AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.14 (2), January-April, 2025 https://ajemates.org

EFFECTIVENESS OF RADIO CAMPAIGNS IN COMBATING PLASTIC WASTE IN SOUTHEAST NIGERIA

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ABSTRACT

Irregular disposal and management of plastic waste is one of the environmental challenges facing developing countries like Nigeria. Communication especially radio campaigns play a key role in overcoming societal issues like plastic waste pollution. The purpose of this study is to investigate the effectiveness of radio campaigns in reducing the pollution caused by plastic waste in southeast Nigeria. The areas of study are the Abia, Ebonyi and Enugu states. Value change theory and the planned behavior theory were used to explain the study. The research design is a survey while a questionnaire was used to collect data from the respondents. The study found that there were radio campaigns that adequately educated the public about environmental challenges in general and plastic waste in particular. Plastic waste management was seen negatively, and attitudes were positive due to radio campaigns for long-term environmental growth. The study recommended that frequent public education on environmental issues should be carried by all mass media channels

Keywords: Plastic Waste, Radio Campaigns, Effectiveness, Southeast.

Introduction

The mismanagement of solid waste generated from human activities for sustenance and progress remains a major environmental challenge in developing nations. The issue gained global recognition during the 1992 Conference on Environment and Development and is considered a key barrier to achieving environmental sustainability (Ifegbesan, 2009). In response, nations began implementing Environmental Impact Assessment (EIA) policies, revising legislation, and formulating strategies and guidelines after the United Nations Conference on Environment and Development held in Rio de Janeiro in

January 1992. These policies mandated public engagement and information sharing for projects requiring development permits.

One of the biggest environmental problems the world is now dealing with is plastic waste. The ongoing use of plastic products, along with poor waste management and recycling practices, has led to a global disaster that affects ecosystems, wildlife, and human health. Global plastic manufacturing has skyrocketed, with more than 400 million metric tons produced in 2022 (Plastics Europe, 2023). A considerable amount of plastic trash has been produced as a result of this increase in plastic manufacturing. Since the 1950s, approximately 60% of the 8.3 billion metric tons of plastic produced has ended up in landfills or the environment (Geyer et al., 2017). Each year, around 8 million metric tons of plastic waste are released into the ocean, with the majority remaining near coastal areas (Ritchie, 2023). With 0.13 to 0.34 million metric tons of plastic marine pollutants annually, Nigeria ranked tenth out of 20 coastal nations in 2010 (Jambeck et al., 2015). Nigeria generates approximately 29 million metric tons of waste each year, yet only 20–30% of it is collected, posing a significant environmental challenge due to ineffective waste disposal and management (Bakare, 2021). The widespread use of plastics, which are distinguished by their affordability, adaptability, and durability, has changed a number of sectors and consumer behaviors. However, a worldwide environmental disaster has resulted from the unforeseen effects of plastic consumption and disposal. The widespread existence of plastic garbage in Nigeria, especially in cities and rivers, emphasizes the pressing need for all-encompassing solutions. In the country, less than 12 percent of plastic garbage gets recycled. Cement kilns and incinerators with heat recovery do not now have the capacity to recover energy. Approximately 80% of plastic garbage ends up in landfills and other disposal sites. Other methods of disposal include landfill fires and open burning, which pose health risks and pollute the air. Nigeria has taken action to fight plastic pollution within its legal framework after realizing how serious the problem is. One important piece of legislation governing environmental issues, such as plastic pollution, is the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act. This Act gives the agency the authority to establish guidelines, keep an eye on adherence, and impose sanctions for environmental infractions. Further aiding in the larger fight against plastic pollution is the Harmful Waste (Special Criminal Provisions, etc.) Act, which makes some hazardous waste practices illegal.

The widespread presence of plastic particles in the environment and their harmful effects raise concerns about the increasing production and disposal of plastic waste. According to Uba (2021), global plastic production reached 367 million metric tons in 2020. Due to their low degradability, most plastics are discarded after use and persist in the environment. In aquatic ecosystems, larger plastic debris, known as macroplastics, can break down into microplastics through exposure to sunlight, water, and other natural processes. These

microplastics are then ingested by marine organisms such as fish and turtles, potentially leading to adverse effects. Studies have documented plastic pollution in various environmental components, including surface water, drinking water (tap, bottled, and sachet), sediment, soil, air, biota, salt, and even human samples, such as stool, across different regions of the world. Additionally, evidence suggests that nano, micro, and macroplastics are associated with microbiological hazards, chemical and particle toxicity, and other environmental risks.

