustainability in the university culture. - University of Ibadan Financially and infrastructure wise the university has been supporting us. - Lagos State University The management came up with the idea that the way to go is for campuses to be sustainable in every ramification. Every activity of the institution must be done in a sustainable manner. - Tai Solari University of Education The university has been structured in such a way that has accommodated sustainability. Our structure is accommodating. - Ladoke Akintola University of Education In this institution we have certain units and departments like we have horticulture; we have sparks and garden. We have some Environmental Department, which they are all part of our management structure. - Osun State University
Framework	No Framework. Other methods apart from framework	The university had not established a definite framework for assessing compliance with sustainability indicators. - University of Lagos Follow up by the office of the DVC that research, innovative, these are reported to the VC to be able to monitor how things are going. - University of Ibadan Currently I would say there is no framework. Talk of methods that are really informal. - Federal University Technology Akure Periodically we send out questionnaires to get feedback and the responses of the university community on our activities and then we do what we called consultation. - Olabisi Onabanjo University

		We are setting up a framework, we have not done that, but that's what we are presently doing. - Lagos State University presently we don't have any framework in use. - Tai Solari University of Education We adopt the general principle of sustainability and I know with time we will adopt the global model for assessing the framework of sustainability. - Ladoke Akintola University of Education Presently there is no framework for measuring or for tracking the activity of sustainability, but we are trying to improve on that. - Osun State University
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Sustainability Barriers

Themes	Initial Codes	Excerpts
Awareness	Low Awareness, More Awareness	I can say the level of awareness could be weighted as below average. - University of Lagos I would say the awareness is not much but that not to mean that people are not aware of the green area. - University of Ibadan I would say some lecturers are aware they are aware of sustainability issues because most of the research are linked to the Sustainable Development Goals in some way. Some of the students may not be very aware. - Federal University Technology Akure We are creating awareness and you know through Training and workshops. - Olabisi Onabanjo University I am sure not at least majority of the universities are doing anything on sustainability. People are not really aware or familiar with sustainability and SDGs. - Lagos State University We need to do more and we are doing more. - Tai Solari University of Education There is awareness on campus, and you can see the evidence when you are coming. - Ladoke Akintola University of Education The awareness has not really spread because of so many other factors. - Osun State University
Financial Constraints	Less Funded, Looking Elsewhere for Funding	Nigerian institutions are less funded. - University of Lagos The federal government find it difficult to fund Nigerian university effectively. What university do was to eventually look inward to be able to generate funds. - University of Ibadan I believe that funding is a constraint to implementation of our sustainable practices. - Federal University Technology Akure We rely mostly on internally generated funds. Partnering with our alumni is helping us. - Olabisi Onabanjo University Funding is a major challenge because the resources of the university are limited. - Lagos State University

		the major challenge just to address the question precisely is inadequate funding. - Tai Solari University of Education Finance has been a major problem for adequately implementing this. - Ladoke Akintola University of Education I think one of the problems is the fund. - Osun State University
Government and Institutional Policies	Government Supportive Policy, Institutional Strategy and Policy	Sustainability as a department that means chant policy with which sustainability is rap round. we are happy to have the university leadership saying, you need to go sustainable, you need to look futuristic. - University of Lagos But one thing is for us to have the policy is another thing is for us to stand financially to be able to sustain the policy. - University of Ibadan There's no government policy that obstructs that except for inadequate funding. - Federal University Technology Akure we don't have any policy that is at variance in fact with the sustainable activities. We have a very supportive governing council and so the administration can really go ahead with all their lofty policies of sustainable goals. - Olabisi Onabanjo University The university has a policy they have a research policy and we trying to incorporate sustainability in our curricula. - Lagos State University I would say government policies are supporting the promotion of sustainability. - Tai Solari University of Education Federal government grant too also encourages that sustainability ideology. - Ladoke Akintola University of Education Because of the management policy there is new departments now renewable energy that means that at least we have a very sustainable environment. The institutional policy now is that there is no bush burning. - Osun State University
Other Challenges	Attitude Problem, Leadership Problem, Non-Appreciation of Sustainability	Knowledge, attitude, finance are major challenges confronting sustainability. - University of Lagos People not amenable to change. Another challenge has to do with leadership sustainability. - University of Ibadan We do not really appreciate the concept of sustainability enough because if there is a better appreciation and understanding of the sustainability issues, probably there will be more pro-active measures in place. - Federal University Technology Akure the older generation who feels that they would get out of the system in the next three years to get the attention of those ones for now is difficult. - Olabisi Onabanjo University

