The Environmental Sustainability Practices of Students at the Cape Coast Technical University Hostels

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ABSTRACT

The issue of sustainability is the primary challenge of the 21st century, as humanity has reached a critical juncture in which natural resources are depleting at an alarming rate. Concern exists regarding the causes of environmental crises, including global warming, ozone depletion, the depletion of natural resources, the destruction of ecosystems, and carbon emissions. The current situation necessitates strong leadership and significant global changes, which challenge traditional ideas, values, and approaches. As such, the current study evaluates the environmental sustainability behaviours of students residing in the Cape Coast Technical University hostel. Using a quantitative approach, data was collected from 100 student residents of the school's hostel facility in Cape Coast, one of the historical educational towns in the Central region of Ghana. The Shapiro-Wilk method was employed to evaluate the data, and an ANOVA test was conducted to investigate the mean differences and ascertain the impact of the respondents' demographic characteristics on their knowledge, attitudes, and practices regarding environmental sustainability. This study shows the absence of any association between the demographic features of the respondents and their high level of knowledge, good attitudes, and environmentally friendly actions.

Keywords: Environment, sustainability, sustainable development

INTRODUCTION

Globalization has resulted in substantial economic growth and advancements in the standard of living. Nevertheless, it has also resulted in significant buildup of industrial, consumer, and commercial waste and harmful pollutants. In addition, it has resulted in a swift exhaustion of natural resources (Amoako et al., 2017). Environmental rules in several countries have been enacted in response to concerns regarding pollution. Moreover, the growing awareness of global warming and the adverse impact of human actions on the environment has led to a focused endeavour, both at a worldwide and regional level, to minimize environmental damage (Amponsah-Tawiah & Dartey-Baah, 2016). Initially, environmental concerns mostly targeted companies that directly polluted the environment by discharging waste materials and liquids (Hasnat et al., 2018). Sustainable development, as defined in the Brundtland Report, is the practice of satisfying current needs while safeguarding the capacity of future generations to meet their demands (Abubakar et al., 2016).

Universities function as establishments that cultivate and equip individuals with the capacity for leadership in both the current and future contexts. Higher education institutions can be seen as models for society. Their function involves devising answers to global problems through the implementation of research, distribution of information, and development of skilled individuals (Koç, 2014). The primary challenge of the 21st century is the issue of sustainability, as humanity has reached a crucial point where natural

resources are depleting at an alarming rate. There is concern about the reasons behind environmental crises like global warming, ozone depletion, reduction of natural resources, the devastation of ecosystems, and carbon emissions. The current situation challenges traditional ideas, values, and approaches because it requires significant global changes and strong leadership (Koç, 2014).

Sustainable development has a vital role in building a successful future for human civilizations and improving their ability to tackle pressing global issues (Pirouz et al., 2020). The universities' function as catalysts for economic development is well acknowledged. Nevertheless, this has sparked a reflection on the capacity of universities to actively contribute to societal transformation by incorporating sustainable practices into their day-to-day operations (Filho, 2011). The event industry should give priority to the implementation of sustainable practices, which involve fulfilling current needs while protecting and enhancing future possibilities (Dickson & Lumsdon, 2010).

The concept of sustainability necessitates substantial deliberation from both individuals and organizations in order to tackle and mitigate environmental consequences for the advantage of future generations (Jauhari, 2014). The concept of sustainability is generally recognized to comprise three primary components: economic, social, and environmental. The interdependence of these factors necessitates their integration for the attainment of sustainability (Epstein & Buhovac, 2014). Presently, sustainability is a paramount worry for our globe. Over the past few decades, institutions have placed greater importance on sustainable development and operations, which includes considering the environmental, economic, and social impacts. Energy typically accounts for 60 to 70% of the overall utility costs in the hospitality sector. Hence, it is imperative to reevaluate the conservation efforts undertaken by the industry (Bruns-Smith et al., 2015). According to Bayuo et al. (2020), organizations are facing significant pressure to conserve resources and effectively manage their energy and utility use due to the heightened levels of energy and resource utilization.

The implementation of environmental sustainability practices required a succession of successive steps to be carried out. Prior to commencing, the hotel organization must define environmental sustainability goals that involve environmental policies, strategic directives, and plans and targets for adopting environmental sustainability practices (Aziz et al., 2018). Environmental sustainability practices and systems should be incorporated into a comprehensive plan and framework that includes all programmes, including business processes and activities within every institution. To optimize the use of financial, natural, and human resources, it is necessary to make changes in campus operations. These changes include reducing waste, improving energy efficiency, and minimizing the use of hazardous substances. The goal is to protect the well-being of staff and students. Several universities have been actively promoting the Sustainable Development Goals (SDGs), which entail implementing strategies to efficiently manage their resources, coordinate and organize activities, improve the quality of life on campus, and encourage social innovations (Bayuo et al., 2020).

Environmental management is a complex concept that is challenging to define. It can encompass a vision or a goal, to accomplish a process of guidance, to the implementation of a specific set of tools (Liu & Lin, 2014). Environmental management is a methodical approach to addressing realistic strategies for preserving water, energy, and materials, while reducing adverse effects on nature (Font, 2017). Implementing a proactive ecological management programme benefits both businesses and the environment. It allows properties to save costs, gain recognition for their environmental efforts, and safeguard specific objectives (Ball et al., 2014). Overall, the major objective is to ensure the planet's sustainability for future generations and to conserve all forms of life, including marine life and plants (Bebbington & Unerman, 2017).

