



**UNIVERSITY OF MEDIA, ARTS AND COMMUNICATION (UniMAC) INSTITUTE
OF JOURNALISM**

**EXAMINING THE ROLE OF UNIVERSITY STUDENTS AS CHANGE AGENTS:
LEVERAGING DEVELOPMENT COMMUNICATION FOR ENVIRONMENTAL
STEWARDSHIP**

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DECEMBER 2025

DECLARATIONS

STUDENT'S DECLARATION

I, Eunice Maame Bernieh Ossei-Gudom, declare that this thesis, except quotations and references contained in published works, which have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted, either in part or whole, for another degree elsewhere. Therefore, I bear the responsibility for any shortcomings.

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SUPERVISOR'S DECLARATION

I declare that I supervised the preparation and presentation of this work in accordance with the guidelines for the supervision of Master's Dissertations as laid down by the University of Media, Arts and Communication (UniMAC).

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DEDICATION

This thesis is dedicated to my family and friends.

ACKNOWLEDGEMENT

Glory be to God for granting me life, strength, and perseverance throughout this research. My profound gratitude goes to my supervisor, Dr. Albert James Tayman of the Department of Communication Studies, for his invaluable guidance, constructive critique, insightful suggestions, and continuous encouragement. Your support has been truly irreplaceable. God richly bless you.

To my family, especially my mother, Mrs. Eunice Ossei-Gudom, and my sister, Ms. Beatrice Ossei-Gudom, thank you for your unwavering love, support, and prayers. I am sincerely grateful. I also extend my appreciation to my employers for their understanding, encouragement, and support during this academic journey.

My appreciation further goes to all the lecturers of the Department of Communication Studies, particularly the Development Communication faculty, for imparting knowledge and shaping my academic and professional outlook throughout the course of my study.

To my friends and colleagues, thank you for your contributions, support, and encouragement during this research.

Finally, my heartfelt thanks go to all who, in diverse ways, contributed to the successful completion of this research, especially my respondents, whose willingness to share their time and insights made this work possible.

May the Almighty God graciously reward you all.

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ABSTRACT

This study investigates the role of university students in the Greater Accra Region as change agents for environmental stewardship through development communication. It incorporates both students involved in environmentally focused clubs and those who are not, providing a comprehensive understanding of their perceptions, environmental awareness, and communication behaviors regarding sustainability. The research will be conducted across selected universities to explore how students engage with environmental issues and development communication strategies, as well as the influence these strategies have on their attitudes and practices. Employing a qualitative approach, the study will utilize semi-structured interviews to delve into students' experiences and communication preferences related to environmental stewardship. This method allows for a flexible exploration of issues as they arise, ensuring a rich understanding of student perspectives. While the study references broader environmental policies to contextualize its findings, the primary focus remains on students and their empowerment as advocates for environmental change through effective communication. The examination will also address the challenges faced by students in promoting environmental initiatives, including insufficient institutional support, limited access to communication tools, and a lack of training in environmental communication. Additionally, socio-cultural factors that influence public discourse on environmental issues will be explored. The findings aim to highlight both the barriers and opportunities for enhancing student engagement in environmental stewardship, emphasizing the importance of addressing these challenges to foster a more effective student-led environmental advocacy in higher education.

Keywords: University Students, Environmental Stewardship, Development Communication

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

The growing environmental challenges necessitate a paradigm shift in how societies perceive and address ecological challenges, demanding innovative strategies that foster environmental stewardship and sustainable practices (*Alshuwaikhat & Abubakar, 2008*). Environmental degradation remains one of the most pressing global challenges, impacting the various aspects of life, including food, air, and water quality, biodiversity, and sustainable development (*Bempong, 2019*). From climate change and pollution to deforestation and the unsustainable exploitation of natural resources, the world faces mounting ecological threats that demand urgent, inclusive, and innovative responses. In Sub-Saharan Africa and Ghana in particular, rapid urbanization, poor waste management practices, and weak environmental awareness exacerbate these issues, threatening public health, livelihoods, and long-term economic prospects (*Nartey & Nyarko, 2020*).

Higher education institutions play a crucial role in promoting sustainable development and environmental protection (*Alshuwaikhat et al., 2016*). Universities, as "small cities," have significant environmental impacts through energy and material consumption in teaching, research, and residential activities but can implement measures to reduce pollution and degradation with effectively selected organizational and technical measures (*Alshuwaikhat & Abubakar, 2008*). Within the university ecosystem, students represent a potent force for change, possessing the capability to drive sustainable initiatives and promote environmental responsibility (*Panait et al., 2025*).

The concept of students as change agents has gained significant traction in recent years, with institutions recognizing the potential of student-led initiatives to drive institutional transformation. Their unique position within academic institutions provides access to resources and platforms for initiating environmental stewardship campaigns (*Hassan, 2024*). Students act as leaders, supporters, and ambassadors in driving campus sustainability initiatives, though their impact can be limited without formal positions (*Mohamad et al., 2021*). Transformative sustainability learning programmes, have been shown to develop students' agency for change, fostering open-mindedness, intentionality, and collaboration skills (*Langa et al., 2022*).

University students play a crucial role in promoting environmental stewardship through various means. They participate in sustainability initiatives on campus, reducing waste and conserving energy (*Chakraborty et al., 2017*). Students create and execute awareness campaigns, driving environmental discourse into the public sphere (*Hassan, 2024*). They engage in research and innovation, particularly in areas like renewable energy and sustainable agriculture, leading to groundbreaking solutions for environmental challenges (*Hassan, 2024*). Additionally, students advocate for climate action at regional, national, and international levels, shaping environmental policies (*Hassan, 2024*).

The role of communication in sustainable development extends beyond mere information transmission to encompass dialogue, participation, and empowerment of marginalized voices (*Fliert, 2021*). Effective communication about environmental issues requires processes that enable people to receive information while also making their voices heard, supporting dialogue where powerholders listen to and consider the knowledge and perspectives of various stakeholders (*Servaes & Malikhao, 2007*). Communication for sustainable development involves dialogue, participation, and sharing knowledge among people and institutions (*Servaes & Malikhao, 2007*).

Development communication is defined as a strategic process of using media or education to promote positive social change (*Sharma & Uniyal, 2016*). It aims to improve quality of life and increase individual control over nature. Development communication plays a crucial role in promoting environmental awareness and sustainable development, particularly among university students. Effective communication strategies are vital for fostering environmental literacy, raising awareness, and encouraging participation in sustainable actions (*Hrei et al., 2024*). Media plays a crucial role in development communication by disseminating knowledge, facilitating discussion, and teaching skills (*Sharma & Uniyal, 2016*).

Digital platforms have shown greater effectiveness in engaging audiences compared to traditional media, with a 65% increase in digital engagement from 2021 to 2023 (*Hrei et al., 2024*). These communication strategies enhance students' understanding of environmental, social, and economic concepts related to sustainability (*Yassir, 2025*). Students can act as catalysts for environmental change by initiating discussions with adults at home and in the community (*Ballantyne et al., 1998*).

Development communication is essential for promoting people's participation in development activities and ensuring access to information and knowledge needed for improving lives

(Odoom, 2020). Traditionally rooted in top-down, instructional models, development communication has evolved into more participatory, dialogue-driven approaches that emphasize stakeholder engagement and empowerment, especially at the community level (Prakash & Karki, 2022). However, the role of young people, particularly university students, in development communication strategies to promote environmental stewardship remains underexplored and underutilized.

1.1 Problem Statement

The role of young people, particularly university students in development communication strategies aimed at promoting environmental stewardship remains significantly underexplored and underutilized. University students represent a vibrant, educated, and highly networked demographic with the potential to influence social norms, mobilize communities, and drive transformative change through grassroots and institutional engagement. However, despite their recognized potential, there is limited understanding of how development communication can be effectively leveraged to empower them as active agents of environmental change within their institutions and broader communities.

Environmental degradation, climate change, and unsustainable resource use pose unprecedented challenges to sustainable development, particularly in the Global South. In response, development communication has emerged as a powerful tool to promote participatory and behaviour-driven change in addressing environmental issues (Servaes, 2008; Manyozo, 2012). Yet, its application among youth populations, especially within university settings, has not been systematically explored or operationalized. There exists a disconnection between theoretical frameworks of development communication and practical interventions targeting young people as communicators, advocates, and implementers of sustainable environmental practices (Odoom, 2020).

Universities play a pivotal role in shaping environmental consciousness and fostering sustainable behaviour. The integration of environmental stewardship into university culture through curriculum innovation, green campus operations, research priorities, and community outreach offers long-term societal benefits (Bayramova, 2024; Cortese, 2003). However, institutional barriers such as bureaucratic inertia, insufficient funding, and limited stakeholder collaboration often hinder sustainability initiatives (Velazquez et al., 2006). Despite these challenges, students continue to demonstrate agency by initiating environmental projects,

leveraging academic resources, and forming partnerships with external organizations to drive change (Hassan, 2024; Rogayan, 2019).

Moreover, the rise of digital media, social networks, and participatory platforms provides students with new avenues for environmental communication and mobilization (Obonyo & Oduor, 2019). These tools align with development communication principles such as participation, dialogue, empowerment, and cultural relevance, yet their strategic integration into university-based environmental efforts remains sporadic and under-theorized.

In many cases, students' contributions to sustainability are ad hoc and dependent on individual or group motivation rather than embedded within institutional structures and communication strategies. As such, there is a pressing need to understand how development communication can be systematically applied to harness student-led environmental action. This includes exploring the philosophical underpinnings, participatory methodologies, and context-specific approaches that can bridge the gap between theory and practice in student engagement (Servaes, 2008; Odoom, 2020).

This study, therefore, seeks to fill this critical gap by investigating how development communication principles can be effectively applied to foster environmental responsibility and sustainable practices among university students. It aims to examine the challenges and opportunities in this approach, document successful models and case studies, and identify best practices for maximizing the impact of student-led environmental stewardship efforts, both within the university environment and in wider society.

1.2 Aim and Objectives

1.2.1 Aim

The study aims to examine the role of university students as change agents by leveraging development communication for environmental stewardship.

Specifically, the study will examine the application of development communication principles and practices in promoting sustainable environmental practices, establish the challenges and opportunities in student-led environmental activities, and develop best practice models on enhancing the role of university students in advancing environmental sustainability within and beyond academic institutions.

1.2.2 Objectives

1. To explore how university students perceive their role as change agents in promoting environmental stewardship.
2. To examine the ways in which development communication strategies influence students' environmental attitudes and behaviours.
3. To identify challenges and opportunities students encounter in using communication to drive environmental change.

1.3 Research Questions

- 1 How do university students understand and define their role as change agents in environmental stewardship?
- 2 In what ways does development communication shape students' engagement with environmental issues?
- 3 What challenges do students face when leveraging communication for environmental advocacy?

1.4 Scope Of Study

This study seeks to examine the role of university students within the Greater Accra Region as change agents in promoting environmental stewardship through development communication. The study will include students who are actively involved in environmentally focused clubs, campaigns, or other campus-based sustainability initiatives, as well as those who are not directly engaged in such activities. Including both categories of students will help provide a broader and more balanced understanding of students' perceptions, levels of environmental awareness, and communication behaviours. It will also help identify potential gaps in participation and motivation towards environmental action.

The research will be carried out across some selected universities in the Greater Accra Region. The focus will be on how students, irrespective of their level of involvement, perceive environmental issues, the extent to which they engage with or respond to development communication strategies, and how these strategies influence their environmental attitudes and practices within the university setting.

The study will adopt a qualitative research approach. Data will be collected using semi-structured interviews, which will allow for in-depth exploration of students' views,

experiences, and communication preferences related to environmental stewardship. This method will also provide flexibility for participants to express themselves freely while allowing the researcher to probe further into relevant issues as they arise.

Although the study may refer to broader environmental policies and institutional support systems to provide background and context, the central focus will remain on the student population and how development communication can be leveraged to empower them as agents of environmental change.

1.5 Significance Of Study

This study is significant as it investigates the role of university students in Accra, as change agents in promoting environmental stewardship through the use of development communication. In the face of growing environmental challenges both globally and within Ghana, it is crucial to understand how university students, often considered future leaders, can influence positive environmental behavior within their institutions and surrounding communities.

By examining how students engage with environmental issues, both as active participants in initiatives and as members of the broader university population, the study offers valuable insights into students' awareness, attitudes, and behaviours related to environmental sustainability. It further explores how development communication strategies such as awareness campaigns, peer education, and social media outreach are utilized by students to drive change, making it one of the few studies to connect communication theory with practical environmental activism in the Ghanaian higher education context.

The findings of this research have practical implications for university administrations, non-governmental organizations, and policymakers. By identifying effective communication strategies and the factors that encourage or hinder student involvement, the study can inform the design of more targeted and inclusive environmental programs. It also highlights how development communication can be used to not only raise awareness but to mobilize and empower students as active participants in sustainable development efforts.

1.6 Outline of the Study

This study will be structured into five main chapters.

Chapter one will be the introduction, which will include the background to the study, problem statement, aim and objectives, research questions, scope, methodology, limitations, and the outline of the study.

Chapter two will cover the literature review. This chapter will provide an overview of environmental stewardship and sustainability in higher education, theoretical frameworks on development communication and behavior change, a review of student agency in environmental sustainability initiatives, and the identification of gaps in current research on communication strategies and student engagement.

Chapter three will present the research methodology. It will detail the sample population, sample size determination, sampling technique, research design, data collection methods, data administration, and the statistical tools that will be used in the study.

Chapter four will focus on the analysis and discussion of the data gathered from respondents. This will lead to the presentation of possible recommendations aimed at enhancing development communication to empower university students as effective change agents for environmental sustainability.

Chapter five will provide the summary, conclusions, and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of existing literature relevant to the study's thematic focus on university students as change agents, development communication, and environmental stewardship. The review is structured to provide a conceptual and theoretical foundation for understanding how university students perceive their roles in promoting environmental sustainability, the influence of development communication on their attitudes and behaviors, and the challenges and opportunities they encounter in communicating for environmental change.

This chapter begins with a discussion of key concepts and definitions, including development communication, environmental stewardship, and change agency. It then explores theoretical frameworks that underpin this study, such as the Diffusion of Innovations Theory and Participatory Communication Theory. The review further delves into empirical studies examining youth engagement in environmental activism, communication strategies employed by students, and the contextual barriers and enablers that shape these efforts. Finally, the chapter synthesizes knowledge gaps that justify the present study.

2.1 Conceptual Review

This section unpacks the key concepts central to the study: university students as change agents, development communication, and environmental stewardship. Clarifying these concepts is essential to understand their interrelationships and how they shape the role of students in driving sustainable environmental behavior.

