Influence of Campus Culture and Perception on Waste Management Solutions Within Tertiary Institutions in Ekiti State, Nigeria

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ABSTRACT

This study examined the influence of students' perceptions and campus culture on waste management practices in higher education institutions within Ekiti State, Nigeria. Recognizing the growing waste management challenges in educational environments, the study adopted a mixed-method research design, combining both quantitative and qualitative approaches. Data were collected through structured surveys, in-depth interviews, and focus group discussions involving students and key institutional staff. A total of 500 students participated in the survey, while interviews and focus groups provided rich insights into the institutional processes, socio-cultural influences, and challenges shaping waste management behaviours on campuses. Descriptive statistical tools such as frequencies and percentages were employed to analyze the quantitative data, while the Chi-square test was used to examine the relationship between students' attitudes toward recycling and their actual participation in recycling practices. The findings revealed an increasing level of awareness among students regarding sustainable waste management; however, infrastructural deficiencies, negative perceptions, low environmental consciousness, and a weak waste management culture continue to pose significant barriers to active student participation. Furthermore, institutional policies and inadequate waste management facilities were identified as critical limiting factors. The Chi-square test result confirmed a statistically significant relationship between students' positive attitudes towards recycling and their engagement in recycling activities. The study concludes that fostering a positive environmental culture and addressing the identified barriers are crucial for effective waste management in tertiary institutions. It recommends the development of waste management policies, provision of adequate infrastructure, continuous environmental education and awareness campaigns to promote sustainable waste management practices among students.

Keywords: Campus Culture, Students' Perceptions, Waste Management Practices, Tertiary Institutions, Recycling Behaviour, Ekiti State.

INTRODUCTION

Globally, solid waste management has become a major environmental concern in many institutional and urban contexts, especially in developing nations like Nigeria (Abdulfatah, 2023). Waste generation is an unavoidable byproduct of human activity, and social well-being, public health, and environmental sustainability all depend on its appropriate management (Oluwagbayide et al., 2024). Nevertheless, inappropriate waste disposal practices are still common, particularly in tertiary institutions, despite infrastructure improvements and the availability of disposal facilities in many locations (Mbuligwe, 2002). This is frequently influenced by the perception, attitude, and culture of the individuals producing the waste rather than just being the result of inadequate infrastructure.

Students and employees are a dynamic population in tertiary institutions, and their daily routines, beliefs, environmental consciousness, and sense of duty all have a significant impact on their waste generation behaviors and waste management techniques. Students' and staff's interactions with waste management infrastructure are

greatly influenced by campus culture, which is characterized by common values, attitudes, practices, and unspoken conventions within the university or college setting (Akai-Tetteh, 2021). There is a noticeable lack of care and a casual attitude toward waste management, disposal, and environmental cleanliness on many Nigerian campuses, especially in Ekiti State. This unfavorable culture is frequently combined with the misconception that waste management is the exclusive domain of institutional authorities rather than a collaborative endeavor involving all campus users (Armijo De Vega et al., 2003).

Thus, this study explores how campus culture and perception affect waste management strategies in Ekiti State's higher education institutions. It aims to investigate how the attitudes, convictions, and awareness of staff and students about environmental sustainability and waste disposal impact the efficacy of waste management techniques that are put into practice. Understanding current waste management procedures, determining prevalent cultural norms and waste-related perceptions, and examining the connection between these elements and the accomplishment or failure of waste management programs on campus are the objectives of the study, and even to bring into the notice of everyone within the institutional community the danger in not adhering to the culture and value of disposing waste properly and adequately. By doing this, this study will add to the body of knowledge on behavioral and culture-based environmental management approaches and help develop waste management policies that are specific to Nigerian tertiary institutions and sensitive to cultural and perception-based factors.

Statement of The Problem

Despite growing environmental awareness and the establishment of waste management systems in many Nigerian tertiary institutions, waste management practices in these campuses remain largely ineffective (Ifegbesan et al., 2017). In Ekiti State, the campuses of tertiary institutions are often littered with improperly disposed waste, poorly managed dumpsites, and indiscriminate littering by students and staff alike. These challenges persist not only because of infrastructural or policy gaps but also due to behavioural factors rooted in the prevailing campus culture and waste-related perceptions of the campus community (Baba-Nalikant et al., 2023).