According to Font (2017), environmental concerns are highly intricate and include extensive interactions among several systems. Almost every business operation follows a process where changes are made to transform inputs into outputs that generate money (Verma, & Chandra, 2016). The three fundamental

elements consist of input, which can be either raw materials or human capital, output, which can be either products or services, and the production processes and systems. The term "environment" refers to all entities and conditions that exist external to the system. The system can have either an open or closed configuration. An "open system" refers to a system that has a permeable border, allowing for seamless and unobstructed interaction with the environment.

A "closed system" lacks direct interaction with the environment. Hostel systems, such as the one mentioned, include extensive human involvement, making them open systems with significant potential environmental consequences (Verma & Chandra, 2016). Penny (2007 quoted in Lopes et al., 2020) defines environmental management as the implementation of systems and policies by an organization to minimize, eliminate, and ideally prevent any harmful environmental effects resulting from its activities (p. 288). Environmental management encompasses not only the negative impacts caused by operations on the environment, but also includes the examination of inputs, systems, and processes. A system's level of openness directly correlates with the number of interfaces that exist between different components of the system and its environment. An effective environmental management system must take into account all significant interfaces. The primary goal is for every company to effectively control its operating processes to mitigate any adverse effects on the environment (Lopes et al., 2020).

Over the past few decades, there has been a substantial increase in environmental concerns related to the overconsumption of natural resources and pollution. Environmental concerns such as global warming, acid rain, groundwater scarcity, deforestation, desertification, loss of biodiversity, soil depletion, and other related issues have become important and pressing matters (IranPolitik, 2015). The levels of air and water pollution have reached a critical stage, resulting in substantial health problems and harmful impacts on the environment (Hassanshahian et al., 2013). The lack of environmental awareness and education among individuals, especially students who will assume leadership and legislative roles in the future, will lead to the continuation of unresolved environmental problems. Bello, Jusoh, and Nor (2020) argued that students with a sufficient level of environmental understanding in fields such as ecology, technology, and economics can form their own viewpoints on how these factors can influence environmental issues and policies.

Environmental knowledge and attitude are frequently used synonymously in academic literature and can be seen as representing an individual's level of environmental consciousness. Environmental knowledge is the belief or value system that individuals have about the natural world and their relationship to it. It is often seen as a factor that can predict environmental behaviours. Consequently, assessing students' comprehension and awareness of nature and the environment can serve as an indicator of their environmental consciousness and contribute to the development of more efficient and significant environmental management initiatives (Pelcher et al., 2020). According to Yavetz et al. (2014), investigating students' conceptualization of the term "environment" could potentially enhance the efficiency of environmental management.

One reason for this is that students' perception and comprehension of the environment have an impact on their pro-environmental actions (Pelcher et al., 2020). According to Chen et al. (2021), the environmental perspectives of students play a crucial role in revealing and addressing the fundamental ideas that influence their understanding of environmental education, such as their comprehension of sustainable development. Liu and Lin (2014) have emphasized the significance of students' perspectives on the environment, particularly their ideas regarding the interactions between humans and the environment. It is crucial to acknowledge that individuals may possess varying levels of knowledge about the environment, and these views have an impact on their environmental behaviour (Bashir et al., 2020).

Environmental sustainability programmes should incorporate these perceptions of the environment within an integrated pedagogical approach. However, according to Pelcher et al. (2020), many environmental sustainability programmes tend to focus on only one of these perceptions, resulting in a limited global

understanding of the environment. There is a commonly held belief that being aware of the environment is connected to developing favourable attitudes towards the environment. Schools can have a significant impact on shaping these attitudes (Bantanur et al., 2015). According to Nkwo et al. (2018), it is believed that an increase in awareness can serve as a prerequisite for altering views.

Students' awareness and attitudes are crucial for influencing their environmental behaviours and making informed decisions regarding environmental policies (Bantanur et al., 2015). Although some individuals may mistakenly believe that awareness and knowledge have the same connotation, they possess distinct characteristics (Khan et al., 2020). Awareness entails perceiving and understanding the present moment and evaluating the current interrelationships between things. Knowledge, as defined by Ahamad and Ariffin (2018), refers to a compilation of factual information and data. In this study, the term "awareness" encompasses the qualities of sensitivity, knowledge, and comprehension regarding environmental issues (Salas-Zapata et al., 2018). Erhabor and Don (2016) contend that possessing environmental information is a prerequisite for developing environmental awareness. Furthermore, they assert that emotional engagement is the determining factor in shaping both environmental awareness and attitudes. The challenge in distinguishing between the many elements arises from their broad and ambiguous definitions, interconnectedness, and lack of clear demarcations (Kumar et al., 2017). Researchers in the literature have endeavoured to establish clear definitions and conceptualizations of "environmental knowledge".

Heeren, Singh et al. (2016) defined ecological knowledge as a necessary foundation for addressing environmental problems. Nevertheless, the authors emphasized that possessing knowledge of ecology does not automatically result in environmental behaviour. However, they highlighted that such knowledge is crucial for making informed decisions (Hoveskog et al., 2018). Conventional environmental methods employ a scientific methodology and primarily focus on understanding the impacts of environmental issues (Paço, & Lavrador, 2017). The primary emphasis was placed on students acquiring knowledge regarding environmental issues that could potentially impact them (Afroz & Ilham, 2020). Afroz and Ilham (2020) contend that possessing this kind of knowledge does not automatically result in environmental behaviour, which could explain the absence of a correlation between awareness and behavioural change. Afroz and Ilham (2020) argue that when the school curriculum fails to be action-oriented and pupils are not allowed to actively engage with and internalize the knowledge, this leads to a lack of effective learning.