2.1.1 University Students As Change Agents

University students are increasingly acknowledged as powerful catalysts for social, economic, and environmental transformation. Positioned at the intersection of knowledge production and civic engagement, students possess unique potential to influence both policy and practice in their communities and beyond. The concept of the change agent, as articulated by Fullan (2001), refers to individuals or groups who deliberately initiate, facilitate, or accelerate positive transformations by challenging established norms, adopting innovative strategies, and mobilizing collective action. Within the university context, students are

exposed to a rich tapestry of interdisciplinary knowledge, critical inquiry, and ethical reflection, all of which contribute to the development of agency and leadership in addressing societal challenges.

In environmental discourse, university students are particularly vital due to their demographic characteristics and their affinity for digital and social media platforms. As members of the so-called “climate generation,” they are both witnesses to and actors in the current climate crisis. Their involvement in global environmental movements such as *Fridays for Future*, *Extinction Rebellion*, and campus-based sustainability initiatives reflect a growing sense of urgency and moral responsibility to safeguard the planet for future generations (UNESCO, 2022). These movements are often youth-led and rooted in a deep understanding of the interconnectedness of ecological degradation, social justice, and economic inequities (Gibb et al., 2020).

The student population also represents a strategic target for environmental education and capacity building. Universities serve as incubators for leadership, civic participation, and innovation. Through formal curricula, extracurricular activities, and research projects, students gain the knowledge and skills required to understand complex environmental issues, evaluate competing solutions, and advocate for evidence-based change. Moreover, the integration of Education for Sustainable Development (ESD) frameworks into higher education policies, particularly under the auspices of the United Nations Sustainable Development Goals (SDGs) has further legitimized the role of students in promoting sustainability on campuses and in their broader communities (Tilbury & Wortman, 2004; United Nations, 2015).

University students also benefit from access to diverse communication channels, which they use to articulate environmental concerns, propose solutions, and influence behavior. Through blogs, podcasts, webinars, social media campaigns, student journalism, and peer-to-peer engagement, they construct narratives that resonate with their peers and stimulate dialogue on pressing ecological issues. This communication power aligns with the notion of amplified agency, where technological tools expand the reach and impact of student-led initiatives (Castells, 2012). In this digital era, students do not merely consume environmental information; they create, interpret, and disseminate it, thereby shaping public discourse and holding institutions accountable (Obeng-Odoom, 2013).

Additionally, students often act as mediators between academic research and grassroots activism. By translating complex environmental data into accessible language and actionable strategies, they facilitate knowledge transfer across sectors. This dual function as knowledge brokers and community mobilizers is critical in bridging the gap between policy and practice. In countries like Ghana, where environmental challenges such as illegal mining (galamsey), deforestation, plastic pollution, and poor sanitation persist, student-led advocacy has shown promise in influencing local government responses and altering public attitudes (Amoako & Owusu, 2021).

However, the capacity of students to serve as change agents is not automatic. It is influenced by several enabling and constraining factors, including institutional support, access to funding, political space for civic engagement, and the availability of mentorship and training opportunities. Universities that provide platforms for student engagement such as green clubs, research grants, and environmental communication workshops, tend to witness greater student involvement in sustainability-related initiatives (Leal Filho et al., 2019). University students embody both the aspiration and capacity for transformative change. As environmentally conscious citizens-in-training, they play a critical role in shaping the discourse and practice of environmental stewardship. Their ability to act as change agents hinges not only on individual attributes such as motivation and knowledge, but also on the broader institutional and societal frameworks that either empower or hinder their engagement.

2.1.2 Development Communication

Development communication is a multidisciplinary field that explores how communication processes, tools, and strategies can be harnessed to foster sustainable development and social change. It encompasses both the theory and practice of using communication to empower individuals, transform institutions, and address development challenges such as poverty, health disparities, inequality, and environmental degradation (Servaes, 2008; Manyozo, 2012). Unlike top-down, information-centric approaches, development communication emphasizes participatory, dialogical, and inclusive communication that enables communities to identify their own problems, contribute to solutions, and actively participate in transformative processes (Fraser & Restrepo-Estrada, 1998).

Early modernization theories promoted media as a tool for transferring Western knowledge and values to “developing” societies (Lerner, 1958; Schramm, 1964). However, this linear model was critiqued for being paternalistic and culturally insensitive. In response, alternative and participatory paradigms emerged, which framed communication as a collaborative process rooted in local culture, context, and agency (Melkote & Steeves, 2001). These perspectives reposition communication not merely as a vehicle for information transfer but as a means of empowerment, capacity building, and mutual learning.

In the context of environmental sustainability, development communication plays a critical role in promoting ecological literacy, altering behaviors, building consensus, and mobilizing collective action. Communication interventions in environmental sectors are designed not only to inform but to persuade and engage audiences in adopting practices such as recycling, water conservation, sustainable energy use, and biodiversity protection (FAO, 2014). Effective development communication strategies often involve a mix of traditional media (e.g., radio, community theater), interpersonal channels (e.g., workshops, peer discussions), and increasingly, digital platforms (e.g., social media, podcasts, mobile apps) to disseminate messages and foster dialogue (Manyozo, 2012).

For university students, development communication offers powerful tools for environmental advocacy and change-making. With their fluency in digital media, students are able to leverage blogs, social media platforms (e.g., X/Twitter, Facebook, TikTok), and online petitions to engage peers, influence public opinion, and pressure decision-makers (Chiumbu, 2013). Digital activism sometimes referred to as *clicktivism* allows students to connect local environmental concerns to global movements, thereby creating virtual spaces for cross-cultural dialogue and collaborative problem-solving (Castells, 2012). Moreover, development communication encourages students to go beyond surface-level awareness campaigns and engage in deeper forms of community outreach, policy dialogue, and behavior change communication.

Communication for development (C4D) also provides the theoretical and practical framework for building participatory environmental communication strategies in campus-based or national-level projects. For instance, students who are trained in communication for development principles can design effective messaging campaigns tailored to specific audiences such as youth, market traders, or rural dwellers using culturally appropriate symbols, narratives, and language. These strategies are especially useful in societies like

Ghana, where oral traditions, community networks, and informal spaces are still significant for information sharing and decision-making (Akrofi-Quarcoop, 2005).

Importantly, development communication is also embedded in policy and advocacy work. Students acting as change agents can engage with stakeholders, participate in policy consultations, or join civil society movements advocating for stronger environmental protections. As communication facilitators, they help translate complex environmental issues such as deforestation, water pollution, or climate change into understandable and actionable messages that resonate with both grassroots and policy-level actors (Servaes, 2008; Gumucio-Dagron & Tufte, 2006).

2.1.3 Environmental Stewardship

Environmental stewardship refers to the ethical and responsible use, protection, and management of the natural environment through both individual and collective actions aimed at preserving ecosystems, maintaining biodiversity, and promoting sustainability for current and future generations (Chapin et al., 2011; Worrell & Appleby, 2000). At its core, stewardship encompasses the values, attitudes, and behaviors that guide human interactions with the environment. It extends beyond conservation efforts to include a commitment to intergenerational justice, ecological balance, and sustainable development (Ostrom, 2009).

The concept is multidimensional, cutting across ecological science, environmental ethics, and sustainable development. As a guiding framework, stewardship encourages individuals and institutions to act as caretakers of natural resources, assuming a moral responsibility to ensure that environmental integrity is maintained (Bennett et al., 2018). Environmental stewardship can be practiced at various levels individual (e.g., reducing waste, planting trees), community (e.g., neighborhood clean-ups, communal water management), and institutional (e.g., formulating green policies, managing protected areas).

For university students, environmental stewardship provides a practical and philosophical pathway to engage in sustainability efforts and environmental citizenship. Students play a critical role in driving sustainability transitions through active participation in campus-based environmental programs, eco-volunteerism, academic research, and policy advocacy. Campus sustainability offices, green clubs, and student-led environmental campaigns provide

structured avenues for students to develop leadership skills and contribute meaningfully to ecological protection (Leal Filho et al., 2019).

Moreover, university settings offer a unique space where scientific knowledge, civic engagement, and innovation converge. Through experiential learning, environmental education, and interdisciplinary collaboration, students are exposed to real-world environmental challenges and are empowered to generate solutions that promote ecological resilience (Tilbury, 1995). In this context, stewardship is not limited to environmental awareness but is operationalized through action-oriented learning, service-learning projects, and participation in global sustainability networks such as the United Nations Sustainable Development Solutions Network – Youth.

According to Kollmuss and Agyeman (2002), pro-environmental behavior is influenced by environmental knowledge, emotional engagement, social norms, and personal responsibility. In this regard, fostering stewardship among university students requires both formal instruction and informal experiences that cultivate a sense of environmental identity and ecological responsibility.

In many African contexts, including Ghana, students are increasingly engaging in stewardship roles by addressing local environmental problems such as deforestation, plastic pollution, waste mismanagement, and climate change. These efforts often involve partnerships with NGOs, local governments, and international bodies to enhance environmental governance and accountability (Ababio & Boon, 2009). For example, student-led tree-planting campaigns, anti-galamsey protests, sanitation drives, and climate advocacy initiatives illustrate how youth-led stewardship efforts can contribute to national and global sustainability goals.

Institutional support, access to funding, environmental education infrastructure, and platforms for youth engagement are critical in empowering students to act as stewards of the environment (UNEP, 2021). When these structures are in place, university students can serve not only as participants but as leaders and innovators in the collective effort to preserve the planet's ecosystems.

2.1.4 Communication For Environmental Change

Communication for environmental change refers to the deliberate use of communication strategies and tools to foster awareness, shift attitudes, and stimulate actions that promote environmental sustainability. It serves as a critical intersection between development communication and environmental stewardship, combining theory and practice to influence individual behaviors, institutional policies, and collective norms regarding ecological responsibility (Cox, 2013; Moser, 2010). At its core, this concept recognizes that environmental problems are not merely technical issues but also social and communicative ones. Climate change, pollution, biodiversity loss, and unsustainable resource use are deeply influenced by human behavior, which in turn is shaped by information, perception, and discourse (Leiserowitz et al., 2006). Communication for environmental change thus encompasses a variety of approaches, including environmental education, social marketing, risk communication, participatory communication, and media advocacy, all aimed at promoting sustainable practices and empowering communities to take action.

Environmental issues often involve complex scientific data, which, if not effectively communicated, can alienate non-expert audiences. Effective communicators use storytelling, metaphors, and visual imagery to make abstract concepts such as carbon footprints, deforestation, or ecological footprints more tangible and actionable (Nisbet & Scheufele, 2009). University students, particularly those with digital literacy skills, are well-positioned to take on this role. Through infographics, videos, blogs, and podcasts, they can reinterpret environmental data into compelling narratives that inspire awareness and behavioral change.

Moreover, peer-to-peer communication plays a crucial role in influencing social norms and behaviors, particularly among young people. Students are often more responsive to messages conveyed by their peers than by institutional authorities (Anderson, 2012). This dynamic makes student-led communication campaigns such as eco-club activities, campus-wide sustainability drives, and social media activism particularly effective in creating a culture of environmental responsibility within academic environments and beyond. Digital platforms have further transformed the landscape of environmental communication. The rise of social media enables students to participate in and amplify global environmental discourses while also localizing them for context-specific relevance. Hashtag movements such as FridaysForFuture, ClimateStrike, or BeatPlasticPollution allow students to connect with broader climate justice movements and contribute local perspectives to global issues (Poell &

van Dijk, 2018). These platforms support rapid dissemination, real-time feedback, and decentralized participation, all of which are key to sustaining engagement in environmental causes.

In addition, behavior change communication (BCC) strategies have been successfully applied in environmental contexts to promote actions such as recycling, energy conservation, water management, and sustainable consumption. These strategies use audience segmentation, message tailoring, and persuasive appeals to influence individual decision-making and foster habitual change (McKenzie-Mohr, 2011). Students trained in BCC principles can design evidence-based campaigns that go beyond raising awareness to actively transforming behavior. Communication for environmental change also entails participatory and dialogical processes, in which target audiences are not merely passive recipients of information but active contributors to the creation of environmental solutions (Servaes, 2008). This aligns with the principles of development communication, which emphasize inclusiveness, two-way communication, and stakeholder engagement. In Ghana, such participatory approaches are particularly relevant in contexts where local knowledge, oral traditions, and community consensus are central to decision-making (Akrofi-Quarcoo, 2005). Importantly, communication must also confront misinformation, climate skepticism, and apathy, which can hinder environmental action. Strategic environmental communication must therefore also involve counter-framing and reframing techniques to challenge dominant narratives that normalize environmental degradation or downplay the urgency of climate action (Boykoff & Boykoff, 2007).

2.2 Theoretical Framework

A strong theoretical foundation is essential in understanding the multifaceted role university students play as change agents within the domain of environmental stewardship and the use of development communication strategies to achieve sustainable outcomes. This study is anchored in three primary theories: Diffusion of Innovations Theory, Participatory Communication Theory and Social Cognitive Theory. These theories offer valuable perspectives for analyzing how university students adopt, adapt, and disseminate environmental practices and messages through development communication.

2.3.1 Diffusion Of Innovations Theory

The Diffusion of Innovations Theory, developed by Everett Rogers (2003), is a foundational framework in communication and social change research. It explains how innovations defined as new ideas, behaviors, or technologies are communicated over time among the members of a social system. The theory identifies five categories of adopters: innovators, early adopters, early majority, late majority, and laggards, each representing a different segment of society based on their openness to innovation. Crucially, the theory emphasizes the role of communication channels, the innovation-decision process, the social system, and time in shaping how and when an innovation is adopted.

In the context of environmental stewardship, the Diffusion of Innovations Theory is particularly relevant for understanding how sustainable practices and green behaviors are disseminated across campus communities. University students are uniquely positioned within the social structure to function as early adopters or even opinion leaders who have a high degree of influence over others' attitudes and behaviors due to their credibility, knowledge, or social status (Rogers, 2003; Valente & Pumpuang, 2007). Their access to higher education equips them with critical thinking skills and exposure to scientific knowledge, which enables them to evaluate the merits of environmental innovations such as recycling initiatives, carbon footprint reduction, or alternative energy solutions.

Moreover, university students often operate within interconnected digital and interpersonal networks, which serve as powerful communication channels for the diffusion process. Through social media, peer-led workshops, campus events, and student-led organizations, students can amplify environmental messages and mobilize collective action (Greenhalgh et al., 2004). These communication pathways allow for both mass media diffusion targeting a broader audience and interpersonal diffusion, which tends to be more persuasive due to the trust and familiarity within peer groups (Rogers, 2003; Singhal & Rogers, 2001).