		People are used to their old habits and change is something that must come. - Tai Solari University of Education Attitude problem but I think we are now overcoming it. When you introduce change, about people's attitude, something that we already become perpetual for them to have that attitude change, it takes time. - Ladoke Akintola University of Education
Undiscovered Opportunity	Create more Jobs, Food Security, Ownership System, Scholarship Opportunity, Sustainable Health	Ownership system, user centric are aspect of sustainability that needs to be explored. - University of Lagos It will help us not only when we talk about our health. - University of Ibadan the fact that people are involve you make them feel to be part of the system. - Olabisi Onabanjo University Members of our youth club have scholarship benefited from UN programs. - Lagos State University Bring more SMEs, create more sustainable jobs for the benefit of our countries. - Ladoke Akintola University of Education we can have solar farm that you can power the whole town, so at least you have farmland here. So that we even have our issue of food security. - Osun State University

Survey Questions

Appendix 3

Items to measure the influence of hierarchical culture on the sustainability performance of higher education institutions in Nigeria.

Participants will be requested to use the following scale to respond to questions by ticking the appropriate box.

Demographic Information

Sex: Male (), Female () Others ()

Age: 20-25 (), 26-30 (), 31-35 (), 36-40 () 41-45 (), 46 and above ()

Educational level: H.N.D/Bachelor's degree () Master's degree () Ph. D ()

How many years have you been working in the academia? 1 – 4 () 5 – 10 (), 11 – 15 (), 16-20 (), 21-25 (), 26-30 ()

Strongly Agree (SA) = 5 points Agree (A) = 4 points Neutral (N) = 3 points

Disagree (D) = 2 points Strongly Disagree (SD) = 1 point

Hierarchical Culture

Institutional Policies

S/No.	Research Question Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Prefer not to answer
1	The institution is a very controlled and structured place. Formal procedures generally govern what people do.						
2	The glue that holds the institution together is formal rules and policies. Maintaining a smooth-running institution is important.						
3	The institution emphasizes permanence and stability. Efficiency, control and smooth operations are important.						
4	The institution defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.						

Management Style

S/No.	Research Question Items	Not at all	A little	Moderate amount	A lot	A great deal	Prefer not to answer
5	How much does the management style in your institution promote conformity and predictability in work processes and relationships						
S/No.	Research Question Items	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly Agree	Prefer not to answer
6	From your perspective, does our organization's management style prioritise maintaining standard activities and duties with an emphasis on following defined procedures and maintaining connection security?						
S/No.	Research Question Items	Far below average	Somewhat below average	Average	Somewhat above average	Far above average	Prefer not to say
7	How would you rate the level of formality and adherence to hierarchical structures within our institution, where authority and decision-making processes are clearly defined and centralized?						

Institutional Leadership

S/No.	Research Question Items	Not at all	A little	Moderate amount	A lot	A great deal	Prefer not to answer
8	How much do you think top-bottom decision-making processes and well-defined frameworks define leadership in our organisation?						
S/No.	Research Question Items	Not at all important	Slightly important	Moderate important	Very important	Extremely important	Prefer not to answer
9	How highly would you rank the management of your institution's emphasis on						

	maintaining order and security, even if doing so means sacrificing innovation and flexibility?						
S/No.	Research Question Items	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly Agree	Prefer not to answer
10	In your opinion, does our organization's management prioritise maintaining control and authority over adhering to well-established norms and treatments?						

Sustainability Performance

S/No.	Research Question Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11	Our university has a dedicated office or department responsible for overseeing sustainability initiatives.					
12	The university regularly conducts sustainability assessments or audits to monitor progress and identify areas for improvement.					
13	There are clear sustainability goals and targets established by our university to guide our initiatives.					
14	Sustainability principles are integrated into the university's strategic planning and decision-making processes.					
15	Our university allocates sufficient financial resources to support sustainability projects and initiatives.					
16	Faculty members receive adequate training and support to integrate sustainability concepts into their teaching and research.					
17	The university actively promotes sustainable transportation options, such as public transit, biking, or carpooling.					
18	There are opportunities for students to engage in sustainability-related extracurricular activities and projects.					
19	Our university implements energy-efficient practices and technologies to reduce its carbon footprint.					
20	Waste management systems within the university effectively promote recycling and waste reduction efforts.					
21	The university collaborates with local communities and stakeholders to address sustainability challenges and initiatives.					