According to Igwe et al. (2017), students learn about the consequences of environmental concerns but may not fully comprehend the underlying reasons for these difficulties or how to solve them. According to certain researchers, possessing such knowledge can lead to significant anxiety, diminish dedication, and disempower students by inundating them with excessive information about the problems, without guiding how to actively address those problems (Ahmad et al., 2016). These emotions can exacerbate a feeling of despair regarding the global environmental state (Mohiuddin et al., 2018).

Understanding the environment and having a positive mindset towards it are often considered interchangeable in studies, serving as signs of a person's environmental consciousness. Having a deep understanding of the natural world and our connection to it is an essential part of environmental knowledge, as emphasized by Liu and Lin (2014). According to Pelcher et al. (2020), this knowledge has been acknowledged as a potential indicator of environmental behaviours. Therefore, studying students' understanding of nature and the environment can be a valuable tool in assessing their environmental consciousness and aiding the creation of more effective and meaningful environmental management initiatives (Pelcher et al., 2020).

As per Yavetz et al. (2014), understanding students' perception of the "environment" has the potential to improve environmental management strategies. It is evident that students' perception and understanding of the environment significantly influence their pro-environmental behaviour (Pelcher et al., 2020). According to a recent study by Chen et al. (2021), it is of utmost importance to take into account the perspectives of

students when it comes to the environment. This allows us to effectively address and question the fundamental concepts that influence their comprehension of environmental issues. This involves assessing their understanding of sustainable development. It has been highlighted by experts the importance of considering students' viewpoints on the environment, specifically their beliefs regarding the interplay between humans and the natural world (Liu & Lin, 2014). It is important to note that different interpretations of the environment can coexist, and these viewpoints influence individuals' actions toward the environment (Bashir et al., 2020).

Environmental sustainability programmes can consider various perspectives on the environment as part of a comprehensive educational approach. According to Pelcher et al. (2020), numerous environmental sustainability programmes tend to prioritize a single perspective, leading to a narrow understanding of the global environment. Having a deep understanding of the environment and how it affects our lives is widely recognized as a factor that shapes our attitudes toward it. According to a study conducted by Bantanur et al. (2015), schools have a crucial role in influencing these attitudes. It is widely recognized that a higher level of awareness is crucial for changing attitudes (Nkwo et al., 2018).

It is widely recognized that both awareness and attitudes have a significant impact on student actions towards the environment and the development of effective environmental policies (Bantanur et al., 2015). Awareness and knowledge may be commonly confused, but they have distinct meanings (Khan et al., 2020). Having a deep understanding of the current state of affairs and recognizing the intricate connections between various elements is crucial. However, knowledge is constructed through a collection of facts and data (Ahamad, & Ariffin, 2018). According to Salas-Zapata et al. (2018), this study explores the idea of awareness, which includes being sensitive, knowledgeable, and understanding of environmental issues. Understanding the environment is essential for cultivating awareness and fostering an emotional bond, ultimately shaping our attitudes toward the environment (Erhabor & Don, 2016). It can be quite challenging to distinguish between the different aspects due to their wide and imprecise definitions, interconnectedness, and lack of clear boundaries (Kumar et al., 2017).

Over the years, researchers from different fields have dedicated their efforts to understanding and defining the concept of 'environmental knowledge'. In a study conducted by Heeren, Singh et al. (2016), they highlighted the significance of comprehending ecology as a fundamental concept in tackling environmental challenges. However, it was stressed that possessing knowledge of ecology does not necessarily result in taking environmentally conscious actions. Nevertheless, having this knowledge is essential for making well-informed decisions (Hoveskog et al., 2018). Traditional approaches to studying the environment have typically taken a scientific perspective, with a strong emphasis on comprehending the effects of environmental problems (Paço, & Lavrador, 2017). It was also important for students to develop a grasp of the environmental issues that could affect them (Afroz, & Ilham, 2020). According to Afroz and Ilham (2020), this type of knowledge doesn't always lead to environmental actions and may explain why there isn't always a connection between awareness and behaviour change. According to a study by Afroz and Ilham (2020), the problem arises when the teaching of environmental concepts in schools lacks a practical approach. This prevents students from actively engaging with and truly understanding the information.

Understanding the effects of environmental issues is crucial for students, but it is equally important for them to delve into the underlying causes and explore potential solutions (Igwe et al., 2017). According to certain researchers, this information can be quite worrisome. It can cause students to lose motivation and feel overwhelmed by the sheer amount of information about these issues, without being given any guidance on how to take action (Ahmad et al., 2016). Emotions such as these can lead to a profound feeling of hopelessness when it comes to the condition of the environment (Mohiuddin, et al., 2018).

It is well-recognized among researchers that people's perspectives on environmental matters are shaped by their core values. Research has indicated that individuals with different value orientations may hold different

attitudes toward the environment (Osazuwa et al., 2021). For example, individuals' perspectives on environmental matters are shaped by the value they place on themselves, others, and the welfare of plants and animals. In addition, the relationship between values and environmental concern is shaped by recognizing the harmful impacts on the treasured object or objects (Osazuwa et al., 2021). Thus, environmental attitudes can be seen as a mirror of a person's core values. To truly comprehend students' viewpoints on the environment, it is crucial to consider the origins of their beliefs and attitudes.