The theory also helps to illuminate potential barriers to diffusion, such as cultural resistance, lack of awareness, perceived complexity of environmental practices, or insufficient institutional support. For instance, while some students may readily embrace eco-friendly behaviours, others may remain skeptical or indifferent due to competing academic pressures, socio-economic constraints, or a lack of environmental education. The adoption of sustainable practices often requires a critical mass of adopters before becoming mainstream,

making the role of student change agents essential in reaching that tipping point (Mahajan & Peterson, 1985). This study investigates how university students disseminate environmental knowledge, influence peer behavior, and utilize development communication tools to foster ecological consciousness. It also examines the structural and individual factors that affect the pace and success of innovation diffusion in academic environments.

2.3.2 Participatory Communication Theory

Participatory Communication Theory emphasizes horizontal, inclusive, and dialogical approaches to communication, where stakeholders are not passive recipients but active agents in the development process (Freire, 1970; Servaes, 2008). Unlike traditional communication models that favor top-down information dissemination, participatory communication fosters collaborative problem-solving, collective decision-making, and community empowerment (Melkote & Steeves, 2015). This approach is deeply rooted in Paulo Freire's pedagogy of the oppressed, which advocates for conscientization a process through which individuals critically reflect on their conditions and take action to transform them.

In the context of environmental communication, the participatory model holds significant value, particularly when addressing complex and localized ecological challenges. It ensures that diverse voices, including those of marginalized and youth populations, are integrated into environmental discourse and practice. Participatory communication facilitates the co-construction of knowledge, allowing stakeholders to contribute indigenous wisdom, experiential insights, and locally relevant strategies that are often overlooked in mainstream narratives (Tacchi, 2016). For university students, participatory communication provides a powerful framework to engage with environmental issues in a meaningful way. Students can co-design campaigns, lead peer-to-peer environmental education programs, and collaborate with local communities and institutions to implement sustainable practices. By participating in environmental clubs, green campus initiatives, and digital activism, students are able to shape the agenda, mobilize resources, and influence behavior change both within and beyond the university setting.

Moreover, the theory aligns with democratic principles and rights-based development approaches, reinforcing students' sense of ownership, responsibility, and agency in tackling environmental problems. It fosters a bottom-up dynamic that is essential in the current era of climate change, where the multiplicity of voices, especially from the youth, is vital for

resilient and adaptive solutions (Manyozo, 2012). Participatory communication thus becomes not only a method for information sharing but also a transformative tool for ecological justice and social innovation.

2.3.3 Social Cognitive Theory

Social Cognitive Theory (SCT), proposed by psychologist Albert Bandura, provides a useful lens for understanding how individuals learn within a social context. It posits that human behaviour is shaped through a continuous and reciprocal interaction among personal cognitive factors, environmental influences, and behavioural patterns (Bandura, 1986). In the context of university students and environmental stewardship, SCT helps to explain how students can become change agents through learning from their peers, developing confidence in their abilities, and interacting with supportive environments.

A central aspect of SCT is observational learning. This simply means that people learn by watching others, especially those they consider role models. For university students, this could mean learning environmentally responsible behaviour by observing peers who are actively involved in clean-up exercises, recycling projects, or climate advocacy campaigns. When students witness the positive impact of these behaviours and see others being recognized for their efforts, they are more likely to imitate them (Bandura, 2001).

Another important concept is self-efficacy, which refers to an individual's belief in their capacity to carry out a specific action. Bandura (1997) argues that people who believe they can achieve a desired outcome are more likely to take initiative. For example, when students believe that their actions, such as speaking up on environmental issues, planting trees, or educating others will make a difference, they are more inclined to participate in such activities. This sense of agency is particularly vital in mobilizing young people to become environmental stewards within their universities and beyond.

Finally, reciprocal determinism is the idea that personal factors, behaviour, and environment all influence one another in a dynamic way (Bandura, 1986). For instance, a student who is passionate about fighting climate change (personal factor) may decide to join an environmental club (behaviour), where they are further influenced by campaigns, discussions, and like-minded individuals (environmental factor). This interaction may deepen their

commitment and motivate them to influence others, thereby creating a ripple effect of change.

SCT, therefore, highlights the power of social environments and internal beliefs in shaping student activism and engagement. By understanding these elements, educators and institutions can better support students in becoming effective change agents for environmental sustainability.

2.3 Empirical Review

This section synthesizes relevant empirical studies that align with the study's objectives: understanding university students' perception of their role in environmental stewardship, examining the influence of development communication on environmental attitudes and behaviours, and identifying the challenges and opportunities in student-led environmental communication.

2.3.1 Students As Environmental Change Agents

University students are increasingly recognized as critical actors in driving environmental change, particularly through their roles as change agents in promoting environmental stewardship. Their position within the academic environment enables them to develop awareness, attitudes, and skills that can influence sustainable development at both local and global levels. According to Wals and Corcoran (2012), higher education institutions are not only centers of learning but also platforms for transformative action where students can be nurtured as leaders in sustainability. Through academic training, participation in environmental activities, and peer influence, students are equipped to challenge unsustainable practices and advocate for change within their institutions and communities.

Leal Filho et al. (2018) argue that students play an instrumental role in implementing sustainability practices in higher education institutions by actively participating in campus greening initiatives, environmental clubs, and awareness campaigns. These activities empower students to take ownership of sustainability issues and promote behavioral change among their peers. Moreover, student-led environmental initiatives provide platforms for leadership development, community outreach, and collaboration with civil society and

environmental NGOs. Research by Boakye and Antwi (2020) in Ghana shows that university students generally perceive themselves as future leaders with a responsibility to safeguard the environment. This self-perception is rooted in their awareness of global environmental challenges and the realization that today's youth will inherit the consequences of current environmental decisions. However, the authors note that practical engagement in environmental activities among Ghanaian students is often limited by institutional challenges such as inadequate funding, lack of support from university management, and limited integration of environmental issues into the curriculum.

In a similar study, Musah and Yaro (2021) highlight that student activism on environmental issues is growing across African universities, with students mobilizing through social media and environmental advocacy platforms to demand better waste management practices, clean energy adoption, and climate change education. They argue that students' unique positioning as informed, vocal, and energetic stakeholders makes them powerful agents for sustainable change when provided with the right resources and opportunities.

Additionally, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2017) emphasizes the role of education for sustainable development (ESD) in shaping young people as agents of change. ESD equips students with the knowledge, values, and skills necessary to participate in decision-making processes and take responsible action to build more sustainable societies. As students engage with ESD principles, they develop a sense of ownership and empowerment to challenge environmental injustices and promote collective environmental responsibility.

Furthermore, Adom and Asante (2022) stress the importance of integrating indigenous environmental knowledge and practices into university curricula to strengthen students' ecological consciousness and deepen their engagement with local sustainability challenges. They suggest that a holistic approach that combines global environmental frameworks with local context can enhance students' ability to act as effective change agents. University students' role in promoting environmental stewardship is not only shaped by their educational exposure but also by their ability to organize, advocate, and implement change within and beyond campus settings. For students to fully realize their potential as environmental change agents, institutional policies must support sustainability education, encourage student participation, and promote interdisciplinary collaboration.

2.3.2 Development Communication And Student Environmental Attitudes And Behaviours

Development communication plays a critical role in shaping environmental attitudes and behaviours, particularly among university students who are exposed to diverse sources of information and educational content. (Servaes, (2008); Manyozo, (2012) argue that well-structured communication strategies such as advocacy, environmental campaigns, edutainment, and participatory media are effective in promoting sustainable behaviours and increasing environmental awareness (Servaes, 2008; Manyozo, 2012).

According to Olorunnisola and Martin (2013), development communication initiatives that target youth populations, especially students, can stimulate consciousness and inspire change by leveraging peer influence and digital platforms. They stress the importance of incorporating culturally relevant messaging and dialogical approaches to resonate with student experiences. Similarly, Asante and Badu (2021) argue that engaging students through tailored environmental content on social media, workshops, and drama performances significantly improves their commitment to eco-friendly behaviours.

In a study on environmental communication in Nigerian universities, Adebayo and Ogundele (2019) found that frequent exposure to environmental education through campus radio, student clubs, and institutional campaigns correlates positively with students' willingness to adopt pro-environmental lifestyles. This demonstrates the power of repeated and targeted messaging in driving attitude shifts. Osei-Wusu et al. (2020) observed that students' engagement with environmental issues improves when communication efforts are practical, interactive, and emotionally resonant. The study showed that storytelling, group discussions, and scenario-based learning are more impactful than traditional lectures alone.

Furthermore, Dutta (2011) highlights the need for communication approaches to move beyond mere dissemination of information to include participatory strategies that allow students to engage critically with content and co-produce knowledge. This two-way process enhances internalization of environmental values and increases the likelihood of behavioural change. In essence, development communication provides both the tools and the environment necessary for students to transform environmental knowledge into practical action. By employing interactive and inclusive strategies, communication efforts not only inform but also inspire and mobilize students towards environmental stewardship.

2.3.3 Challenges In Student-Led Environmental Communication

Despite their potential as dynamic agents of environmental change, university students often encounter significant barriers in their efforts to lead effective environmental communication initiatives. While universities may promote sustainability rhetorically, they frequently fall short in providing structural and financial backing for student-led environmental programs (Velazquez et al., 2006; Agyeman et al., 2013). This lack of institutional commitment not only limits student enthusiasm but also undermines long-term project sustainability and impact. Another critical challenge is the limited access to appropriate communication platforms and tools. Although social media has emerged as a powerful avenue for youth engagement, its algorithmic constraints and ephemeral nature often hinder deep engagement with environmental topics (Bosch, 2013; Omanga, 2019). In contexts like Ghana, digital inequalities further exacerbate this issue, with inconsistent internet access, limited bandwidth, and digital literacy gaps curbing students' ability to utilize technology for sustained advocacy (Boateng & Amoako, 2020; Ofori-Amanfo & Gyamfi, 2022).

Moreover, students often grapple with a lack of environmental communication training. The absence of formal education in strategic communication and environmental journalism limits their ability to frame messages effectively, tailor them to diverse audiences, and evaluate the outcomes of their campaigns (Roser-Renouf et al., 2014). The result is often communication that is well-intentioned but fails to mobilize action or influence public discourse in meaningful ways.

Socio-cultural factors also play a significant role in constraining student-led environmental initiatives. In many African contexts, environmental issues may not be prioritized in public discourse or perceived as urgent, especially when juxtaposed with economic hardships and political instability (Leal Filho et al., 2019; Obeng-Odoom, 2013). Students who attempt to advocate for environmental change may therefore face apathy or resistance from their communities, peers, or even family members, leading to disillusionment or burnout (Manteaw, 2012).

Furthermore, generational hierarchies and youth-adult power dynamics can inhibit students' participation in environmental governance. Many decision-making processes in universities and local communities exclude student voices or treat them as peripheral, which can discourage meaningful engagement (Hart, 1992; Checkoway & Gutierrez, 2006). Without

opportunities for co-creation and shared authority, student-led communication initiatives often lack legitimacy and scalability.

2.3.4 Opportunities In Student-Led Environmental Communication

Patel et al., (2017) suggested that one key opportunity lies in the increasing digital literacy and social media engagement among university students, which can be harnessed to disseminate environmental messages to wider audiences. Platforms such as Twitter (X), Instagram, TikTok, and YouTube offer students unprecedented reach and the ability to shape narratives around environmental issues through user-generated content, storytelling, and advocacy. Studies have shown that when students lead environmental campaigns on social media, they not only raise awareness but also influence policy dialogues and public opinion (Miller & Bentley, 2020).

Moreover, student-led initiatives provide a participatory and grassroots approach to communication, often resulting in higher community trust and local relevance. Participatory approaches foster collective ownership and deeper community engagement, as seen in campus-based sustainability movements and eco-clubs that empower students to co-create solutions with stakeholders (Servaes, 2008; Wals & Lenglet, 2016). In Ghana, the success of student-led tree planting campaigns and clean-up exercises in universities such as the University of Ghana and Kwame Nkrumah University of Science and Technology (KNUST) demonstrates the potential for youth-led communication to yield tangible environmental outcomes (Agyeman & Osei, 2021).

Institutional collaborations also present important opportunities. Partnerships between universities and environmental NGOs, government agencies, and international bodies can offer students resources, training, and platforms to amplify their communication efforts (Leal Filho et al., 2019). Such collaborations enhance legitimacy, provide access to expert knowledge, and expand the impact of student campaigns beyond campus boundaries.

Furthermore, integrating environmental communication into academic curricula and service-learning programs can institutionalize student involvement in sustainability issues. When communication for development is embedded in academic structures, students are more likely to engage in long-term, reflective, and impactful initiatives (Cox, 2013). Research by Thomas

and Day (2014) underscores how experiential learning models increase students' environmental consciousness and ability to translate theory into practice.

2.5 Literature Gaps

Although there is a growing body of research on environmental communication and youth engagement in sustainability, several critical gaps remain particularly in the context of student-led environmental communication within higher education institutions in Ghana and the broader African region. Firstly, much of the existing literature tends to focus on top-down communication strategies initiated by governments, NGOs, and international organizations (Servaes, 2008; Cox, 2013). These studies often overlook the agency of students as active participants in crafting and disseminating environmental messages. As a result, the unique perspectives, creativity, and localized efforts of university students remain under-researched, especially in developing countries where institutional support and visibility for such initiatives are limited. Secondly, most studies on environmental communication are conducted in Western or industrialized contexts, where digital infrastructure, access to social media, and environmental awareness are significantly different from those in sub-Saharan Africa (Patel et al., 2017; Miller & Bentley, 2020). There is a lack of region-specific evidence on how African students utilize communication tools, adapt global narratives to local contexts, or engage in culturally relevant environmental activism.

Thirdly, while some research acknowledges the role of youth in sustainability education, few studies explicitly investigate how students themselves initiate, lead, and evaluate environmental campaigns in academic environments. The dynamics of peer-led communication, the use of indigenous knowledge systems, and the influence of local environmental challenges are areas that require deeper empirical exploration (Agyeman & Osei, 2021).

Moreover, limited attention has been given to the long-term impact and sustainability of student-led communication interventions. Existing research does not adequately assess how such initiatives influence institutional policies, behavioral change, or environmental outcomes over time. There is also a need for longitudinal and interdisciplinary studies that integrate communication theories with environmental science, education, and youth development frameworks. The intersection of digital technology and student-led environmental communication in African universities is an emerging area that remains

underexplored. While social media is often cited as a powerful tool for advocacy, there is insufficient empirical data on how students in Ghanaian universities strategically use these platforms, face technological barriers, or measure the effectiveness of their campaigns.

In light of these gaps, this study aims to fill a crucial void by examining the practices, challenges, and opportunities associated with student-led environmental communication in Ghanaian universities. It contributes to a more nuanced understanding of grassroots environmental activism and the role of youth in shaping sustainable futures within African higher education contexts.