22	Our university effectively communicates its sustainability achievements and progress to the wider community and stakeholders.					
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Interview Questions

Appendix 4

Topic: Exploring the Influence of External Pressures on Sustainability Performance in Higher Education Institutions (HEIs)

Demographic Information

Sex: Male (), Female ()

Age: 20-25 (), 26-30 (), 31-35 (), 36-40 () 41-45 (), 46 and above ()

Educational level: H.N.D/Bachelor's degree () Master's degree () Ph. D ()

How many years have you been working in academia? 1 – 4 () 5 – 10 (), 11 – 15 (), 16-20 (), 21-25 (), 26-30 ()

Interview Guide

General Questions:

How long have you been engaged in activities promoting sustainability within your institution?

What motivated your institution to push for sustainability practices?

Questions on Coercive Pressure and Sustainability Performance of Higher Education Institutions in Nigeria

To what extent does your institution adhere to governmental regulations concerning sustainability?

Can you point out any specific policies or regulations that have had a huge impact on your efforts towards sustainability?

How does your institute deal with the pressures of regulatory bodies urging better performances in terms of sustainability?

Do any penalties or incentives drive compliance towards sustainability?

Questions on Normative Pressure and Sustainability Performance of Higher Education Institutions in Nigeria

How do professional associations and academic networks influence how well you achieve sustainability goals at your school?

Describe how accreditation bodies shape your institution's sustainability efforts

What effects do the standards set by other academic communities have on the sustainability performance of your institutions?

How do interactions with other schools contribute to sustainability efforts?

Questions on Mimetic Pressure and Sustainability Performance of Higher Education Institutions in Nigeria

What do you think about the sustainability practices of other universities in Nigeria?

Can you give some instances where your institution has embraced sustainability practices from other institutions?

How important is it for your institution to compare its sustainability practices against those of other universities?

How does competing with other institutions affect your pursuit of sustainability initiatives?

Closing Questions

What is the future of sustainability in Nigerian universities?

What can institutions do to equip themselves better to handle external influences that may require them to improve sustainability performance?

Would you like to add anything about external pressures faced by your university on its journey towards becoming a more sustainable institution?

Appendix 5

Table 2: Summary of external pressure on sustainability performance in Nigerian HEIs

Themes	Initial Codes	Example Quotes
Coercive Pressure	Compliance with Government Regulations	As an institution of government, established, funded and run by government. We have to adhere strictly by government's regulations and directives as related to sustainability practices – C1. We don't have any choice but to comply with government directives – C2. We adhere because it's a state we have we don't have an option – C3. We must adhere strictly. We always adhere even from the beginning – C4. The institution of mine try to adhere to existing regulation – C5. We are fully supporting government policy around sustainability – C6. If they give us the guideline, we follow the letter to rule – C6. If government say we should do something, we have no option than to strictly adhere – C7. Anything that has to do with maybe policy, they make it compulsory for all the departments – C8. I will tell you that anything that has to do with government policy, we always adhere to it because of accreditation – C8. I can say the university is adhering to policy that are direct or indirectly linked with sustainability – C9.
	Specific Policy	I can't be too specific – C1. There is no specific policy – C2. The state government is now using their policy on land regularization to assist in getting back some of these lands – C3. The bureau of public procurement has a policy that is on sustainability – C4. I may not be able to say a particular policy – C5. If you want to write any proposal, it must revolve around the sustainability – C6. As a tertiary institution, one of the key issues is that we must maintain a very clean environment – C7. I don't think of any – C8. There is resource control and conservation, which is also a policy given by the federal government – C9.
	Regulatory body expectations	We comply strictly, because it's a government establishment and we don't have any reason not to comply with it – C1. The regulatory body which is the NUC. One of their requirements is that your institution must comply with sustainability – C2. If you fail to comply you will not be given accreditation – C2. Since it is an agency of federal government established to monitor development, there is no way we will not abide – C3. We have no option than to abide – C3. NUC will give us specification – C4. We adhere strictly to those things – C4. Accreditation exercise, and one of the germane points that they do count for is how does our environment look – C5. When they come for accreditation, they will see their own limits and when we meet their own limits, there is not many issues with our agreement – C6. The regulatory body for this institution is NUC, and we don't have option C7. We have a score for sustainability that I can quickly check for you – C8. With regards to curriculum, NUC too has a role to play in that, maybe