Developing a strong focus on environmental awareness in students at schools is seen as essential for building a sustainable future, as emphasized by Tuncer et al. (2013). Just like an environmental researcher, it is important to consider the perspectives of students when it comes to the environment. These perspectives can have significant implications for important issues like environmentally friendly policies, sustainability, and the well-being of future generations. Based on a study conducted by Uitto et al. (2011), it has been discovered that students' views on environmental responsibility can be shaped by a perspective that recognizes the inherent value of all living organisms. According to a study conducted by Kamis et al. (2015), it is widely recognized that attitudes and values have a significant impact on how people behave towards the environment.

Nevertheless, the relationship between these attitudes and values, and the extent of knowledge and comprehension regarding environmental issues, remains somewhat ambiguous. It has been discovered that high school students generally have a favourable outlook on the environment. However, they may not have a strong grasp of essential environmental concepts and concerns, as per a study conducted by Kamis et al. in 2015. Factors such as family background, religion, and culture can shape our understanding and appreciation of environmental aspects (Rafiq et al., 2021). According to a study conducted by Kamis et al. (2015), the way students perceive environmental issues is greatly influenced by society and culture.

Statement of the Problem

Currently, the world is confronted with substantial environmental issues including global climate change, depletion of the ozone layer, rapid depletion of natural resources, pollution, and an increase in solid waste (Mbasera et al., 2016). The hotel sector is highly resource-intensive. The hotel industry consumes a significant number of resources and generates huge quantities of raw materials and waste, all of which have a significant environmental impact. The overreliance on non-recyclable materials and insufficient solid waste management pose a substantial danger to managers (Kimeu, 2016). Hostels and other hospitality establishments exert a substantial environmental footprint.

Universities can prepare individuals who will become professionals and decision-makers in various fields such as entrepreneurship, education, community leadership, healthcare, and politics. This is achieved by incorporating teaching, scientific and technological advancements, and extension programmes into their curriculum (Probst et al., 2019). The current global challenge is the execution of the Sustainable Development Goals (SDGs). A wide range of complex tasks must be completed in different socioeconomic contexts and geographical levels (local, regional, national, and global) within a certain time frame (Plag & Jules-Plag 2019). Therefore, it is crucial to involve many segments of society in the development of efficient and comprehensive options. Higher education institutions (HEIs) may lead this process by generating creative knowledge and undertaking influential research, as well as by partnering with enterprises and local communities (Filho 2020).

Multiple research (Herghiligiu et al., 2019; Jiehui et al., 2015; Zhu, Sarkis, & Lai, 2012) have investigated the incorporation of sustainable environmental management systems and their impact on corporate performance. Additionally, they have examined the correlation between environmental management and innovation in the provinces of Shanghai and Guangdong. In addition, these studies have examined environmental policy, goals, procedures, organizational frameworks, and surveillance in Germany, Austria,

and Switzerland. However, none of these studies explicitly examine the influence of environmental sustainability measures on the hostel sub-sector of the accommodation industry. Universities can conduct a variety of activities to advance the global agenda. Although there has been significant research on environmental sustainability, including studies by Herghiligiu et al. (2019), Jiehui et al. (2015), Avila et al. (2017), Trencher et al. (2014), and Hansla (2011), the hostel sector in Ghana has received less attention from scholars, despite being part of the broader hospitality industry.

The hostel industry in the lodging sector plays a crucial role in offering accommodations for a significant portion of the population, especially students attending educational institutions in the country. There is a necessity to address the gap that has been discovered in the existing literature about the implementation of environmental sustainability methods in hostels, as they play a significant role in the expansion of the hospitality industry. This research is done to evaluate the environmental sustainability behaviours of students residing in the hostel at Cape Coast Technical University.

Objectives of the Study

The main objective of the study is to assess the environmental sustainability practices of students at Cape Coast Technical University. The study specifically sought to;

1. examine the knowledge of students' environmental sustainability practices
2. examine the attitude of students' environmental sustainability practices
3. explore the environmental practices of students at the hostel

Review of Environmental Sustainability Issues

Universities globally have acknowledged their responsibility in advocating for environmental sustainability, resulting in the adoption of various programs to decrease their impact on the environment. Purcell et al. (2019) conducted a study that emphasised the unique ability of universities, as powerful institutions, to demonstrate sustainable practices. The analysis revealed that numerous colleges are adopting extensive sustainability policies that cover waste management, energy efficiency, water conservation, and sustainable transportation.

Australian 15-year-old students in the Programme for International Student Assessment (PISA) study displayed a strong awareness of environmental issues but had a low level of optimism, leading to a sense of hopelessness and despair. The students demonstrated a solid grasp of environmental concerns, yet regrettably, their level of optimism regarding these issues was rather low (Ahmad et al., 2016). According to Osazuwa et al. (2021), it is widely accepted among researchers that attitudes toward environmental issues are influenced by an individual's broader set of values. Furthermore, different value orientations result in varying views. Attitudes towards environmental issues are determined by the individual's perception of the significance of oneself, others, and the natural world. Furthermore, the relationship between values and environmental concern is influenced by an understanding of the detrimental repercussions on the cherished entity or entities (Osazuwa et al., 2021). Therefore, one can perceive environmental attitudes as a manifestation of an individual's value system. To have a deeper understanding of student's perspectives on the environment, it is necessary to take into account the sources from which students acquire their views and attitudes regarding the environment.