Students and employees exhibit a poor waste culture and observable recklessness, which is typified by careless waste disposal, a lack of involvement in recycling programs, and a pervasive notion that waste management is solely the duty of institutional authorities or cleaners. Along with posing serious health risks and degrading the aesthetics of the learning environment, this culture also compromises environmental cleanliness (Hassan and Khalil, 2024). The socio-cultural and perception-based aspects of waste handling, especially in higher education, have received little attention in Nigeria's waste management studies, which have mostly concentrated on technical, infrastructure or policy-driven solutions. Therefore, it is imperative to investigate how campus culture and perception either facilitate or impede waste management initiatives.

This study responds to this gap by exploring the socio-cultural realities within tertiary institutions in Ekiti State, assessing how these factors influence waste management success or failure, and providing sustainable recommendations that align with the specific cultural and behavioural context of the campus environment.

LITERATURE REVIEW

Waste management is broadly concerned with the processes of waste collection, transportation, treatment, recycling, and final disposal. In the context of higher education, effective waste management is crucial for maintaining a healthy and sustainable campus environment. According to Mbama et al. (2023), many universities are confronted with challenges such as poor waste management infrastructure, inappropriate disposal practices, and low recycling participation rates, which continue to hinder efforts toward environmental sustainability within campuses.

In the work of Zhang et al. (2011), it was established that the absence of adequate waste management systems directly impacts the environmental sustainability of tertiary institutions. Similarly, Alshuwaikhat and Abubakar (2008) emphasized that despite the availability of resources and the large student population, which presents an

opportunity for sustainable waste management practices, many tertiary institutions still fall short due to infrastructural gaps and human behavioral factors.

However, as noted in the study by Mbama et al. (2023), infrastructure alone does not guarantee the success of waste management practices on campuses. The cultural attitudes and perceptions of both staff and students play a critical role in influencing waste management behaviors. This is consistent with the position of Alshuwaikhat and Abubakar (2008), who argued that sustainable waste management in universities goes beyond physical infrastructure to include the need for fostering positive environmental culture within the campus community.

Campus culture, as defined by Triguero et al. (2016), refers to the shared values, beliefs, and practices that shape the behavior of individuals within an institution. It has been found to significantly influence how students and staff engage with environmental issues, including waste management. For instance, in institutions where environmental consciousness is low, waste management practices are often neglected, and improper waste disposal becomes prevalent (Heidari et al., 2018). Conversely, Triguero et al. (2016) observed that a campus culture that promotes environmental responsibility and sustainability encourages active participation in waste management initiatives among students and staff.

Moreover, perception towards waste management is another critical factor shaping behavior. According to Heidari et al. (2018), individuals' perception of waste management influences their willingness to adopt recycling practices and participate in environmentally friendly activities. When students and staff perceive waste management as a collective responsibility and understand its environmental significance, they are more likely to engage in sustainable practices (Triguero et al., 2016). On the contrary, when waste management is perceived as solely the duty of the institution's authorities, participation among students and staff tends to be minimal, thereby undermining overall waste management efforts (Heidari et al., 2018).

Thus, understanding both the prevailing campus culture and the perceptions of students and staff is essential in designing effective, context-specific waste management strategies within tertiary institutions.

Gaps in Literature

While the reviewed literature provides substantial insights into the importance of waste management practices and the role of campus culture and perceptions, there is limited research that combines these two aspects in the context of tertiary institutions in Nigeria, particularly in Ekiti State. Most studies tend to focus on waste management infrastructure and neglect the cultural and perceptual factors that influence their success. This research seeks to bridge this gap by examining how the prevailing campus culture and perceptions impact the effectiveness of waste management solutions in tertiary institutions in Ekiti State.

METHODOLOGY

This research adopted a mixed-method approach by utilizing surveys, interviews, and focus group discussions (FGDs) to gather both quantitative and qualitative data. These methods were strategically selected to offer a well-rounded insight into how campus culture and student perceptions impact waste management practices within tertiary institutions in Ekiti State. The study focused on three different universities—Bamidele Olumilua University of Education, Science and Technology (BOUESTI), Ekiti State University (EKSU), and the Federal University Oye-Ekiti (FUOYE)— chosen from orher tertiary institutions in the state.