2.6 Conclusion

This chapter has provided a comprehensive literature review that establishes the conceptual and theoretical foundations for this study on university students as change agents for environmental stewardship. The review began by defining key concepts, clarifying the roles of university students as catalysts for change, exploring development communication as a strategic tool for advocacy, and framing environmental stewardship as a core responsibility. By synthesizing existing research, the chapter has shown that while university students are increasingly recognized for their potential, their efforts are often constrained by a lack of institutional support and targeted communication strategies.

The theoretical framework, grounded in the Diffusion of Innovations Theory, Participatory Communication Theory and Social Cognitive Theory, has provided a robust lens through which to analyze the mechanisms of student-led environmental communication. These theories are essential for understanding not only how sustainable practices spread among peers but also the individual's psychological journey of adopting these behaviors and how they can engage in collaborative, empowering dialogues with their communities. The empirical review highlighted the positive impact of student activism and development communication on environmental attitudes and behaviors, while also pinpointing significant challenges such as institutional barriers, limited access to resources, and digital inequalities.

Crucially, this review has identified several knowledge gaps that this dissertation aims to address. Specifically, there is a lack of research on the agency of students as initiators of environmental campaigns, a need for more context-specific evidence from sub-Saharan African universities, and an insufficient understanding of how students strategically leverage

digital technologies. By focusing on these gaps within the context of Ghanaian universities, this study is positioned to contribute new and valuable insights into the dynamics of youth-led environmental stewardship. The next chapter will outline the methodology designed to investigate these research questions, detailing the research design, data collection, and analytical strategies that will guide this investigation.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The chapter includes the evaluation of the research onion and the determination of appropriate methodological approaches, methods and paradigms so that the process of data collection and analysis can be conducted in a systematic way. It also includes a discussion on the research process that provides insights on the role of research objectives in determining the methodology and the selection of research philosophy, approach, strategy and ethical considerations to maintain ethics within the research.

3.1 Methodology

Research is defined as the process of discovering information about, analyzing, and exploring a particular problem to develop a solution or plan to improve the existing situation. Research emphasizes on providing answers to the "what," "why," and "how" questions and aims at delivering fresh insights in a particular subject that will make it more distinctive (Taherdoost, 2016) . Also according to (Cooper and Schindler, 2014) deciding on the most suitable methodology in any research process is the next most critical step after identifying the research questions and the study of literature. The methodology additionally informs the necessary strategies and procedures to be employed in conducting the research agenda. In view of the objectives set out for the study and together with other similar studies conducted, qualitative method would be adopted for the study. This would allow for issues in the study to be fully explored.

3.2 Research Process And Research Philosophy

The research onion is one of the most important methodological frameworks that helps to elaborately understand each of the research methods, approaches and processes at the time of determining the methodological aspect of the research. According to Saunders et al. (2009), the first layer of the research onion guides through the research philosophies, which determine the foundation of the research methodology. Moreover, in the second layer, the onion provides the techniques of research which unfold the data collection and analysis process. Similarly, through the layers of the research onion, different methodological approaches unfold to help to collect and analyse data appropriately to make the research systematic. Through the research onion, different research processes are sequentially arranged so that the research can be conducted systematically.

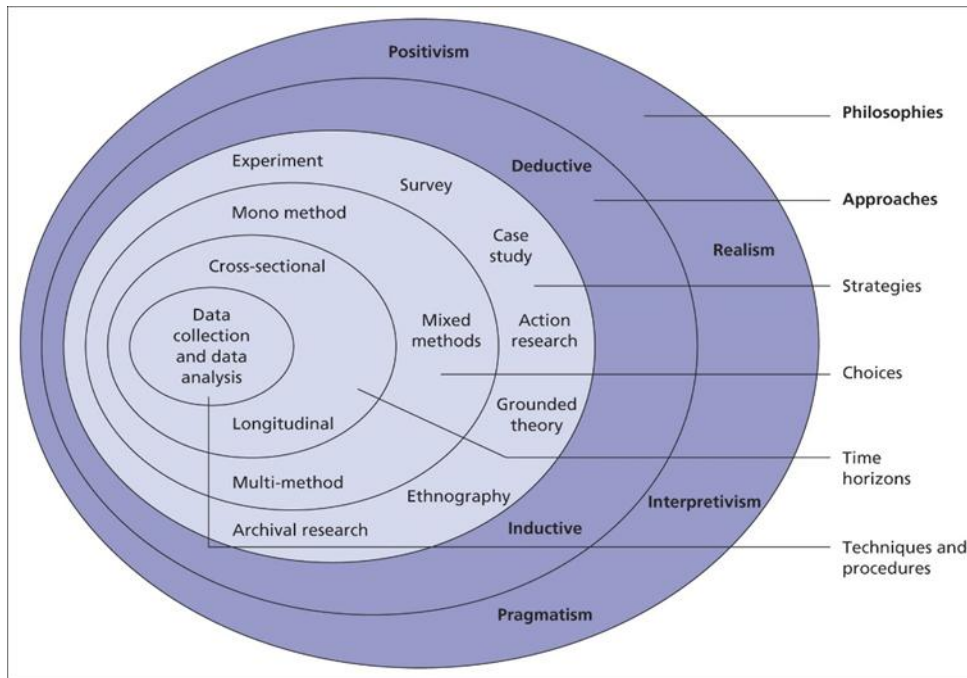


Figure 1: Research Onion (Source: Saunders et al. 2009)

A researcher's system of thought that guides the acquisition of current, credible knowledge concerning the research subject is known as scientific research philosophy. It forms the foundation of a study, encompassing research approach, problem formulation, data gathering, processing, and analysis (Žukauskas et al., 2018). The formulation of research assumptions, their character, and their knowledge are referred to as research philosophy (Saunders et al., Lewis and Thornhill, 2019). Research philosophy plays a crucial role in maintaining the overall flow of the research with proper knowledge, understanding and ideas.

Giving priority to philosophy in a study helps identify the required data, acquisition methods, and evaluation methods to answer research questions. This approach enables researchers to develop a specific study design, which may be beyond their own understanding, thereby enhancing their understanding (Holden and Lynch, 2004). Many research philosophies are used in research depending on the key requirements of research. However, three types of research philosophies are often preferred by researchers, which include Positivism, Realism and Interpretivism. According to Polkinghorne and Given (2021), current facts, ideas and beliefs related to the research context, scenario and background can be explored through positivism research philosophy. On the other hand, realism research philosophy is directly interdependent with reality, which comes from the human mind (Elder-Vass, 2022). Moreover, it depends on the assessment of scientific assumptions of critical as well as direct

real facts. However, social construction specific facts are always explored through the interpretivism philosophical aspect (Polkinghorne and Given, 2021). Hence, researchers select an appropriate research philosophy based on the research context, flow and requirements that need to be evaluated.

Although several philosophical paradigms inform social research, including Positivism, Realism, and Interpretivism, this study is situated within the interpretivist–constructivist tradition. Positivism and Realism were considered but ultimately deemed inappropriate for the nature of the research questions, which seek to understand subjective meanings, lived experiences and socially constructed realities relating to student agency and development communication for environmental stewardship.

Positivism was not adopted because its assumptions prioritise objectivity, measurement and quantifiable variables, favouring controlled observation and statistical generalisation. Such an approach would be unable to capture the nuanced, context-specific and often fluid ways in which students, lecturers and administrators interpret environmental issues, communicate about them and construct their roles as change agents. The research does not aim to test hypotheses or establish universal laws but instead seeks to explore the meanings participants attach to their experiences, an aim that falls outside positivist logic.

Realism was also considered inappropriate for this study. While Realism acknowledges the existence of social structures that influence behaviour, it still leans toward identifying causal mechanisms that operate independently of human perception. This orientation is limited to a study that prioritises how individuals *perceive*, *interpret* and *negotiate* their agency within institutional environments. The research questions require deeper engagement with participants' subjective interpretations rather than an investigation of underlying causal structures detached from lived meanings.

Given these limitations, Interpretivism/Constructivism provided the most suitable philosophical foundation for the study. This paradigm holds that reality is socially constructed and best understood through the meanings individuals assign to their actions and experiences. It acknowledges that students' engagement in environmental stewardship, their exposure to development communication, and their perceptions of institutional support are shaped by personal histories, cultural contexts and everyday interactions. By adopting this stance, the study explored how participants construct their roles as environmental stewards, how they make sense of communication strategies around them and how institutional contexts shape these understandings. This aligned closely with the use of semi-structured

interviews, which allow participants to articulate their meanings in depth, and with thematic analysis, which captures these meanings systematically.

Overall, the interpretivist–constructivist philosophy aligned with the exploratory, qualitative nature of the study and supports the aim of generating a rich, contextualised understanding of student agency within development communication for environmental stewardship.

3.2.1 Research Stance: Qualitative Paradigm

This research adopts a qualitative methodology, rooted in an interpretivist epistemological stance. The study is premised on the belief that the realities of environmental stewardship and the agency of university students are constructed through social interactions, institutional contexts, and individual experiences. Interpretivism asserts that knowledge and meaning in human contexts are not objectively given but are subjectively constructed and interpreted by individuals within their unique settings. This view aligns with the research aim of exploring in-depth student experiences and institutional curriculum frameworks, rather than seeking generalizable patterns through quantification.

In this respect, the qualitative paradigm is adopted because it enables the exploration of multiple realities and different understandings, particularly suitable for social phenomena such as student-led environmental change. The methodology values participant perspectives, insiders' meanings, and context-driven insights. The core of this research is to discern how Ghanaian university students make sense of their roles and how communication influences them, moving beyond objective facts to interpret meaning.

The constructivist approach complements interpretivism by asserting that knowledge and truth are not objective entities but are actively constructed by the human mind through interaction with others and the environment (Tanlaka et al., 2025). This aligns with the study's focus on how students perceive their role and how development communication strategies influence students' environmental attitudes and behaviours, which are inherently subjective and shaped by social interactions. This philosophical pairing allows the researcher to adopt a flexible, participant-driven framework, respecting the unique perspectives and contexts of the Ghanaian university students. By embracing interpretivism and constructivism, the study implicitly rejects a universal, one-size-fits-all understanding of environmental agency and development communication. Instead, it commits to exploring the multiple realities and context-specific interpretations that emerge from the Ghanaian university setting. This is particularly salient given the critique of top-down, instructional models in development communication and the emphasis on participatory, dialogue-driven

approaches. This philosophical stance ensures that the research prioritizes the voices and experiences of the students themselves, rather than imposing external frameworks. This grounding directly informs the choice of qualitative methods, such as semi-structured interviews and document analysis, and analytical techniques like thematic analysis. These methods are designed to elicit rich, descriptive data that can be interpreted to uncover the differences of meaning-making and social construction, thereby ensuring that the findings are deeply rooted in the participants' realities.

3.3 Research Design

This study employed a descriptive exploratory research design within a multiple case study approach. This combination was chosen to provide both a broad understanding of the phenomenon and comparative insights across different institutional contexts. The descriptive exploratory design allowed for an in-depth examination of students' roles as change agents in environmental stewardship, their engagement with development communication strategies, and the institutional factors influencing their participation. The multiple case study approach, focusing on Pentecost University (private) and UniMAC (public), facilitated the identification of similarities and differences between institutions, providing insights into how contextual factors shape student agency.

3.3.1 Descriptive Exploratory Design

The descriptive exploratory design was particularly suited to this study because the role of university students in leveraging development communication for environmental stewardship is relatively underexplored. Applying this design, I collected rich, qualitative data through interviews and document review, which allowed me to explore students' and staff members' lived experiences, perceptions, and behaviours. By focusing on the subjective experiences of participants, the design provided a detailed understanding of the factors that facilitate or hinder environmental engagement within the two selected universities (Flick et al., 2004).

3.3.2 Multiple Case Study Approach

The multiple case study approach enabled the study to treat Pentecost University and UniMAC as distinct cases. Within each case, I examined the experiences of students, lecturers, and administrators to uncover institutional patterns influencing environmental stewardship and communication practices. By comparing findings across the two universities, I identified context-specific opportunities and challenges, providing lessons that could inform future institutional strategies for promoting sustainability (Stake, 2013).

3.4 Study Population and Sampling

The cornerstone of rigorous research lies in the meticulous selection of a study population and the subsequent application of appropriate sampling techniques. The population, in essence, constitutes the broader group of individuals or entities that share common characteristics and are of interest to the researcher (Willie, 2024). Defining the study population with clarity and precision is paramount, particularly in research designs involving human subjects, as it dictates the eligibility criteria for inclusion in the study (Eldredge et al., 2014). Within this broad population, the target population emerges as a more refined subset, carefully defined to align with the specific research objectives and hypotheses. The process of narrowing down the population to a manageable and representative sample is where sampling techniques come into play (Sarfo et al., 2022). These techniques are essential tools that enable researchers to draw inferences about the entire population based on data collected from a smaller, carefully selected group. The study population comprised students, lecturers, and administrators from Pentecost University and UniMAC. Purposive sampling was employed to ensure the selection of individuals who could offer rich, relevant, and experience-based insights into the integration of environmental stewardship within the curriculum and institutional practices. More specifically, the study adopted criterion-based purposive sampling, as participants were selected according to predefined criteria that aligned directly with the research objectives. These criteria included familiarity with programme content, involvement in teaching or coordinating relevant courses, and active participation or non-participation in environmental activities on campus.

Using criterion sampling strengthened the methodological coherence of the study by ensuring that each participant possessed knowledge or experience that could meaningfully contribute to answering the research questions. This approach was particularly suitable given the study's interpretivist orientation, which prioritises depth of understanding over representativeness.

3.4.1 Target Population

The target population included:

- **Students:** undergraduate students from Level 200 to Level 400, both actively involved and not involved in environmental initiatives.
- **Lecturers:** teaching staff with experience in curriculum delivery related to environmental or media courses.
- **Administrators:** staff involved in university governance or environmental policy implementation.

3.4.2 Sampling Technique

A total of 20 participants were purposively selected based on their relevance to the research objectives:

- Students: 13 participants (8 from Pentecost University, 5 from UniMAC)
- Lecturers: 5 participants (2 from Pentecost University, 3 from UniMAC)
- Administrators: 2 participants (1 from each university)

Participants were selected to ensure representation across different roles, levels of engagement with environmental initiatives, and institutional contexts. Active students were identified through environmental clubs, while non-active students were recruited through departmental announcements and programme coordinators. Lecturers and administrators were identified based on their involvement in curriculum delivery, sustainability initiatives, or institutional environmental planning.

3.5 Data Collection Methods

Data for this study were collected through semi-structured interviews and complemented by document analysis, particularly for the curriculum review component. The combination of semi-structured interviews and document analysis provided a robust triangulation of data, allowing for a comprehensive understanding of both the subjective experiences of students and the objective institutional context.