In the realm of waste management, several universities have adopted rigorous recycling and waste reduction programs. For instance, a study conducted at the University of California, Berkeley, found that their waste diversion rate increased significantly after implementing a campus-wide recycling program and composting initiative (Leal Filho et al., 2019). This program not only reduced the amount of waste sent to landfills but also fostered a culture of recycling among students and staff. Similarly, the University of British Columbia's

"Zero Waste Action Plan" aims to divert 80% of waste from landfills by promoting recycling, composting, and responsible consumption (Anwar, 2020). These examples illustrate how universities can lead by example in waste management, encouraging more sustainable behaviour within their communities.

It is considered crucial for a sustainable future to foster environmentally conscious attitudes among pupils in schools (Tuncer et al., 2013). Similarly, the perspectives of students about the environment are likely to have significance in topics such as environmentally conscious policies, the concept of sustainability, and the welfare of future generations. Uitto et al. (2011) suggest that students' perspectives on environmental responsibility can be shaped by biocentrism. According to Kamis et al. (2015), it is widely acknowledged that attitudes and values play a crucial role in influencing behaviour toward the environment.

However, the connection between these attitudes and values, and knowledge and understanding of environmental issues, is not well comprehended. High school students may have consistent and positive views of the environment, but they lack sufficient understanding of fundamental environmental concepts and problems (Kamis et al., 2015). Positive attitudes towards environmental features can be influenced by factors such as family background, religion, and culture, even in the absence of sufficient knowledge about them (Rafiq et al., 2021). According to Kamis et al. (2015), society and culture have a significant impact on how pupils perceive and understand specific environmental challenges.

An example of this can be observed at Kyoto University in Japan, where the direct method of strategically placing recyclable waste containers near lecture rooms has proven successful in attracting the attention of all individuals who pass by. This method facilitates the collection of waste more effectively, requiring little exertion, by reducing the necessity for cleaners to individually enter each lecture room to gather rubbish.

METHODOLOGY

This study is a descriptive cross-sectional quantitative study. The researchers utilised this design because both dependent and independent variables needed to be measured at a fixed point in time, hence, data was collected at a single point. Data was collected by administering questionnaires which were segmented into four distinct components. The initial segment of the questionnaire consisted of closed-ended inquiries regarding demographic attributes such as gender, age, academic year, and marital status. The remaining three categories focused on knowledge, attitudes, and actions linked to environmental sustainability. The items in each section were evaluated using a 3-point Likert scale, ranging from a strong agreement rating of 1 to a neutral rating of 2, to a disagreement rating of 3. An expert in the field of environmental research verified the questionnaire to ensure its coherence and pertinence.

The target population included students enrolled at Cape Coast Technical University and residing in the school's hostel facility. Out of the 280 students residing in the school's hostel facility, responses were collected from 100 of them over 14 days. The study used a purposive and simple random selection technique in selecting respondents to partake in the study. The sample size was determined using a statistical formula for finite populations, taking into account a 95% confidence level and a 5% margin of error. Based on these parameters, a sample size of 100 students was calculated. This size was considered adequate to obtain dependable and precise data for the study's goals. The university's accommodation administration provided a detailed roster of all students currently resident in the hostels. This list functioned as the sampling frame. Each student on the list was assigned a unique identification number. A computer-based random number generator was used to select 100 unique numbers corresponding to the students on the list. The selected students were then approached and invited to participate in the study.

Before administering the questionnaire, the researchers assessed the reliability of the knowledge, attitude, and practice questionnaire. From the reliability test conducted, the results were statistically significant. Due to the study's limited sample size, the normality of the data was assessed using the Shapiro-Wilk method.

Given that the p-value of the Shapiro-Wilk test was higher than 0.05, it was concluded that the data followed a normal distribution.

The categorical data was converted into scale data to analyse the correlation between knowledge, attitude, and practice. For the listed variables, if a responder correctly answered any of the items from the variables, they were assigned a score of "1". Alternatively, a score of "0" was given. The total scores of each respondent were utilized to establish the correlation between the three variables using Spearman's correlation analysis. Additionally, an ANOVA test was conducted to examine the mean differences and determine the significance of the respondents' demographic characteristics on their knowledge, attitudes, and practices related to environmental sustainability.

RESULTS

Table 1 presents the socio-demographic information of the participants collected throughout the field research. The proportion of female respondents was 70% of the total, whereas male respondents accounted for 30%. In addition, 20 participants, constituting 20% of the total, fell within the age range of 21 to 31, while the remaining 80 participants, accounting for 80%, were aged between 32 and 41 years. Out of the respondents, a mere 19 individuals, or 19% of the total, stated that they were married. In contrast, the majority, 81 individuals, or 81% of the total, reported being single.

Table 1: Socio-demographic characteristics of respondents   (n=100)

Variable	Characteristics	Frequency	Percentage
Gender	Male	30	30.0
	Female	70	70.6
Age range	21-31	80	80.0
	32-41	20	20.0
	Above 42	–	–
Marital status	Married	19	19.0
	Single	81	81.0
	Divorced	–	–
Educational Level	Level 100	17	17.0
	Level 200	32	32.0
	Level 300	24	24.0
	Level 400	27	27.0

Objective One: Knowledge of Students' Environmental Sustainability Practices

The table labelled Table 2 presents the main discoveries about students' understanding of environmental sustainability. 92% of the respondents demonstrated awareness of sustainability and acknowledged the existence of current environmental activities in the hostel. Just 74% of participants believed that the university promotes a culture of sustainability among students residing in the dormitory, indicating the need for more awareness initiatives. Merely 27% of the participants believed that their peers were engaging in sustainable actions, underscoring the urgency to encourage and foster greater adoption of sustainable behaviours. All participants (100%) recognized that incorrect garbage disposal presents health hazards. In addition, 94% of respondents reported being acquainted with trash segregation based on container colour, while 87% said that recycling offered a viable answer to environmental concerns. 82% of respondents reported the presence of initiatives and organizations dedicated to tackling environmental concerns in the

hostel. In addition, all of the participants stated that their hostel offers incentives for adopting environmentally friendly practices, demonstrating a proactive approach toward promoting sustainability.