Surveys:

The sample size of 500 respondents was determined using Cochran's formula for infinite population, applying a 95% confidence level and a 5% margin of error. A population proportion of 0.5 was assumed to maximize variability, using the estimated student population across the three selected institutions as a sampling frame.

To ensure representativeness across different academic backgrounds, a stratified random sampling technique was adopted. Students were grouped into three academic disciplines—Arts, Sciences, and Social Sciences—and respondents were randomly selected from each stratum in proportion to the size of the student population in

those faculties. This approach helped capture possible variations in environmental awareness and waste management behavior influenced by disciplinary orientation.

The stratified sampling procedure was justified by the need to ensure inclusive participation across diverse academic programs, which may influence students' perception and engagement with waste management practices. In contrast, a purposive sampling method was used for selecting key staff respondents for interviews—such as waste management officers and facility administrators—who were identified based on their roles and direct involvement in campus waste management systems.

The questionnaire was divided into the following sections:

Demographic Information: This section collected basic personal details such as age, gender, academic program, and year of study.

Waste Management Practices: Questions focused on students' knowledge, participation in waste segregation, recycling habits, and waste disposal methods.

Perceptions and Attitudes: This section aimed to assess students' perceptions of waste management and sustainability, as well as their attitudes towards environmental responsibility.

Interviews:

Semi-structured interviews were conducted with key institutional staff such as waste management coordinators, facility managers, and campus administrators. These individuals were selected using purposive sampling based on their involvement and expertise in campus waste management.

The interviews explored:

Institutional waste management policies and practices

Challenges faced in implementing waste systems

The influence of campus culture on waste-related decisions.

The qualitative data obtained from interviews were analyzed using thematic content analysis. Responses were transcribed and coded into themes such as institutional challenges, infrastructural gaps, student engagement, and cultural attitudes toward waste. Patterns and insights were organized using NVivo software to ensure consistency and reliability of interpretation.

Focus Group Discussions (FGDs):

Focus group discussions (FGDs) were held with students from various disciplines. These discussions were used to capture in-depth perspectives on:

Students' attitudes and behaviors regarding waste management

The social and cultural factors influencing waste management decisions

The perceived role of students in campus sustainability

Qualitative data from FGDs were also analyzed using thematic analysis, focusing on discipline-based differences in awareness and attitudes. Science students generally demonstrated a higher awareness of recycling and waste segregation, likely due to exposure in science-based courses. In contrast, Arts students showed lower awareness but were open to learning. Social Science students revealed cultural and behavioural barriers, particularly with community-influenced perceptions and limited personal responsibility for waste. This supports findings by

Heidari et al. (2018) and Triguero et al. (2016) on the role of academic discipline and cultural perceptions in shaping environmental behaviours.

RESULTS AND DISCUSSION

Table 1: Survey Data (Quantitative)

Respondent Age Group	Number of Respondents	Percentage %
18-22 Years	300	60
22-27 Years	100	20
28-32 Years	50	10
34 and above	50	10
Total	500	100%

Source: Researchers Computation (2025)

Table 1 presents the respondents' age group and the percentages. The majority of respondents (60%) were in the 18-22 years age group, which aligns with the student population's typical age range in tertiary institutions, while a smaller percentage (20%) were in the 23-27 years age group, possibly including postgraduate students or older undergraduates.

Table 2: Interview Data (Qualitative)

Interviewee Position	Key Themes Identified	Key Insights
Waste Management Coordinator	Institutional policies, Infrastructural challenges	Need for more funding and awareness programs
Facility Manager	Waste infrastructures, Waste issues	Poorly maintained waste bins, lack of recycling facilities
Campus Administrator	Campus culture, Student Participation	Campus barriers to recycling, lack of incentives for participation

Source: Researchers Computation (2025)

Table 2 presents the interview data, the waste management coordinator highlighted the importance of institutional policies and the lack of adequate funding as barriers to effective waste management while the facility managers pointed out the need for better-maintained waste disposal infrastructure, also, the administrators emphasized the cultural challenges and the low level of student participation in waste management activities.