3.5.1 Semi-Structured Interviews

Semi-structured interviews constituted the primary method of data collection for this study. The development of the interview guide was directly informed by the research questions and objectives, ensuring alignment between the data collection process and the overall purpose of the investigation. The guide explored several key areas, including students' understanding of their role as change agents within their institutions and communities, their perceptions of prevailing environmental challenges, and their awareness and interpretation of development communication strategies aimed at promoting environmental stewardship. It further examined participants' experiences with institutional structures, support systems, and constraints that either facilitated or hindered their environmental engagement, as well as their recommendations for strengthening student-led initiatives and fostering more proactive youth participation in environmental sustainability efforts.

All interviews were conducted face-to-face on the campuses of Pentecost University and the University of Media, Arts and Communication (UniMAC). Conducting the interviews within the university environment enabled participants to speak from immediate experience and provided contextual relevance to the issues discussed. Each interview lasted approximately 30–45 minutes and was audio-recorded with the full and informed consent of all participants. Audio recording ensured the accurate capture of participants' views and allowed for a more detailed and reliable transcription and analysis process. Data collection continued until saturation was reached, meaning that additional interviews no longer generated new insights or themes. This approach strengthened the credibility and depth of the qualitative findings by ensuring that the perspectives gathered were sufficiently rich, diverse, and representative of the studied population.

3.5.2 Document Analysis For Curriculum Review

Document analysis was intended as a complementary data collection method to provide contextual information on how environmental stewardship is reflected within institutional and curricular frameworks (White et al., 2006). This method involves systematic examination and interpretation of written materials to uncover meanings, patterns, and institutional priorities. Document analysis constituted an important component of my data collection process, complementing the interviews by offering insight into how environmental stewardship is reflected within institutional and curricular materials. The documents reviewed included course outlines, syllabi, and programme descriptions from relevant departments. These materials were accessed through a direct request that I made to the Head of the Communication Department at Pentecost University, who granted permission for me to review the relevant documents. This ensured that the materials examined were current, authentic, and directly aligned with the programmes under study.

The inclusion of these departmental documents enhanced the robustness of the study by enabling triangulation between interview data and institutional texts. This contributed to a more comprehensive understanding of the extent to which environmental themes are embedded within the institutional framework and academic curriculum.

Through this process, document analysis enriched the study's understanding of institutional frameworks and offered a valuable reference point for evaluating the consistency, depth, and visibility of environmental stewardship within the academic environment.

3.6 Data Analysis

The data collected from semi-structured interviews and document analysis were subjected to thematic analysis.

3.6.1 Detailed Explanation Of Thematic Analysis

Thematic analysis is a flexible and widely used qualitative data analysis method for identifying, analyzing, and reporting patterns (themes) within data. It involves a systematic process of coding and categorizing qualitative information to uncover recurring ideas, concepts, and experiences relevant to the research questions. This method is particularly suitable for this study as it allows for an in-depth exploration of participants' subjective meanings and interpretations, aligning with the interpretivist and constructivist philosophical underpinnings. Thematic analysis provides a structured yet flexible way to make sense of large volumes of qualitative data.

Step-by-Step Process for Thematic Analysis

Data analysis was conducted using thematic analysis, guided by Braun and Clarke's (2006) six-phase framework, with the support of NVivo qualitative analysis software. NVivo was used to organize, store, and manage the data systematically, allowing for efficient coding, retrieval, and comparison of emerging patterns across participants and institutions. The use of software enhanced the transparency and rigour of the analytical process without replacing the interpretive role of the researcher.

The analysis commenced with an extended phase of familiarisation with the data. I listened to the audio recordings, read and re-read the interview transcripts, and reviewed notes from the document analysis. This immersion allowed me to gain a deep understanding of the content and context of participants' narratives and to identify initial ideas that might become relevant in subsequent coding.

Following familiarisation, all transcripts were imported into NVivo, where the initial coding process began. I coded the data inductively by selecting relevant segments of text and assigning descriptive and interpretive codes that captured participants' views on environmental stewardship, institutional support systems, communication practices, and perceived barriers to student agency. NVivo enabled the creation of a coding framework that could be refined iteratively as additional transcripts were analysed. The software's tools for comparing coding patterns across the two institutions were particularly useful in highlighting similarities and differences between the cases.

Once the initial codes had been generated, I examined the coding patterns to identify broader conceptual groupings that could form preliminary themes. NVivo's visualisation tools, such as node hierarchies and coding stripes, supported the process of clustering related codes and exploring relationships between them. These provisional themes were then reviewed and refined by returning to both the coded extracts and the full transcripts to ensure that each theme was internally coherent and meaningfully reflected the data set as a whole. Themes that lacked sufficient support were merged, redefined or removed to enhance analytical clarity.

After this refinement, the themes were clearly defined and named. This stage involved articulating the core ideas represented by each theme, clarifying their boundaries and determining how they related to the research questions and conceptual framework of the study. NVivo's modelling functions supported the development of conceptual links between themes, helping to illustrate how students' actions, institutional practices and communication dynamics interact to shape environmental stewardship within the universities.

The final stage involved synthesising the themes into a structured narrative for presentation in Chapter Four. This process required selecting representative quotations, integrating complementary insights from the document analysis, and framing the thematic findings within the broader literature on student agency and development communication. NVivo facilitated the systematic retrieval of relevant extracts, enabling a coherent, nuanced and well-substantiated account of the perspectives of students, lecturers and administrators across both Pentecost University and UniMAC.

3.7 Reliability and Validity Of The Study

To ensure the methodological rigour of the study, the principles of trustworthiness proposed by Lincoln and Guba (1994) are applied: credibility, transferability, dependability, and confirmability in line with established qualitative research standards. These principles guided both the data collection and analysis processes and enhanced the overall reliability and integrity of the findings.

3.7.1 Credibility

Credibility was achieved through several strategies designed to ensure that the findings accurately represented participants' experiences. After each interview, summaries of key points were shared with participants for confirmation, a process that helped verify the

accuracy of interpretations and reduce the risk of misrepresentation. Triangulation across data sources strengthened the study further. Perspectives from students, lecturers and administrators were compared and integrated with insights from the document analysis to provide a more comprehensive account of environmental stewardship practices within the two institutions. Reflexive journaling was also maintained throughout the research process, allowing me to acknowledge and critically reflect on my assumptions, positionality and potential biases.

3.7.2 Transferability

Transferability was addressed by providing detailed contextual descriptions of both universities, the characteristics of the participants and the specific institutional environments within which the study took place. These thick descriptions enable readers to determine the extent to which the findings may apply to similar contexts or institutions. The purposive sampling strategy further contributed to transferability by ensuring that participants with diverse yet relevant experiences were included.

3.7.3 Dependability

Dependability was enhanced through the maintenance of a clear and traceable audit trail. Records were kept of interview procedures, coding decisions, NVivo files, theme development processes and reflexive notes. This documentation enables other researchers to understand the methodological steps taken and provides transparency regarding how the findings were produced. Regular consultation with my supervisor also supported dependability, as discussions regarding methodological choices and preliminary interpretations helped refine the analytical process.

3.7.4 Confirmability

Confirmability was ensured by grounding interpretations firmly in the data. NVivo was used to store, code and organise the data systematically, making it possible to trace each theme back to specific participant statements and documentary extracts. Direct quotations selected for Chapter Four illustrate participants' voices and demonstrate how the findings are anchored in empirical evidence rather than researcher bias. The reflexive journal and audit trail also contributed to confirmability by providing documentation of how analytical decisions were made throughout the study.

Together, these measures ensured that the research process was transparent, systematic and aligned with best practices in qualitative inquiry. They strengthened confidence in the integrity and credibility of the findings presented in the subsequent chapters.

3.8 Ethical Considerations

Ethical integrity guided every stage of this research, particularly because the study involved direct engagement with human participants from Pentecost University and the University of Media, Arts and Communication (UniMAC). Before any interaction took place, ethical clearance was sought through the appropriate institutional channels, and formal permission was secured to access the selected departments, administrators, lecturers and students. This process ensured that the study was undertaken within established ethical frameworks and that participants' rights were protected from the outset.

Participants were fully informed about the purpose and scope of the research, the procedures involved, and how their data would be used. They were also made aware of the voluntary nature of their participation, with the assurance that they were free to decline or withdraw at any stage without any consequences. This information was provided through a clearly written information sheet and explained verbally to allow for questions or clarifications. Written consent was obtained from those who participated in face-to-face interviews, and verbal consent was recorded for those who opted for virtual interviews, ensuring that informed participation was consistently upheld across both settings.

Confidentiality and anonymity were central to data handling and reporting. Interviews were recorded only after explicit permission was granted, and all identifying details were removed during transcription. Pseudonyms were assigned to each participant and to the institutions, ensuring that no individual or university could be directly traced through the findings. Any contextual details that had the potential to reveal identities were carefully adjusted or excluded without altering the substantive meaning of the data. These measures were essential for protecting participants' privacy and safeguarding their professional and personal relationships.

The management and storage of data adhered to strict security protocols. Audio recordings, transcripts, and related documents were stored on password-protected devices accessible only to the researcher and supervisor. This restricted access ensured that sensitive information was not shared beyond authorized individuals. In accordance with institutional requirements, the data will be securely retained for the approved duration and then responsibly disposed of.

Throughout the interviewing process, attention was paid to minimising any form of discomfort or psychological risk. Questions were framed sensitively, and participants were reminded that they could decline to respond to any item they found intrusive or uncomfortable. Interviews were conducted in a respectful, conversational manner, allowing participants to share their views freely without pressure. This approach helped to build trust and encouraged openness, especially when discussing institutional practices or personal experiences relating to environmental stewardship.

Relational ethics also played a significant role in guiding the interactions. The researcher was deliberate in maintaining transparency, honesty and respect, recognising that participants were voluntarily contributing their time, knowledge and perspectives. Careful attention was given to power dynamics, particularly when engaging with students and staff members who might perceive the researcher as an external evaluator. Ensuring that participants felt safe, heard and valued contributed significantly to the quality of insights shared during interviews. By consistently applying these ethical principles, procedural, relational and reflective, the research upheld the dignity, rights and welfare of all participants. This ethical grounding not only ensured compliance with institutional standards but also strengthened the credibility and trustworthiness of the data, ultimately enhancing the integrity of the findings and their contribution to understanding student agency and development communication in environmental stewardship.

3.9 Limitations

1. **Complex and Evolving Nature of Development Communication:** Development communication is a multidisciplinary and evolving field, which makes it difficult to adopt a single conceptual framework; as a result, while the study draws on specific theoretical perspectives such as Diffusion of Innovations, Participatory Communication, and Social Cognitive Theory, it may not fully capture the breadth of the field, and the findings are best understood as context-specific insights aligned with an interpretivist worldview that accepts multiple realities.
2. **Geographic Scope and Generalizability:** The study is limited to selected universities within the Greater Accra Region, meaning the findings, though valuable for comparative analysis within this context, may not be generalizable to other regions of Ghana or African countries, where differing socio-cultural, institutional, and

environmental dynamics could influence student engagement with development communication in distinct ways.

3. **Cross-Sectional Nature of Data:** As a cross-sectional study, it captures student attitudes, behaviours, and perceptions at a single point in time, which limits the ability to assess how student agency or the effects of development communication strategies evolve over time, thus indicating the need for future longitudinal studies to explore the dynamics of behaviour change and long-term impact.
4. **Institutional Constraints and External Influences:** The effectiveness of student-led environmental communication may be affected by factors such as bureaucratic inefficiencies, limited funding, weak institutional support, and broader socio-political influences; although these are considered in the study through participant narratives and institutional documents, fully capturing their complex interrelations remains a methodological challenge.
5. **Researcher Bias:** As is typical in qualitative research, the researcher functions as the primary instrument for data collection and analysis, and despite efforts to enhance trustworthiness through reflexivity and participant validation, interpretations are inevitably shaped by the researcher's positionality and experiences, meaning complete objectivity cannot be guaranteed.

By identifying these limitations, the study demonstrates academic rigor and sets realistic expectations regarding its scope. Moreover, it provides direction for future research, such as longitudinal studies, expanded geographic coverage, and further investigation into institutional and socio-cultural influences on student environmental communication.

3.10 Chapter Summary

This chapter has meticulously outlined the methodological framework adopted for this study, which seeks to examine the role of university students as change agents in environmental stewardship through development communication in the Greater Accra Region, Ghana. Anchored in an interpretivist philosophy and constructivist approach, the study employs a descriptive exploratory design within a multiple case study framework to facilitate in-depth, comparative understandings into student perceptions and experiences. Data will be primarily collected through semi-structured interviews and complemented by document analysis, particularly for curriculum review, ensuring a comprehensive understanding of both individual and institutional dynamics. Thematic analysis will be utilized to systematically identify and interpret patterns within the data, linking findings to the study's theoretical

underpinnings. Rigorous measures for trustworthiness, including credibility, transferability, dependability, and confirmability, have been detailed to ensure the quality and rigor of the research.

Finally, a transparent discussion of methodological limitations has been provided, acknowledging the study's scope and guiding the interpretation of its findings. This robust methodology is designed to provide rich, context-specific understandings that contribute meaningfully to the understanding of youth-led environmental stewardship in Ghana.

CHAPTER FOUR

Data Analysis and Results Discussion

4.0 Introduction

This chapter presents the analysis and interpretation of data collected for the study. The purpose of this chapter is to explore how university students in Ghana, particularly within the Greater Accra Region, engage with development communication strategies to promote

environmental awareness and action. Data was gathered through semi-structured interviews with twenty (20) participants drawn from two institutions, Pentecost University and the University of Media, Arts and Communication (UniMAC). The participants included undergraduate students, lecturers, and university administrators, selected to provide diverse perspectives on the role of students as environmental change agents. These students, ranged from Level 200 to Level 400, five (5) lecturers, with academic backgrounds in media, communication, and environmental studies, were included to provide pedagogical and mentorship perspectives. Additionally, three university administrators, responsible for student affairs and institutional planning, contributed insights into policy frameworks and institutional support for sustainability initiatives. The interviews were transcribed and then indexed based on the main sections of the interview guide and participants' comments were coded under each section, with reference codes issued such as "S1, S2, S3 S12" (Where S stands for Student), "L1, L2, L3 L5" (Where L stands for Lecturers) and "A1, A2, A3" (Where A stands for university administrators).

The analysis in this chapter follows a thematic approach as outlined by Braun and Clarke (2006) to identify recurring patterns, viewpoints, and narratives that emerged from the interviews. These themes are discussed in relation to the study's objectives.

The chapter also examines institutional support structures, challenges faced by student-led initiatives, and the perceived impact of student activism on environmental stewardship.

4.1 . Background Information of Participants

This section provides insights into the demographic and institutional profiles of the participants involved in the study. The aim is to establish a foundation for interpreting the thematic findings that follow. The table below shows the detailed background of the participants.