Table 2: Knowledge about Activities that sustain the environment

Knowledge about Activities that sustain the environment	Agree (%)	Neutral (%)	Disagree
I understand when something is sustainable	92%	8%	–
There is environmental action in the hostel	92%	8%	–
The university promotes a culture of sustainability among students living in the hostel	74%	20%	6%
Students in the hostel demonstrate sustainable behaviour	27%	26%	47%
I know waste generated in the hostel can cause some diseases such as diarrhoea, typhoid, cholera etc.	100%	–	–
Recycling allows environmental problems to be solved	87%	8%	5%
I know how to separate waste according to container colours	94%	6%	–
In my hostel, there are programmes and/or organizations that work on environmental issues	82%	12%	6%
In my hostel, some incentives promote actions that are friendly to the environment	–	–	100%

Objective Two: The Attitude of Students' Environmental Sustainability Practices

The data from Table 3 indicate that the students who took part in the survey possess optimistic attitudes and a substantial level of knowledge regarding environmental sustainability. Approximately 43% of students indicate that they are acquainted with knowledge sources on environmental matters, while a majority of 83% express their desire to lead a sustainable lifestyle. Moreover, a significant percentage of students (96%) express their willingness to engage in initiatives aimed at enhancing the environment of their hostels, while 91% are open to participating in projects that will improve the campus environment. Their high level of interest in conflict mediation (93%) and recognition of the need for environmental education for professional growth (82%) highlight their strong environmental consciousness. The overwhelming majority of respondents (94%) believe that all hostel inhabitants must switch off electrical equipment when they are not being used. This indicates the widespread endorsement of energy-conservation initiatives. It is heartening to observe that a substantial proportion of students (82%) endorse cleanliness and appropriate waste management, as demonstrated by the existence of garbage bins in their rooms.

Table 3: Attitudes towards engaging in sustainable environmental Activities

Attitudes toward engaging in sustainable environmental Activities	Agree	Neutral	Disagree
I am familiar with sources of information for environmental issues	43%	41%	16%
I would like to have a sustainable lifestyle	83%	10%	7%
I would like to participate in environmental improvement actions in my hostel	96%	4%	–
I would like to participate in environmental projects on campus	91%	9%	–
I like to meditate in problem and conflict resolution	93%	7%	–
Environmental education helps professional development	82%	14%	6%

It should be compulsory for all residents in the hostel to put off all electrical appliances when not in use	94%	6%	–
It is good to encourage others to keep their rooms and surroundings clean	82%	12%	6%
I have a dustbin in my room for keeping of garbage	91%	6%	3%

Objective Three: The Environmental Practices of Students at the Hostel

The data reported in Table 4 indicate favourable attitudes and actions towards environmental conservation. The majority of respondents (89%) demonstrate a dedication to energy conservation by utilizing energy-efficient lights and equipment in the hostel. Moreover, a significant 86% of students engage in diligent equipment maintenance, while 70% of students actively collect and dispose of rubbish from their rooms, showcasing commendable resource utilization and appropriate waste handling. Significantly, 92% express disapproval towards the act of squandering water, indicating a strong concern for the conservation of water resources. Moreover, a significant majority of individuals, specifically 90%, utilize the designated receptacles to discard rubbish. Furthermore, an impressive 87% of these individuals actively engage in the implementation of the 4Rs (reject, reduce, reuse, recycle) strategy, thereby exemplifying a commendable commitment to environmentally conscious resource management.

Furthermore, a significant 77% actively engage in collective endeavours aimed at safeguarding the environment, such as the desilting of gutters. 80% of them actively engage in associated activities as members of environmental conservation organizations. Nevertheless, a mere 49% of participants attend meetings focused on environmental sustainability. In addition, 55% of hostel residents have undergone environmental education training, while 19% remain unengaged, suggesting an opportunity to motivate residents to enhance their knowledge of the environment.

Table 4: Practices of sustainable environment activities

Practices of sustainable environment activities	Agree	Neutral	Disagree
We currently use energy-efficient lights/bulbs and other equipment in the hostel	89%	10%	1%
I collect garbage from my room in the hostel	70%	25%	5%
Proper maintenance and replacement of old equipment in the hostel	86%	10%	4%
I turn off lights and equipment such as iron, and sockets when not in use in the hostel	61%	33%	6%
I dislike the unnecessary use of water in the hostel	92%	8%	–
I put waste in dustbins that are provided in the hostel	87%	13%	–
I practice the 4Rs (reject, reduce, reuse, recycle)	90%	8%	2%
I take part in communal activities for sustaining environmental resources in the hostel (eg. desilting gutters, clearing and weeding around the hostel)	77%	16%	7%
I am a member of an environmental protection group and participate in their activities in the hostel	80%	15%	5%
I attend meetings for sustaining the environment	49%	38%	13%
I have done courses and attend environmental education training programmes	55%	26%	19%

Relationship between Knowledge, Attitude and Practice of Environmental Sustainability

The correlation between knowledge of environmental sustainability and its practical implementation is significantly significant ($r = 0.836$, $p < 0.05$). This link indicates that individuals are more inclined to participate in sustainable activities when they possess a higher level of understanding regarding environmental sustainability. Furthermore, there exists a robust association between knowledge and attitude, with a correlation coefficient of 0.856 and a significance level of $p < 0.05$.