		make it mandatory for schools to have that sustainability in their curriculum – C8. It's obvious you don't meet some regulations from NUC in terms of number of classes, in terms of number of students, in terms of number of lecturers, laboratory requirement, it's obvious that you will not be accredited – C9.
	Penalty and Incentives	When you go far of any government directive there is a direct penalty – C1. Knowing that you have done the right thing is an incentive and it gives this psychological Incentive – C2. Of course, you will be discredited during accreditation – C2. There are penalties by NUC – C3. Whoever you know there they will sanction the person – C4. They will call for his/her certificate. So, there is sanction – C4. Penalty is zero (0) if you don't have a good environment – C5. There is penalty for non-compliance – C6. If any of such is not in compliance, they will deny such an institution approval for accreditation – C6. If you're not found wanting, it is an incentive – C7. The NUC can disaccredit a course because of not complying with the sustainability practices – C7. If you fail to do it, there is score for all these, definitely they will mark you down – C8. The penalty and incentive management level for compliances to sustainability had been low because it's seen more to some people as the CSR rather than a major part of operation – C9. I can't say that there is an overt punishment and reward system for adhering to policy – C9.
Normative Pressure	Influence of Professional Associations	If you want to get accreditation for any course, it must be conformed with sustainability practices – C2. Has a huge effect virtually on every university in compliance with the regulatory body for securing accreditations – C2. There are two accreditation we do in the university, especially for those departments who are professional department, we do NUC accreditation separately, and we do professional bodies – C3. They must be they must come to accredit, and we must adhere – C3. You are aware that the environment is part of the criteria that they need to come and assess then you have to take care of the environment – C5. If they give us the guideline, we follow the letter to rule and then when they come for accreditation – C6. They come accreditation; you must follow whatever guideline they give – C8. I know they do more is the greenery of the environment they want to do accreditation – C9. They want to also see from your record that there are some sustainability indexes that you're able to manage but weighing the degree, we can't say is a very significant, is just like all these by the side effort, not like a concrete major effort – C9.
	Accreditation Standards	If you want to get accreditation for any course, it must be conformed with sustainability practices – C2. has a huge effect virtually on every university in compliance with the regulatory body for securing accreditations – C2. There are two accreditation we do in the university, especially for those departments who are professional department, we do NUC accreditation separately, and we do professional bodies –

		C3. They must be they must come to accredit, and we must adhere – C3. You are aware that the environment is part of the criteria that they need to come and assess then you have to take care of the environment – C5. If they give us the guideline, we follow the letter to rule and then when they come for accreditation – C6. They come accreditation; you must follow whatever guideline they give – C8. I know they do more is the greenery of the environment they want to do accreditation – C9. They want to also see from your record that there are some sustainability indexes that you're able to manage but weighing the degree, we can't say is a very significant, is just like all these by the side effort, not like a concrete major effort – C9.
Mimetic Pressure	Learning from Other Institutions	We emulate those that we think are better emulated – C1. When you see something that is better done in another client, you want to bring it to your own university – C1. Partnerships with other universities allow us to exchange ideas and strengthen our sustainability practices – C2. We are trying within our own and whenever we go to a particular institution, we see a particular model of sustainability practice, we can also come home and buy with – C2. My department here, we have a lot of things in common. We do interact; we do Workshop together – C3. We go to schools, people they come here – C4. The issue of mimic, the programmes they operate, and they mount in that school, I am also tapping into it – C5. We have to learn from each other, that is just the point – C5. I can take my students to Redeemer University to go and do their experiment – C6. The university I mentioned, you need to see that they linked all their roads with walkway and that is even happening here too – C7. Yes, we do – C8. On different occasions like I mentioned earlier – C8. Emphasis on research and publication encourages ongoing engagement with sustainability issues across our institution which we have learnt from one another – C8. Yes, we also want to know what they are doing and that brought the reason why we talked about BABCOCK, we talked about CONVENANT University based on we are also doing something on this – C9.
	Comparative Practices	While some are still striving to meet up, some are on top of the game, and they are driving it – C1. So, in our own university we are doing a lot in this regard, and we don't want to be left behind – C1. I think all of us together are build environment – C4. They are towing the line of sustainability like we are doing here – C4. Those schools their own areas because they have that kind of centre – C5. Knowledge, if not share, you cannot gain – C5. We are not competing with each other – C5. They may not have up to what we have. One, our institution is government – C6. Comparing sustainability practices with other universities is valuable for reputation and influence – C6. Let me say these other institutions in Nigeria are trying – C7. It is important we compare our progress so far, so that we can attain more – C7. I can tell