Table 1 Background Information of Participants

Category	Total	Gender	Age Range	Highest Educational
	Number	Distribution		Qualification
Undergraduate	13	Male: 6	18 - 28 years	Senior High School
Students		Female: 6		Certificate
Lecturers	5	Male: 3	30 - 45 years	Master's Degree: 2
		Female: 2		Doctorate (Ph.D.): 3
University	2	Female: 2	35 - 50 years	Master's Degree: 2
Administrators				
TOTAL	20	Male: 11	18 - 50 years	
		Female: 9		

The study engaged a total of 20 participants drawn from diverse categories within the university community to ensure a balanced and holistic representation of perspectives on environmental and sustainability-related initiatives. The participant composition, gender distribution, age range, educational background, and rationale for inclusion are summarised below.

The group's demographic makeup, with an equal number of males and females aged 18 to 28, reflects a balanced representation of young adults actively engaged in university life. Their educational background, holding at least a Senior High School Certificate, positions them as emerging scholars capable of expressing informed views on environmental issues. What matters most is not just the demographic profile but how it shapes the insights they provide.

Their contributions reflect the lived realities of students who engage directly with environmental practices on campus, highlighting the motivations, challenges, and everyday experiences that inform their participation in sustainability initiatives. As individuals situated

at a formative stage of social and civic development, their viewpoints offer a valuable understanding of how young people interpret and enact environmental stewardship within the university setting.

An equal gender distribution enhances the quality of the data by ensuring that the findings reflect a balanced range of perspectives. Because environmental attitudes and participation can sometimes differ across gender lines, the representation of both males and females in equal proportion reduces the likelihood of gender-skewed insights. This balance strengthens the credibility and inclusiveness of the findings, allowing the analysis to capture diverse experiences, motivations, and communication approaches related to environmental stewardship.

While gender alone does not determine the richness of the data, equal representation supports a more holistic understanding of student engagement and helps ensure that no single gendered viewpoint disproportionately shapes the conclusions drawn from the study.

The lecturers' group consisted of three males and two females within the 30-45-year age bracket. Among them, two held Master's degrees while three possessed doctoral qualifications (Ph.D.). Lecturers were included to contribute pedagogical, theoretical, and mentorship insights, ensuring academic depth and rigor in the study's discourse. Their professional experiences also offered valuable perspectives on the integration of environmental education within academic curricula.

The administrator group comprised two females, aged between 35 and 50 years, all of whom held Master's degrees. Their inclusion aimed to provide institutional and policy-level insights on sustainability initiatives, including aspects of funding, governance, and strategic implementation of long-term environmental programmes.

In total, 11 males and 9 females spanning ages 18 to 50 years. This diverse representation was deliberately designed to capture a comprehensive understanding of environmental engagement and sustainability practices across different tiers of the university structure, i.e. from student activism to administrative decision-making.

When asked to describe themselves and their roles within the university, participants offered varied responses. One student (S4) stated,

“I am a Level 300 student in Communication Studies, and I serve as the secretary of the Environmental Club on campus.”

Another student (S9) noted,

“I’m in Level 400 and I’ve been part of the campus clean-up team since my second year.”

A lecturer (L2) explained,

“I’ve been teaching environmental communication for over six years and have supervised several student-led campaigns focused on sanitation and climate awareness.”

Participants were also asked whether they had been involved in any environmental activities or initiatives within their respective institutions. The responses revealed varying degrees of engagement. One student (S1) remarked,

“Yes, I’ve participated in clean-up exercises and tree planting events organized by the SRC.”

Another student (S7) added,

“We recently launched a recycling awareness campaign in collaboration with a local NGO.”

A lecturer (L4) stated,

“I include environmental themes in my lectures and encourage students to develop media content around sustainability.”

An administrator (A3) emphasized,

“Our office supports student-led initiatives by providing logistical support and connecting them with external partners.”

These responses illustrate the diverse roles and levels of involvement among participants in environmental activities. They also highlight the relevance of development communication as a strategic tool for mobilizing student action and institutional support. The insights gathered in this section provide a rich foundation for the thematic analysis presented in the subsequent sections of this chapter.

4.2 Understanding Roles in Environmental Stewardship

This section presents a thematic analysis of data collected from students, lecturers, and administrators at Pentecost University and the University of Media, Arts and Communication (UniMAC). The analysis is organized under five subthemes derived directly from the interview guide: (1) Understanding of Environmental Stewardship, (2) Student Roles and Perceptions, (3) Student-Led Actions and Initiatives, (4) Curriculum Integration and Pedagogical Approaches, and (5) Institutional Support and Formal Channels. Each subtheme is supported by participant responses and discussed in relation to relevant literature.

4.3.1 Understanding of Environmental Stewardship

Students demonstrated a broad and evolving understanding of environmental stewardship, often linking global environmental concerns to local realities in Ghana.

Student S1 explained,

“Environmental stewardship means taking care of the environment in a way that benefits both current and future generations. It’s about being responsible.”

Student S5 added,

“Globally, it’s about climate change and carbon emissions. But here in Ghana, we deal with things like poor sanitation, flooding, and plastic waste.”

Student S11 noted,

“It’s not just about big policies. It’s about what we do every day, how we dispose of waste, how we use water.”

Lecturer L2 affirmed this view, stating,

“Students are increasingly aware that environmental issues are not abstract. They see the effects around them in their communities, in the news, even on campus.”

These responses reflect a contextualized understanding of stewardship, consistent with Wals and Benavot’s (2017) emphasis on place-based environmental education. The recognition of local environmental challenges aligns with Obeng-Odoom’s (2019) critique of imported sustainability models that overlook African urban realities.

4.3.2 Student Roles and Perceptions

Students expressed a strong sense of agency and responsibility in promoting environmental stewardship. Student S3 stated,

“As students, we are the next generation of leaders. If we don’t act now, we’ll be the ones to suffer the consequences.”

Student S7 remarked,

“We have platforms social media, student clubs, class presentations. We can use these to educate others and push for change.”

Student S14 added,

“Sometimes we feel powerless, but when we come together, we can influence even university policies.”

Lecturer L4 emphasized,

“Students are not just learners, they are influencers. Their energy and creativity can shift campus culture.”

These reflections align with Ogbuigwe’s (2015) assertion that youth are central to environmental transformation. The emphasis on collective action and digital advocacy also resonates with Bandura’s (2001) theory of collective efficacy and Foth and Hearn’s (2007) communicative ecology model.

4.3.3 Student-Led Actions and Initiatives

Participants shared a wide range of environmental initiatives led by students, both informal and structured.

Student S6 described,

“We organized a clean-up exercise around the hostel area. It was student-led and supported by the SRC.”

Student S9 shared,

“I created a short documentary on plastic waste in Accra for my media project. It was shared on our university’s YouTube channel.”

Student S15 noted,

“We hosted a ‘No Plastic Week’ where we encouraged everyone to bring reusable bottles and bags. We even gave out prizes.”

Student S18 added,

“We developed a podcast series on climate change in Ghana. We interviewed local experts and shared it on Spotify.”

Lecturer L5 commented,

“One group created a social media challenge around water conservation. It went viral on campus and even got picked up by a local radio station.”

These examples illustrate the use of development communication tools media production, social mobilization, and digital storytelling to promote environmental awareness. Servaes (2020) emphasizes that such participatory communication strategies are essential for sustainable development, particularly when they are youth-led and culturally grounded.

4.3.4 Curriculum Integration and Pedagogical Approaches

Lecturers described how they integrate environmental themes into their teaching to foster critical engagement and practical application.

Lecturer L1 explained,

“In my journalism class, students write investigative pieces on environmental issues in their communities.”

Lecturer L3 shared,

“We use local case studies like flooding in Accra to help students connect theory to reality.”

Lecturer L6 added,

“In public relations, students develop campaigns for real environmental NGOs. It’s experiential and impactful.”

Students also acknowledged the value of these approaches. Student S12 stated,

“Our lecturer asked us to design a campaign for World Environment Day. It was the first time I felt like my coursework could make a real difference.”

Student S17 noted,

“We had to analyze environmental ads and critique their messaging. It made me think more critically about how communication shapes behavior.”

These pedagogical strategies align with UNESCO’s (2014) call for interdisciplinary and applied learning in sustainability education. They also reflect Kolb’s (1984) experiential learning theory, which emphasizes learning through doing.

4.3.5 Institutional Support and Formal Channels

Administrators and students discussed the systems in place to support environmental initiatives on campus.

Administrator A1 stated,

“We provide logistical support for student clubs, including access to venues, publicity, and sometimes seed funding.”

Administrator A3 added,

“There’s a monthly forum where students can pitch ideas to faculty and external partners. It’s a great incubator for change.”

Students confirmed the value of these structures. Student S20 explained,

“We submitted a proposal for a solar-powered charging station. The university approved it and helped us connect with engineers.”

Student S21 noted,

“There’s a clear process now proposal, review, mentorship, implementation. It makes things more transparent and achievable.”

However, challenges remain. Student S22 remarked,

“Sometimes we get approval, but the execution stalls due to bureaucracy or lack of follow-up.”

Student S23 added,

“We need more visibility. Some students don’t even know these opportunities exist.”

These insights highlight the importance of institutional clarity, responsiveness, and communication. Rogers’ (2003) diffusion of innovation theory and Bandura’s (2001) self-efficacy model both emphasize the role of enabling environments in sustaining change. The findings of this study reveal that university students in Ghana possess a nuanced and evolving understanding of environmental stewardship, often contextualizing global concerns such as climate change within local realities like poor sanitation, plastic pollution, and urban

flooding. This dual framing aligns with Wals and Benavot's (2017) concept of "local" environmental literacy, which emphasizes the importance of connecting global sustainability discourses to local lived experiences. Students consistently expressed a strong sense of agency, viewing themselves as future leaders and active contributors to environmental change. Their use of digital platforms, peer networks, and creative campaigns reflects Bandura's (2001) theory of collective efficacy, where belief in group capability enhances motivation and outcomes. This is further supported by Leal Filho et al. (2025), who argue that student-led sustainability initiatives are most effective when institutions foster a sense of ownership and leadership among students.

The study also highlights the strategic use of development communication tools such as podcasts, documentaries, murals, and social media challenges as vehicles for environmental advocacy. These practices align with Servaes' (2020) assertion that communication for development must be participatory, culturally grounded, and media-rich. Students are not merely disseminating information; they are crafting narratives that resonate with their peers and communities, demonstrating what Springer (2024) describes as "strategic communication for sustainability." Lecturers play a pivotal role in this process by embedding environmental themes into coursework through experiential and interdisciplinary approaches. The use of case studies, campaign design, and media critique reflects UNESCO's (2014) Education for Sustainable Development framework and Kolb's (1984) experiential learning theory, both of which advocate for learning through real-world application and reflection.

Institutional support emerged as a critical enabler of student-led environmental action. Administrators described formal procedures for project approval, mentorship, and funding, while students acknowledged both the opportunities and limitations of these systems. This reflects Rogers' (2003) diffusion of innovation theory, which emphasizes the role of enabling environments in facilitating the adoption and scaling of new ideas. However, challenges such

as bureaucratic delays and lack of visibility suggest that universities must enhance transparency, outreach, and responsiveness. As Tilbury (2011) argues, whole-institution approaches are essential for embedding sustainability into governance, curriculum, and operations.

Importantly, students emphasized the need for culturally relevant and locally grounded solutions, rejecting one-size-fits-all models of environmentalism. This perspective aligns with Escobar's (1995) critique of development paradigms that marginalize local agency and knowledge. By designing campaigns that address sanitation, flooding, and waste management in their communities, students are practicing what Leal Filho et al. (2019) call "contextual sustainability." Their actions are informed by lived experience, making them more impactful and enduring. These findings underscore the transformative potential of students as environmental stewards and communicators and call for more intentional, inclusive, and context-sensitive approaches to sustainability in higher education.

4.4 Development Communication and Environmental Engagement

This section explores how development communication strategies influence student engagement with environmental issues. Drawing on responses from students, lecturers, and administrators, the analysis is organized under three subthemes: (1) Communication Strategies for Environmental Engagement, (2) Perceived Effectiveness of Communication Approaches, and (3) The Role of Digital Platforms in Shaping Environmental Awareness and Action. The findings are interpreted in relation to development communication theory and current literature on sustainability in higher education.

4.4.1 Communication Strategies for Environmental Engagement

Participants identified a range of communication strategies that influence how students engage with environmental issues. These included social media campaigns, peer-to-peer education, workshops, public service announcements, and creative media projects.

Student S1 stated,

“Social media is our main tool. We use Instagram and WhatsApp to share tips, promote events, and post videos.”

Student S4 added,

“Peer-to-peer campaigns work well because students listen to each other more than to formal lectures.”

Student S9 noted,

“We’ve held workshops on waste segregation and climate change. They’re interactive and help us understand the issues better.”

Lecturer L2 explained,

“I encourage students to use storytelling short films, blogs, and podcasts to communicate environmental messages. It’s more engaging than traditional lectures.”

Administrator A1 remarked,

“We support student clubs to organize awareness events, debates, and exhibitions. These activities spark interest and dialogue.”

These findings align with Servaes’ (2020) assertion that development communication is most effective when it is participatory, dialogic, and culturally grounded. The use of peer-led initiatives and creative media reflects the principles of strategic communication for sustainability, where message design and delivery are tailored to the audience’s context (Springer, 2024). Moreover, the emphasis on informal and student-driven communication supports the communicative ecology model proposed by Foth and Hearn (2007), which highlights the interplay between social networks, media platforms, and interpersonal relationships in shaping civic engagement.

4.4.2 Perceived Effectiveness of Communication Approaches

Participants generally viewed these communication strategies as effective in raising awareness and motivating action, though they acknowledged certain limitations.

Student S6 shared,

“Social media posts get a lot of attention, but sometimes people just like and scroll. Real change needs more than that.”

Student S10 reflected,

“Workshops are great because they’re interactive. You learn by doing, not just listening.”

Student S13 noted,

“Peer campaigns are powerful. When your friend tells you to stop littering, you take it seriously.”

Lecturer L5 commented,

“Students respond better to campaigns that involve them directly. Passive communication doesn’t work as well.”

Administrator A3 observed,

“The most successful initiatives are those that combine education with action like clean-up drives followed by reflection sessions.”

These insights support the experiential learning model (Kolb, 1984), which emphasizes active participation and reflection as key to behavioral change. They also align with Mezirow’s (2000) theory of transformative learning, where individuals shift their perspectives through critical engagement and dialogue. While digital communication is effective for outreach, participants stressed the importance of combining it with face-to-face interaction and community-based activities to deepen impact.

4.4.3 The Role of Digital Platforms in Shaping Environmental Awareness and Action

Digital platforms emerged as central to student engagement with environmental issues.