The presence of a positive connection indicates that individuals are more inclined to hold positive attitudes toward environmental matters when they possess higher levels of knowledge regarding environmental sustainability. The link between environmental sustainability practice and attitude is statistically significant ($r = 0.810$, p 0.05). The presence of this positive association indicates that individuals are more inclined to incorporate sustainable behaviours into their everyday routines when they possess favourable attitudes towards environmental sustainability. The link between environmental sustainability practice and attitude is statistically significant ($r = 0.810$, p 0.05). The presence of this positive association indicates that individuals are more inclined to incorporate sustainable behaviours into their everyday routines when they possess favourable attitudes towards environmental sustainability.

It implies that well-informed individuals are more inclined to apply their knowledge, so contributing to the efforts of environmental preservation. Moreover, individuals tend to cultivate a heightened sense of value for safeguarding and conserving the environment as they acquire more knowledge. Positive attitudes serve as a motivating factor for individuals to adopt environmentally friendly activities. Therefore, it is crucial to promote a favourable mindset towards environmental sustainability to progress sustainable practices as a whole.

Table 5: Relationship between Knowledge, Attitude, and Practice of Environmental Sustainability

		Knowledge	Attitude	Practices
Knowledge	Pearson Correlation	1	.880**	.757**
	Sig. (2-tailed)		.000	.000
Attitude	Pearson Correlation	.880**	1	.755**
	Sig. (2-tailed)	.000		.000
Practices	Pearson Correlation	.757**	.755**	1
	Sig. (2-tailed)	.000	.000	

Factors Influencing Knowledge, Attitude, and Practice of Environmental Sustainability

Knowledge: The ANOVA results in Table 6 indicate that there are no statistically significant age-related differences in knowledge scores ($p = 0.433$). Similarly, gender and marital status have no significant impact on an individual's understanding of environmental sustainability ($p = 0.617$ and $p = 0.946$, respectively). Furthermore, the academic level ($p = 0.955$) appears to have no substantial influence on knowledge. These data suggest that individuals possess similar levels of knowledge on environmental sustainability, independent of their social traits. This indicates that various groups often possess a comparable degree of environmental consciousness and knowledge.

Attitude: Based on the ANOVA results presented in Table 6, it can be concluded that demographic characteristics do not have a significant impact on attitudes towards environmental sustainability. Attitudes are not significantly influenced by age ($p = 0.311$) or gender ($p = 0.896$). Marital status ($p = 0.950$) does not seem to have an impact on the view of environmental challenges. There is no significant impact of academic

standing (p = 0.584) on attitudes. The absence of noticeable disparities in attitudes among different demographic groups implies that individuals typically have favourable opinions towards environmental sustainability. This discovery is promising since it indicates that the majority of the respondents polled hold a positive regard for environmental conservation.

Practices: The ANOVA results for practices are displayed in Table 6, offering an alternative viewpoint. Based on the statistical analysis, age (p = 0.019) is found to be a significant factor influencing people's environmental practices. However, gender (p = 0.807) and marital status (p = 0.747) do not have a significant impact on people's environmental practices. Although the academic level (p = 0.137) is higher than the accepted level of statistical significance (0.05), it still has a comparatively low p-value, indicating a potential connection with practices.

Table 6: ANOVA of Factors Influencing Knowledge, Attitude and Practice of Environmental Sustainability

Demographic Characteristics	Category	Mean		
		Knowledge	Attitude	Practice
Age	21-31 years	10.04	9.99	9.95
	32-41 years	10.21	10.22	10.50
	P-value	**0.433**	**0.311**	**0.019***
Gender	Male	10.14	10.01	10.10
	Female	10.05	10.04	10.05
	P-value	**0.617**	**0.896**	**0.807**
Marital Status	Married	10.09	10.04	10.12
	Single	10.07	10.03	10.05
	P-value	**0.946**	**.950**	**0.747**
Level	Level 100	10.07	9.99	10.12
	Level 200	10.01	9.87	9.77
	Level 300	10.10	10.20	10.10
	Level 400	10.13	10.10	10.34
	P-value	**0.955**	**0.584**	**0.137**

Source: Fieldwork 2022

DISCUSSION OF FINDINGS

The survey analysis revealed that students at Cape Technical University hostel possess a satisfactory level of understanding regarding environmental sustainability. The findings of this study align with the research conducted by Abdul-Halim et al. (2021), who discovered that students studying sustainable science at Universiti Malaysia Kelantan possessed a commendable comprehension of environmental sustainability. This can be attributed to the fact that the university, the target audience, and the educated population all endorse a culture of sustainability (Al-Naqbi & Alshannag, 2018). This implies that the university's instructional courses and efforts, which are designed to promote sustainability, are likely effective in imparting crucial knowledge to the students.