Table 3: FGD Data (Qualitative)

FGD Group	Major Topic Discussed	Key Findings
Art Students	Attitude towards recycling	Low awareness, but a willingness to learn.
Science Students	Perceptions of waste segregation programs	High awareness, desire for more training
Social Science Students	Cultural barriers to proper waste disposal	Strong cultural resistance to waste segregation, lack of participation
Mixed Group (All Disciplines)	Proposed solutions for waste management	Desire for incentives, improved infrastructure and educational programs

Source: Researchers Computation (2025)

Table 3 presents the FGD data. Arts students demonstrated low awareness of recycling practices but expressed interest in learning more about sustainability, while, Science students had a higher level of awareness and showed eagerness for additional training on waste segregation, and Social science students identified cultural barriers to

effective waste disposal, highlighting the need for a cultural shift, and the mixed group of students suggested practical solutions, including incentives for recycling and improved waste management infrastructure.

For further insight, quantitative data analysis was involved, which includes the use of descriptive statistics (frequencies and percentages) to summarize respondents' characteristics and waste management practices, alongside inferential statistics (Chi-square test) to examine the relationship between students' attitudes and their participation in recycling activities within tertiary institutions in Ekiti State

Cross Tabulation of Attitudes Towards Recycling and Recycling Participation

Table 4: Relationship between Attitudes towards Recycling and Participation

Attitude towards recycling	Participate in recycling	Does not participate in recycling	Total
Positive	150	30	180
Negative	40	280	320
Total	**190**	**310**	**500**

Source: Researchers Computation (2025)

Table 5: Expected Frequencies

Attitude towards recycling	Participate in recycling	Does not participate in recycling
Positive	68.4	111.6
Negative	121.6	198.4

Source: Researchers Computation (2025)

Table 6: Chi-square Test Results

Test Statistics	Value
Chi-Square (x^2) Value	242.33
Degrees of Freedom	1
p-value	0.000 ($p < 0.05$)

Source: Researchers Computation (2025)

The Chi-square test results show a calculated χ^2 value of 242.33 with 1 degree of freedom and a p-value of 0.000, which is significantly lower than the 0.05 threshold. This result indicates a strong and statistically significant association between students' attitudes towards recycling and their actual participation in recycling activities within the tertiary institutions studied.

Specifically, students with a positive attitude towards recycling were more likely to participate actively in recycling (150 out of 180), while the majority of students with a negative attitude (280 out of 320) did not participate in recycling practices.

This finding underscores the critical role of students' perceptions and attitudes in shaping their waste management behavior, suggesting that effective waste management interventions should not only provide facilities but also focus on attitudinal change and environmental education.

CONCLUSION

This study examined the influence of campus culture and students' perceptions on waste management practices in tertiary institutions within Ekiti State. The findings revealed that while there is a growing awareness of waste management practices among students, active participation in proper waste disposal, recycling, and environmental sustainability efforts remains largely dependent on students' attitudes and the enabling culture

within the campus environment. The significant relationship established between positive attitudes and recycling participation highlights the need for strengthening environmental education and fostering a supportive campus culture that promotes responsible waste management practices.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to improve waste management practices in tertiary institutions across Ekiti State:

Strengthen Environmental Awareness Programs: Institutions should design and implement continuous environmental campaigns, workshops, and sensitization programs targeted at promoting positive attitudes towards waste management among students.

Integration of Waste Management into Curriculum: Environmental sustainability topics should be integrated into general studies courses to expose students to the importance of proper waste handling and recycling practices.

Provision of Waste Management Facilities: Adequate waste bins, recycling stations, and waste segregation points should be provided across campuses to encourage active student participation.

Establishment of Environmental Clubs: Institutions should support the formation of environmental clubs and student-led sustainability initiatives that foster peer-to-peer learning and collective environmental action.

Enforcement of Waste Management Policies: Clear policies and guidelines on waste disposal should be enforced within campuses, alongside incentives for compliance and penalties for defaulters.

Collaboration with Waste Management Agencies: Tertiary institutions should collaborate with relevant waste management agencies and environmental organizations to provide technical support, training, and sustainable waste disposal services.

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