		you that our institution here is one of the institutions in Nigeria with the serene environment – C7. It's a great push because there is always a comparison of activity from one university to the other university, especially when there is an opportunity for the top-level interaction to see what is happening – C9.
	Competitive Sustainability Initiatives	Our institution is competing favourably. Because when we see good things we appreciate it, we emulate it – C1. We don't really need to do that – C2. The University is ahead of others – C4. All of us are drinking from the same fountain because NUC is the one regulating and all our courses – C4. All of us are striving towards achieving any standard or any specification given by NUC – C4. I don't know whether they're in competition – C4. We can only in one way or the other try to strike balance but not into competition – C5. Currently, there is no rivalry or any unhealthy rivalry within the institution – C6. I do not want to mention what they are tapping from us – C7. We are at the comparative advantage in the university – C7. I think compared with Federal University, I want to compare with some private university, they are ahead of us – C8. I can say it is a consideration of how exposed each university are to each other's performance and the interest of the university involved – C9. We look way outside the University of Lagos because most of our activity, we are often ahead of a lot of the university – C9.
	Collaborative Interactions	Collaboration on sustainability has become increasingly common – C2. Collaboration with the industry also enhances our sustainability strategies -C2. We have a lot of synergies with our sister universities, we get materials, equipment and officers – C3. A student that wants to work in this area, and we don't have that special tool here. So, I was just discussing with him if will be readily available to help us supervise the students – C3. We have to learn from each other, that is just the point – C5. We lean on each other's shoulders – C5. We interact with other university around – C6. Emphasis on research and publication encourages ongoing engagement with sustainability issues across our institution which we have learnt from one another – C8. Peer influence on academic and environmental activities is not yet strong or widespread across Nigerian universities, as the concept of sustainability is still evolving in the Nigerian context – C9. I have been approached by UNIPORT in developing their waste management and Sustainability Development unit – C9.

UNIVERSITY OF WATERLOO

Notification of Ethics Clearance to Conduct Research with Human Participants

Principal Investigator: Olaf Weber

Student investigator: Ibrahim Bamidele Jimoh

File #: 45811

Title: An investigation of campuses' sustainability practices in Nigerian higher education institutions

The Human Research Ethics Board is pleased to inform you this study has been reviewed and given ethics clearance.

Initial Approval Date: 01/10/24 (m/d/y)

University of Waterloo Research Ethics Boards are composed in accordance with, and carry out their functions and operate in a manner consistent with, the institution's guidelines for research with human participants, the Tri-Council Policy Statement for the Ethical Conduct for Research Involving Humans (TCPS2 2022), the Ontario Personal Health Information Protection Act (PHIPA), and all laws and regulations of the province of Ontario (as applicable). Additionally, CREB operates in a manner consistent with the International Conference for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH) Guidance E6(R2): Good Clinical Practice, the International Organization for Standardization of Good Clinical Practices (GCP) as set out by ISO 14155 - Clinical investigation of medical devices for human subjects, Part C, Division 5 of the Food and Drug Regulations, Part 4 of the Natural Health Products Regulations, Part 3 of the Medical Devices Regulations. Both Boards are registered with the U.S. Department of Health and Human Services under the Federal Wide Assurance, FWA00021410, and IRB registration number IRB00002419 (HREB) and IRB00007409 (CREB).

Expiry Date: 01/11/25 (m/d/y)

Multi-year research must be renewed at least once every 12 months unless a more frequent review has otherwise been specified. Studies will only be renewed if the renewal report is received and approved before the expiry date. Failure to submit renewal reports will result in the investigators being notified ethics clearance has been suspended and Research Finance being notified the ethics clearance is no longer valid.

Level of review: Delegated Review

Signed on behalf of the Human Research Ethics Board



Heather Dekker, Ethics Advisor, hdekker@uwaterloo.ca, 519-888-4567, ext. 41506

This above named study is to be conducted in accordance with the submitted application and the most recently approved versions of all supporting materials.

Documents reviewed and received ethics clearance for use in the study and/or received for information:

file: Interview Questions Corrected (1).docx file: Appreciation Material (1).docx

file: Consent Letter for Interview.docx

file: verbal consent script (1).docx file:

e-mail_recruitment_script (1).docx file:

Verbal recruitment_script.docx file:

telephone_recruitment_script.docx

Approved Protocol Version 3 in Research Ethics System

This is an official document. Retain for your files.

You are responsible for obtaining any additional institutional approvals that might be required to complete this study.