Positive outcomes are crucial for teaching the next cohort of experts who can promote sustainable practices

in their respective fields. The survey results demonstrate a commendable instance of positive attitudes and behaviours toward environmental sustainability among Cape Coast Technical University Students. The survey findings indicated that the students have a substantial level of knowledge and consciousness on sustainability-related matters. This corroborates the conclusions of Abdul-Halim et al. (2021) and Mahat et al. (2019), who discovered that students possess a significant degree of favourable attitudes and enduring environmental practices. Previous research has indicated that individuals who possess a wealth of information are more likely to exhibit a strong commitment to environmental issues and take proactive measures to address them (Nusrat Afroz & Zul Ilham, 2020; Al-Naqbi & Alshannag, 2018). Their extensive knowledge likely plays a significant role in shaping their favourable attitudes. Furthermore, the educational setting at Cape Coast Technical is vital in cultivating this positive perspective, as research has indicated that students at institutions that integrate sustainability-focused topics into their syllabi tend to exhibit a heightened sense of accountability towards the environment. This aligns with the findings of Al-Nuaimi & Al-Ghamdi (2022), who argue that students' tangible sustainable actions are indicative of their favourable opinions.

The results underscore the students' genuine dedication to environmental stewardship by demonstrating that their ideas are not solely theoretical but are evident in tangible behaviours. To effectively tackle pressing environmental issues and secure a sustainable future, it is crucial to actively participate in sustainable activities, as emphasized by Nusrat Afroz and Zul Ilham in 2020. Unlike the students in previous research conducted by Al-Naqbi & Alshannag (2018) and Mohamad Saleh et al. (2022), it is worth mentioning that Cape Coast Technical Students exhibit elevated levels of environmental awareness.

This study also shows the absence of any association between the demographic features of the respondents and their high level of knowledge, good attitudes, and environmentally friendly actions. There is a favourable correlation between a high level of knowledge, a favourable attitude, and good practices of environmental sustainability. This corroborates the claim made by Abdul-Halim et al. (2021) that there exists a correlation between the knowledge, attitude, and practice of environmental sustainability among alumni of Sustainable Science students at Universiti Malaysia Kelantan. The findings of this research contradict the results of Mahat et al. (2019), who identified a tenuous correlation between the variables. The findings of this study indicate that gaining knowledge inevitably changes attitudes, but it does not always lead to changes in behaviour.

CONCLUSION

The research utilized a quantitative approach to gain valuable insights into the perspectives of students. It presents a positive perspective on the environmental sustainability practices of students living in Cape Coast Technical University hostels. It effectively highlighted both the positive aspects and areas that could be improved upon. One of the highlights includes a solid basis for sustainability awareness and a readiness to participate in eco-friendly actions. It is worth mentioning that a significant majority of students, a staggering 83%, have shown a strong desire to embrace sustainable living practices. This showcases their deep understanding of the significance of environmental sustainability. In addition, an impressive 96% of students demonstrated a keen interest in taking part in projects that aim to improve the environmental quality of their hostels.

It shows the students' strong motivation to contribute to a more sustainable living environment. In the same vein, a large majority of students have shown a strong interest in getting involved in campus-wide environmental initiatives and backing the implementation of energy-saving measures. This further shows their dedication to being responsible stewards of the environment. These findings indicate that when provided with adequate support and infrastructure, students are enthusiastic about adopting sustainable practices, leading to the development of a campus community that is more environmentally aware.

Although many students show a strong dedication to energy efficiency and participate in sustainable practices like the 4Rs strategy (reducing, reusing, recycling, and refusing), there is a noticeable gap between their environmental awareness and the actions they take, and an even smaller fraction have undergone formal training in environmental education. In addition, the study uncovers the impact of age on environmental practices, as different age groups demonstrate different levels of engagement and awareness. These findings highlight the importance of implementing specific interventions and customized strategies to successfully involve students of various age groups and promote a culture of sustainability throughout the campus. Through the implementation of comprehensive environmental education and training, Cape Coast Technical University Hostel managers have the potential to narrow the disparities and foster a stronger connection between environmental awareness and action. This will enable students to emerge as advocates for sustainability and catalysts for significant change within their communities.

Consequently, the research study highlights the important connection between knowledge, attitude, and practice in influencing the environmental sustainability practices of students residing in the hostels of Cape Coast Technical University. The research uncovers that student with a strong grasp of environmental sustainability, along with a favourable outlook on eco-friendly practices, are much more inclined to participate in sustainable behaviours. This emphasizes the significance of incorporating a thorough environmental education into the curriculum, with a focus on both cognitive and affective learning outcomes. Through the cultivation of a robust educational framework centered around environmental sustainability, along with a mindset focused on growth and development, students are equipped to make well-informed decisions and embrace environmentally friendly practices.

As a result, their ecological footprint can be greatly reduced, making a valuable contribution to a more sustainable future. In addition, the study proposes that the design of environmental education should aim to inspire and motivate students, fostering a strong sense of environmental stewardship and responsibility. Through a comprehensive approach that encompasses knowledge, attitude, and practice, Cape Coast Technical University has the potential to greatly influence the development of a generation of individuals who are environmentally aware and capable of tackling the intricate sustainability issues that our world currently faces.

RECOMMENDATIONS

The following recommendations are made:

1. There is a need to raise awareness of students, and owners/managers of hostels by providing adequate information and advice on environmental issues that are specific to the management of hostels.

2. There is a need to conduct further research to explore the relation between contextual elements of subjects and practices, which could be considered in experimental studies.

3. This and other studies have shown that often, practices do not respond to attitudes and knowledge. Therefore, hostels should concentrate much effort on energy efficiency, material management, and water management to a relatively higher extent since the overall score of these environmental management variables was above the rest.

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