Participants described how tools like WhatsApp, Instagram, TikTok, and YouTube are used to disseminate information, mobilize peers, and showcase environmental projects.

Student S15 explained,

“We use TikTok to post short videos about recycling and climate tips. It’s fun and reaches a lot of people.”

Student S17 added,

“WhatsApp groups help us coordinate events and share updates quickly.”

Student S20 stated,

“YouTube is great for longer content. We’ve posted documentaries and interviews with experts.”

Lecturer L6 noted,

“Digital platforms allow students to be content creators, not just consumers. That’s empowering.”

Administrator A5 remarked,

“We’ve seen students use social media to build communities around sustainability. It’s a new form of activism.”

These findings reflect the shift toward digital citizenship and media literacy in sustainability education. As Leal Filho et al. (2025) argue, digital platforms are not just tools they are spaces for dialogue, creativity, and mobilization. The ability to produce and share content empowers students to shape narratives and influence behavior. This aligns with Bandura’s (2001) concept of agentic action, where individuals use available resources to effect change.

However, participants also cautioned against overreliance on digital media. Student S22 noted,

“Online campaigns are useful, but they need to be backed by real-world action.

Otherwise, it’s just talk.”

The findings from this section underscore the pivotal role of development communication in shaping environmental engagement among university students in Ghana. Participants consistently identified communication strategies such as social media campaigns, peer-to-peer education, workshops, and creative media projects as central to their environmental advocacy efforts. These strategies reflect the participatory ethos of development communication, which prioritizes dialogue, cultural relevance, and community ownership (Servaes, 2020). Students’ reliance on informal, student-led communication channels particularly peer influence and digital media demonstrates a shift away from top-down messaging toward horizontal, networked engagement. This aligns with Foth and Hearn’s (2007) communicative ecology framework, which emphasizes the interplay between technological platforms, interpersonal relationships, and institutional structures in shaping civic action.

Social media emerged as the most frequently cited tool for environmental engagement, with platforms like Instagram, WhatsApp, TikTok, and YouTube serving as spaces for information dissemination, mobilization, and storytelling. These practices reflect what Springer (2024) terms “strategic communication for sustainability,” where message design is tailored to audience preferences and platform dynamics. The participatory nature of these digital campaigns also supports Bandura’s (2001) concept of agentic action, wherein individuals use available resources to influence their environment. Importantly, students are not merely consumers of environmental content, they are creators and curators, shaping narratives that resonate with their peers and communities.

However, participants also acknowledged the limitations of digital communication. While social media is effective for outreach and visibility, it does not always translate into sustained

behavioral change. The effectiveness of communication strategies was consistently linked to their ability to foster participation, reflection, and action. Workshops were praised for their interactive format, which allows students to engage deeply with environmental issues. These findings align with Kolb's (1984) experiential learning theory and Mezirow's (2000) transformative learning model, both of which emphasize active participation and critical reflection as pathways to meaningful change.

Lecturers and administrators reinforced the importance of combining media-based communication with structured educational interventions. They described how classroom assignments, student-led campaigns, and institutional events serve as platforms for environmental messaging. This integration of communication and pedagogy reflects UNESCO's (2014) Education for Sustainable Development (ESD) framework, which advocates for embedding sustainability across curricula and disciplines. By encouraging students to produce media content, design campaigns, and lead workshops, educators are fostering not only environmental literacy but also communication competence and civic responsibility.

Institutionally, the findings suggest that universities are beginning to recognize the value of student-led communication in advancing sustainability goals. Administrators described support mechanisms such as funding for media projects, access to digital infrastructure, and mentorship for campaign development. These structures reflect Rogers' (2003) diffusion of innovation theory, which emphasizes the role of enabling environments in facilitating the adoption and scaling of new ideas. However, students also pointed to gaps in institutional responsiveness, noting that bureaucratic delays and lack of visibility can hinder momentum. This calls for more streamlined and transparent processes that empower students to act swiftly and effectively.

The cultural relevance of communication strategies also emerged as a critical factor. Students emphasized the importance of designing messages that reflect Ghanaian realities, such as sanitation challenges, waste management, and urban flooding. This localization of environmental discourse aligns with Escobar's (1995) critique of development paradigms that marginalize indigenous knowledge and local agency. By producing content that speaks to their lived experiences, students are practicing what Leal Filho et al. (2019) call "contextual sustainability" an approach that grounds environmental action in cultural and ecological specificity.

4.5 Challenges and Opportunities

This section explores the barriers and enabling factors that shape university students' efforts to promote environmental stewardship through communication. Drawing on insights from students, lecturers, and administrators, the analysis is organized under three subthemes: (1) Challenges in Promoting Environmental Stewardship, (2) Missed Opportunities and Constraints, and (3) Opportunities for Strengthening Student Engagement. The findings are interpreted in relation to development communication theory, sustainability education, and institutional change frameworks.

4.5.1 Challenges in Promoting Environmental Stewardship

Participants identified several challenges that hinder students' ability to effectively promote environmental stewardship through communication. These included limited funding, lack of institutional support, low student interest, and infrastructural constraints.

Student S3 stated,

"We have ideas, but getting funding is hard. Most of our campaigns rely on donations or personal contributions."

Student S6 added,

“Sometimes people don’t take us seriously. They think environmental issues are for science students or NGOs.”

Student S10 noted,

“We don’t have enough platforms to share our work. The university doesn’t promote student-led projects widely.”

Lecturer L2 explained,

“There’s enthusiasm among students, but it’s not matched by institutional commitment. Environmental projects are often sidelined.”

Administrator A1 remarked,

“Our budget for student initiatives is limited. We prioritize academic events, so sustainability campaigns get less attention.”

These challenges reflect broader systemic issues in higher education, where sustainability is often treated as peripheral rather than integral (Tilbury, 2011). The lack of institutional prioritization and resource allocation undermines students’ capacity to act as change agents. Moreover, the perception that environmental advocacy is discipline-specific reinforces silos and limits interdisciplinary collaboration. As noted by Leal Filho et al. (2019), effective sustainability education requires cross-cutting engagement across faculties, departments, and administrative units.

4.5.2 Missed Opportunities and Constraints

Participants also described missed opportunities and constraints that have limited the impact of student-led environmental initiatives. These included bureaucratic delays, poor communication, and underutilized digital infrastructure.

Student S12 shared,

“We submitted a proposal for a recycling project, but it took months to get feedback. By then, the momentum was gone.”

Student S15 noted,

“There’s a media lab on campus, but we’re not allowed to use it unless it’s for coursework. That’s a missed opportunity.”

Student S18 added,

“We wanted to collaborate with a local NGO, but the university didn’t support external partnerships.”

Lecturer L4 commented,

“Students often lack mentorship. They’re passionate but need guidance to turn ideas into action.”

Administrator A3 observed,

“We don’t have a centralized system for tracking student projects. Good ideas get lost because there’s no continuity.”

These constraints highlight the need for more agile and responsive institutional systems. Rogers’ (2003) diffusion of innovation theory emphasizes the importance of reducing barriers to adoption such as complexity, delay, and lack of visibility. Without streamlined procedures and supportive infrastructure, student initiatives struggle to gain traction. Furthermore, the underutilization of existing resources such as media labs and digital platforms represents a gap between potential and practice. As Bandura (2001) argues, self-efficacy is reinforced when individuals have access to tools and environments that support their goals.

4.5.3 Opportunities for Strengthening Student Engagement

Despite the challenges, participants identified several opportunities institutional, technological, and cultural that could strengthen students’ role as environmental change agents.

Student S20 stated,

“There’s growing interest in sustainability. If the university creates more spaces for dialogue, students will engage.”

Student S22 added,

“We need training in media production and campaign design. That would make our communication more professional.”

Student S25 noted,

“Collaborating with local communities can make our projects more relevant and impactful.”

Lecturer L6 explained,

“We’re revising the curriculum to include more sustainability themes. That’s a chance to embed environmental thinking across disciplines.”

Administrator A5 remarked,

“We’re exploring partnerships with tech companies to support student innovation. That could open new doors.”

The findings reveal a complex interplay between structural barriers and enabling conditions that shape university students’ efforts to promote environmental stewardship through communication. While students demonstrate creativity, commitment, and a growing awareness of sustainability issues, their capacity to act as change agents is often constrained by institutional, technological, and cultural factors. These challenges are not unique to the Ghanaian context but reflect broader tensions in higher education systems globally, where sustainability is frequently treated as an add-on rather than a core institutional priority (Tilbury, 2011; Leal Filho et al., 2019).

One of the most persistent challenges identified by participants is the lack of funding and logistical support for student-led environmental initiatives. Students reported relying on personal contributions or informal donations to sustain their campaigns, which limits

scalability and consistency. This financial constraint is compounded by bureaucratic delays and limited access to institutional resources, such as media labs and event spaces. Such delays reflect what Rogers (2003) describes as “systemic inertia,” where innovation is stifled by slow or opaque decision-making processes. Without streamlined procedures and responsive support systems, student enthusiasm risks being undermined by institutional inefficiency.

Another significant barrier is the perception that environmental advocacy is discipline-specific, often relegated to students in environmental science or related fields. This siloed approach limits interdisciplinary collaboration and reinforces the marginalization of sustainability within broader academic discourse. This finding aligns with Wals and Benavot’s (2017) critique of fragmented sustainability education, which calls for integrated, cross-disciplinary approaches that engage all students regardless of their academic background.

Technological constraints also emerged as a limiting factor. While students are adept at using digital platforms for advocacy, their access to professional tools and training is often restricted. For example, media labs and editing software are typically reserved for coursework, leaving little room for extracurricular innovation. This underutilization of existing infrastructure represents a missed opportunity to enhance student capacity and impact. Bandura’s (2001) theory of self-efficacy emphasizes that individuals are more likely to act when they have access to tools and environments that support their goals. In this context, universities must recognize that enabling access to technology is not a luxury but a necessity for empowering student-led communication.

Despite these challenges, the study also highlights several opportunities for strengthening student engagement. Institutional reforms such as curriculum integration, interdisciplinary collaboration, and dedicated funding streams can create a more supportive environment for

sustainability initiatives. Lecturers reported efforts to embed environmental themes into coursework, while administrators described emerging partnerships with NGOs and tech companies. These developments reflect a growing recognition of the value of student-led innovation and align with UNESCO's (2014) Education for Sustainable Development framework, which advocates for whole-institution approaches to sustainability.

Technological advancements also offer new avenues for engagement. The proliferation of mobile devices, social media platforms, and digital storytelling tools enables students to reach wider audiences and mobilize peers more effectively. As Springer (2024) notes, strategic communication for sustainability depends on the ability to craft compelling narratives that resonate with diverse stakeholders. By investing in media literacy and digital training, universities can enhance students' capacity to produce high-quality content and lead impactful campaigns.

Culturally, the increasing visibility of climate activism and environmental discourse in Ghana provides fertile ground for student engagement. Participants emphasized the importance of designing messages that reflect local realities, such as sanitation challenges, flooding, and waste management. This localization of environmental communication aligns with Escobar's (1995) critique of development paradigms that marginalize indigenous knowledge and local agency. By grounding their advocacy in lived experience, students are practicing what Leal Filho et al. (2019) call "contextual sustainability" an approach that prioritizes relevance, inclusivity, and cultural resonance.

4.6 Comparative Analysis: Pentecost University and the University of Media, Arts and Communication (UniMAC)

This section presents a comparative analysis of the findings from Pentecost University and the University of Media, Arts and Communication (UniMAC). The analysis examines how the two institutions differ and converge in their approach to environmental stewardship, curriculum integration, and the use of development communication to foster student

engagement. The comparison is organised around three overarching dimensions: (1) conceptual understanding of environmental stewardship, (2) communication strategies and student engagement, and (3) institutional support and curriculum integration.

4.6.1 Conceptual Understanding of Environmental Stewardship

Participants from both universities demonstrated an appreciation for environmental stewardship, but their conceptual frames reflected the unique institutional philosophies and disciplinary orientations of each university.

At Pentecost University, the understanding of environmental stewardship was predominantly framed within moral and theological narratives. Students and lecturers frequently associated environmental responsibility with biblical teachings and Christian ethics. For instance, several participants referenced the idea of “*creation care*” and described stewardship as a divine mandate to protect the environment as part of one’s faith. This perspective aligns with the university’s mission of integrating faith, morality, and scholarship. It suggests that environmental consciousness at Pentecost University is not only cognitive but also value-driven, emerging from spiritual convictions that link environmental degradation to moral failure.

In contrast, at UniMAC, participants conceptualised environmental stewardship through media, communication, and social impact lenses. Students often defined stewardship as the act of using their communication skills to raise awareness, influence behaviour, and mobilise communities for environmental action. Lecturers reinforced this by framing stewardship as an extension of professional responsibility in media and public relations practice. Consequently, the UniMAC perspective was more secular, advocacy-oriented, and action-based, reflecting the institution’s emphasis on communication for development.

Overall, while both universities exhibited high levels of environmental awareness, Pentecost University’s orientation was faith-based and ethical, whereas UniMAC’s was professional

and civic-minded. Both perspectives, however, align with development communication theory, which underscores the role of values, dialogue, and participation in driving social change (Servaes, 2020).

4.6.2 Communication Strategies and Student Engagement

Differences were also observed in how students and staff from the two universities utilised communication strategies to promote environmental engagement.

At UniMAC, communication was central to environmental advocacy. Students and lecturers described the use of digital media platforms, podcasts, documentaries, and peer-led campaigns as primary tools for creating awareness. These strategies were often integrated into coursework or student-led projects, enabling participants to apply theoretical concepts in real-world contexts. The emphasis on creativity and audience engagement reflected a professionalised model of development communication, consistent with the institution's training in media and communication disciplines.

By comparison, Pentecost University relied more heavily on face-to-face communication, social clubs, and community-based initiatives. Clean-up exercises, tree planting, and student fellowship meetings were the dominant forms of engagement. While digital tools such as WhatsApp and Instagram were used for coordination, they were secondary to physical mobilisation. Students often viewed environmental communication as an extension of moral education and collective responsibility, expressed through service and behavioural modelling. This distinction highlights how institutional identity shapes communication practices. UniMAC's engagement strategies are media-driven and outward-looking, targeting public audiences beyond the campus. Pentecost University's approaches are community-oriented and inward-looking, focusing on campus cleanliness, moral responsibility, and faith-based motivation. Despite these differences, both approaches demonstrate the participatory essence of development communication. Students in both universities act as communicators and

advocates, though their communication styles reflect their institutional cultures and learning contexts.

4.6.3 Institutional Support and Curriculum Integration

Institutional support structures and curriculum integration varied notably between the two universities.

At Pentecost University, administrators and lecturers acknowledged that while environmental issues were discussed within certain courses and student clubs, formal curriculum integration remained limited. Environmental topics often appeared as peripheral themes within general education or leadership courses rather than as stand-alone modules. Nonetheless, the university actively encouraged student involvement through the Environmental Care Club and partnerships with the Capacity Building and Corporate Engagement Unit, which occasionally sponsored clean-up exercises and awareness campaigns. Support was therefore moral and logistical, though not strongly embedded in academic programming.

Conversely, UniMAC demonstrated a more deliberate and systematic integration of environmental themes into its curriculum. Lecturers in journalism, public relations, and film described embedding environmental topics into assignments, projects, and media productions. Students produced short documentaries, podcasts, and campaigns addressing climate change, waste management, and sanitation. Administrators further explained that environmental education aligns with the institution's development communication mandate, positioning students as both learners and practitioners of social change.

In summary, Pentecost University's institutional framework promotes environmental stewardship through values-based extracurricular engagement, whereas UniMAC embeds it through curricular and media-based innovation. Both models foster student participation, but UniMAC's approach demonstrates a more structured application of development

communication theory, while Pentecost University's model illustrates a faith-driven, community-centred interpretation of stewardship.

4.6.4 Comparative Synthesis

The comparative analysis reveals that both universities play complementary roles in advancing environmental stewardship through higher education, albeit from distinct institutional orientations. Pentecost University cultivates moral consciousness and faith-based environmental responsibility, fostering internal change and behavioural transformation among students. UniMAC, on the other hand, emphasises strategic communication and public advocacy, preparing students to engage with environmental issues through media and civic platforms.

These findings underscore the significance of contextual diversity in sustainability education. While Pentecost University embodies what Wals and Benavot (2017) describe as "*values-based sustainability learning*," UniMAC represents "*applied communication for environmental change*." The synergy of both models points to the potential for cross-institutional collaboration, where moral education complements technical communication skills to create holistic environmental change agents.

In conclusion, the comparative insights affirm that effective environmental stewardship in Ghanaian universities depends on an integrated approach that combines ethical conviction, communication competence, and institutional support. Both Pentecost University and UniMAC contribute uniquely to this agenda, demonstrating that diverse pathways can collectively strengthen the role of higher education in advancing environmental sustainability.

4.7 Chapter Summary

This chapter examined how university students, lecturers, and administrators at Pentecost University and the University of Media, Arts and Communication (UniMAC) understand and

engage with environmental stewardship through the lens of development communication. Using thematic analysis, the findings revealed both convergence and divergence in perspectives across the two institutions.

Participants demonstrated a broad understanding of environmental stewardship that transcended awareness to include personal responsibility, moral conviction, and social action. At Pentecost University, environmental care was largely interpreted through faith-based principles, positioning stewardship as a moral and spiritual duty. In contrast, UniMAC participants adopted a communication-driven perspective, viewing environmental engagement as a professional and civic responsibility aimed at influencing public attitudes and policy.

The findings also highlighted the significant role of development communication strategies in shaping environmental awareness and participation. Students actively used peer-to-peer education, workshops, and digital platforms such as WhatsApp, Instagram, and TikTok to share information and mobilise others. While social media campaigns enhanced visibility, participants emphasised that meaningful behavioural change required interactive and participatory approaches, such as clean-up exercises and workshops. These results reflect the value of participatory communication models that combine digital advocacy with community action.

Institutional support and curriculum integration emerged as key determinants of effective student engagement. UniMAC demonstrated greater curricular integration, with environmental themes embedded into courses and student media projects. Pentecost University, meanwhile, promoted stewardship through extracurricular clubs, moral education, and university-wide initiatives. Despite the progress made, both institutions faced challenges, including limited funding, bureaucratic delays, and low awareness among sections of the student body.

The comparative analysis underscored that while the two universities differ in philosophy and approach, both contribute uniquely to fostering environmental responsibility. Pentecost University's faith-based model nurtures ethical awareness and personal accountability, whereas UniMAC's communication-centred model equips students with advocacy skills and professional competence. Together, these perspectives demonstrate that environmental stewardship in higher education flourishes when moral conviction, communication expertise, and institutional support intersect.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the final section of the study by summarizing the key findings, drawing conclusions based on the research objectives, and offering practical recommendations for policy, pedagogy, and future research. The subsequent sections are organized to present the major findings around the core study themes, followed by the overarching conclusions, actionable recommendations, and finally, suggested areas for further research.

5.1 Summary of Findings

Objective 1: To examine students' understanding of environmental stewardship and their perceived roles in promoting it

The study revealed that university students in Ghana possess a multifaceted understanding of environmental stewardship. Their perspectives extend beyond textbook definitions to include personal, civic, and cultural dimensions. Students consistently linked global environmental concerns such as climate change, deforestation, and carbon emissions to local challenges like poor sanitation, plastic waste, and urban flooding. Students described stewardship as a shared responsibility, emphasizing their role as future leaders and influencers. They articulated a shared responsibility and a strong sense of urgency, framing themselves as future leaders and essential influencers who must act now to prevent further degradation. Lecturers and administrators acknowledged this heightened awareness, affirming that students are eager to contribute meaningfully, emphasizing the critical need to transition from mere awareness to sustained action.

Objective 2: To explore the communication strategies students use to engage with environmental issues

Students employed a diverse and dynamic range of development communication strategies for promoting environmental action, proving their capability as change agents. These included robust digital campaigns on platforms like Instagram, TikTok, and WhatsApp, which amplified their messages across campus. Equally effective were peer-to-peer education via clubs, creative media projects and interactive community events such as clean-up exercises and workshops. The effectiveness of these strategies was rooted in their participatory, culturally relevant nature, leveraging storytelling, humor, and visual communication to make complex environmental messages relatable and impactful for their audiences.

Lecturers encouraged students to use media production as a tool for advocacy, while administrators supported student-led events and campaigns.

Objective 3: To identify challenges and opportunities students encounter in using communication to drive environmental change

The study highlights a critical tension: while institutional support exists, offering venues and occasional funding, students face significant, demotivating barriers that limit the sustained impact of their work. The human disputation here is evident in the struggle against systemic inertia, manifested as limited financial resources, slow bureaucratic processes for project approval, and restricted access to necessary media infrastructure. Furthermore, students reported that environmental advocacy is often compartmentalised as discipline-specific, marginalizing essential interdisciplinary collaboration outside of science fields. Lecturers confirmed the need for better mentorship and technical training, while administrators acknowledged the lack of centralized systems to track and support student projects. Despite these obstacles, opportunities for reform were identified, including curriculum integration, interdisciplinary approaches, and strategic partnerships with NGOs and tech companies.

Curriculum integration of environmental stewardship varies across institutions and disciplines. While some instructors have incorporated sustainability themes into coursework, especially in communication, journalism, and public relations programs, others reported resistance or a lack of institutional support.

5.2 Conclusion

This study successfully established that university students in Ghana possess a contextualized and evolving understanding of environmental stewardship and exhibit clear agency as change agents through peer-led campaigns, digital advocacy, and creative media production.

The findings strongly resonate with Freire's Critical Consciousness. Students demonstrated an awareness of their capacity to influence change and engaged in dialogic communication to encourage collective action among peers.

Servaes' Participatory Communication Model, the students' effective use of culturally relevant messaging, storytelling, and collaboration confirms the importance of local actors in communication for social change.

Rogers' Diffusion of Innovations Theory, students initiating projects acted as early adopters and opinion leaders, using digital platforms to amplify the rapid spread of pro-environmental practices across campuses.

However, the study also corroborates the argument that sustainability efforts in higher education are often fragmented and inconsistently applied, relying more on individual initiative than on systemic policy direction. The primary finding, the critical gap between high student enthusiasm and inadequate institutional support, underscores that structural and bureaucratic constraints hinder sustained engagement, weakening student motivation and restricting the scalability of promising projects.

In conclusion, development communication provides the robust, strategic framework necessary to empower students. However, this framework must be supported by responsive institutional systems and comprehensive, integrated sustainability education to ensure students become influential, long-term actors who contribute meaningfully to environmental sustainability.

5.3 Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed to strengthen student engagement in environmental stewardship through

development communication. These recommendations are directed toward key stakeholders, including universities, curriculum designers, policymakers, and external partners.

5.3.1 Recommendations for Universities and Administrators

Universities should create dedicated spaces on campus that serve as innovation and collaboration centers for student-led environmental initiatives. These hubs can provide access to resources, mentorship, and networking opportunities, fostering a culture of sustainability and civic engagement.

Institutions must develop transparent, efficient, and student-friendly procedures for reviewing and approving environmental projects. Reducing bureaucratic delays will help maintain momentum and encourage proactive student participation.

Universities should allocate budgetary support for student campaigns and ensure access to essential infrastructure, including media labs, digital tools, and event venues. This investment will empower students to produce high-quality advocacy materials and organize impactful activities.

Formal recognition of student efforts through awards, academic credits, certificates, and public acknowledgment can incentivize participation and validate the importance of environmental stewardship within the academic community.

5.3.2 Recommendations for Curriculum Designers and Lecturers

Environmental themes should be embedded across all academic programmes, including the humanities, business, and technology. This interdisciplinary approach will ensure that sustainability is treated as a universal concern rather than a niche topic.

Educators should incorporate practical, hands-on learning experiences such as case studies, community-based projects, and media production assignments. These activities help students connect theoretical knowledge with real-world environmental challenges.

Courses should include training in message design, audience analysis, and digital storytelling to enhance students' ability to communicate environmental issues effectively. This will prepare them to lead campaigns that resonate with diverse audiences and drive behavioral change.

5.3.3 Recommendations for Policymakers and External Stakeholders

Government agencies, NGOs, and private sector actors should collaborate with universities to co-develop and scale student-led sustainability initiatives. These partnerships can provide technical expertise, funding, and broader community engagement.

Policymakers should establish grant schemes, fellowships, and incubation programmes that support student innovation in environmental advocacy. Such investments will nurture leadership and creativity among young change agents.

National education policies should mandate the integration of sustainability across curricula and promote youth participation in environmental governance. A coherent framework will ensure consistency, accountability, and long-term impact.

5.4 Future Research Directions

Future studies could broaden the scope of this inquiry by including a larger number of universities across Ghana and other African countries. Such expansion would enable comparative analysis and provide deeper insights into how institutional culture, policy direction, and academic structures influence student engagement in environmental stewardship. Comparative research of this nature would also help identify effective models of

practice and reveal context-specific factors that shape students' perceptions and communication strategies.

Further research may also employ quantitative approaches to complement the qualitative findings of the present study. Surveys, correlation studies, and experimental designs could be used to examine the statistical relationships between communication exposure, media literacy, environmental knowledge, and pro-environmental behaviour among university students. Quantitative evidence of this kind would strengthen the generalisability of findings and offer clearer indications of the variables that predict or influence sustainable attitudes and actions.

Longitudinal studies are also recommended, particularly those that track student engagement over extended periods. Such research would provide valuable understanding of the long-term impact of student-led environmental projects on behaviour change, institutional policy development, campus culture, and community engagement. Longitudinal evidence would reveal whether communication-driven interventions lead to sustained transformation beyond the immediate duration of student projects.

Another promising area for further research is the investigation of curriculum design and pedagogical approaches that enhance students' environmental competencies. Studies could examine how interdisciplinary teaching, experiential learning, project-based work, and practical environmental communication training shape students' ability to act as environmental stewards. This line of inquiry would also help identify curriculum gaps and highlight strategies for more effective integration of sustainability into higher education programmes.

5.5 Chapter Summary

This chapter synthesizes the study's key outcomes by recapitulating the findings, articulating conclusions, and outlining actionable recommendations. The analysis reveals that university

students possess a multifaceted understanding of environmental stewardship, effectively bridging the gap between global environmental discourse and local contextual realities. Identifying themselves as emerging agents of change, students leveraged diverse communication strategies, specifically digital advocacy, peer-to-peer engagement, creative media, and community outreach, to promote pro-environmental behaviour on campus.

However, the findings indicate that despite high intrinsic motivation, student initiatives were frequently impeded by systemic institutional barriers. Challenges such as fiscal constraints, bureaucratic inertia, and the fragmented integration of sustainability themes within the curriculum often rendered promising initiatives ephemeral or strictly localized. Consequently, the study concludes that while development communication offers a robust framework for student engagement, its efficacy is contingent upon reinforced administrative support, enhanced coordination, and sustained investment in praxis-oriented environmental education.

Furthermore, this chapter delineates recommendations targeted at university administrators, faculty, policymakers, and external stakeholders. These proposals emphasize the necessity of dedicated physical spaces, strategic resource allocation, interdisciplinary curricular reform, and cross-sector partnerships to fortify student-led sustainability efforts. Finally, avenues for future scholarship are proposed, including comparative institutional analyses, longitudinal quantitative studies, and deeper pedagogical investigations. Ultimately, this chapter posits that equipping students with communicative agency, bolstered by institutional support, is critical for cultivating environmental stewardship within the higher education landscape.

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APPENDIX

SEMI-STRUCTURED INTERVIEW GUIDE

Section A: Background Information

1. Please tell me about yourself (role, year of study/teaching/administration).
2. Have you been involved in any environmental activities or initiatives at the university?

Section B: Understanding Roles in Environmental Stewardship

For Students

1. What is your general understanding of environmental stewardship or environmental issues, both globally and in Ghana?
2. How do you perceive your role as a student in promoting environmental stewardship?

3. Can you give examples of actions you or other students have taken towards environmental change?
4. Can you describe a project or initiative you have worked on to promote environmental stewardship within a formal university setting, like a student club or a class project? What was that experience like?

For Lecturers/Administrators

1. From your perspective, how do you see students' role in promoting environmental stewardship?
2. In your teaching, how do you integrate the concepts of environmental stewardship and communication?
3. Have you observed any initiatives or campaigns led by students that you found to be impactful? Can you tell me about them?
4. In what ways does the university encourage or support students in such roles (change agents and environmental stewards), in reference to the curriculum of university programmes?
5. What formal procedures or channels exist for a student or student group to propose and implement an environmental project?

Section C: Development Communication and Environmental Engagement

1. What communication strategies (e.g., social media, peer-to-peer campaigns, workshops) influence how students engage with environmental issues?
2. How effective do you think these strategies are?
3. What role do digital platforms play in shaping environmental awareness and action among students?

Section D: Challenges and Opportunities

1. What challenges do students face when trying to promote environmental stewardship through communication?
2. Can you share examples of missed opportunities or constraints?
3. What opportunities exist (institutional, technological, cultural) to strengthen students' role as change agents?

Section E: Closing Reflections

1. What suggestions would you give to improve how students can be engaged as change agents for environmental stewardship?
2. How do you perceive the integration of environmental stewardship within university academic programmes and curricula?
3. Is there anything else you would like to add that we have not discussed?