In addition to becoming tangled in discarded plastic fibers, both aquatic and terrestrial animals frequently consume plastic. Adsorbed hazardous chemicals are carried by microplastics and enter biological systems, where they can cause reproductive, cancer, and endocrine disruption, among other negative consequences. Likewise, research indicates a decline in reproduction among lower organisms, such as *Daphnia magna*, which has been specifically associated with intestinal damage, lung inflammation, and exposure to polyurethane (PU) and polylactic acid (PLA) particles. The development of pathogenic biofilms within the plastisphere contributes to the transmission of diseases. Additionally, microplastics have been identified as potential carriers of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and may play a role in the spread of Coronavirus Disease 2019 (COVID-19).

A quick glance at the environment across the nation will show some careless plastic waste dumping. These used plastics pollute the environment and give people unpleasant sights. The surroundings and atmosphere have remained contaminated as a result of this. One of the environmental issues facing the globe today is plastic garbage, which by 2050 will outnumber fish if corrective action is not taken (IJPR, 2021). Campaigns to modify behavior are one of the main strategies to stop this unsettling state of affairs. Radio campaigns are one of the actual channels that these campaigns use.

Effective communication plays a crucial role in educating and raising awareness about proper waste management. For example, in Nigeria's Southeast states, communication is crucial to raising awareness about trash management. Due to their ability to transmit signals both inside and outside of these states, these stations have the power to affect people's decisions and societal norms in Methods that promote a more sustainable environment (Nwabueze, 2007). Our perception of the natural world and our place in it is greatly influenced by communication. According to Okunna (2002), communication helps the target audience make positive changes in their living circumstances. Effective mobilization focused at fostering positive attitudes and behaviors among the individuals for whom a development project is being carried out makes this possible (Okunna, 2002). Similarly, McQuail (2010) contends that the media may be a powerful tool for popular education and public awareness. Diverse viewpoints are also negotiated on the field of communication (Carvalho 2009).

For instance, radio stations play a key role in promoting environmental issues and have the power to shape policy and shift public opinion. The European Commission for Environment's 2009 Environmental Policy states that environmental issues and their possible solutions are shaped by human perceptions, attitudes, and behaviours, which are influenced by values, preferences, and worldviews.

Thus, in their opinion, communication initiatives are essential to examining the connections among all of these elements. This study aims to evaluate the efficacy of radio ads in reducing the pollution caused by plastic garbage in southeast Nigeria.

Statement of the Problem

Single-use plastic pollution has grown over time to become one of the main environmental threats facing mankind, endangering aquatic and terrestrial life alike. Many nations, including Nigeria, are using different strategies to cut back on the use of single-use plastic, according to Poitinga, Whitemarsh, and Suffolk (2012). As a result, numerous efforts have been launched on radio stations to lessen the pollution caused by plastics in southeast Nigeria and throughout the nation.

Managing plastic waste is a common practice in many parts of the world, but in several Nigerian cities, it remains a major challenge. For many people, survival and financial struggles take priority over waste disposal, making it a less urgent concern. In southeastern Nigeria, cities continue to grapple with waste management issues, and as technology advances and populations grow rapidly, the problem has only worsened. The habit of dumping household waste on streets, in rivers, and in drainage systems has led to clogged drainages, flooded roads, foul odours, and the spread of diseases. Many families find it difficult to manage their waste properly, and with no effective disposal system in place, the problem keeps growing every day.

When coupled with the region's growing urbanization and unplanned expansion, the problem of managing plastic garbage is predicted to be so severe that there are compelling reasons to take urgent action to ameliorate this terrible state of affairs. In light of this, the various governments in the southeast states established the Ministry of Environment along with other relevant organizations. The community's awareness and attitude seem to be lacking. This study aimed to explore the effectiveness of radio campaigns in reducing the pollution caused by plastic waste in southeast Nigeria.

Objectives of the Study

a. Determine southeast residents' attitude towards plastic waste management through campaigns by radio stations.
b. Discover the extent to which the radio campaigns contribute towards enlightenment of plastic waste management in south east.
c. Find out how residents of Southeast states perceive the roles of the radio campaigns in plastic waste management

Indiscriminate Disposal of Plastic Waste

With the inability of various governments to ensure access to safe drinking water, the packaging of table water in cellophane sachets has helped to address water shortages in the country (Edema, Atayese, & Bankole, 2011). Similarly, polythene shopping bags have simplified business transactions, making them more convenient (Okeke & Mudashir, 2018). However, these single-use items are frequently thrown away carelessly (Olabode & Lawrence, 2014). Accordingly, they are becoming more and more significant contributors to plastic pollution and the risks that go along with it in Nigeria (Ezeokpube, Obiora & Phil-Eze, 2014). In Nigerian streets and neighborhoods, piles of plastic waste are usually a familiar sight (Olabode & Lawrence, 2014). Daniel and Ibok (2013) found that student residential areas in Uyo, Southern Nigeria, had higher levels of litter compared to non-student areas in their study on university students' solid waste disposal practices. They attributed this to students' indiscriminate waste disposal, which stemmed from poor sanitation habits. Their research also revealed that plastic waste (12%) was a major environmental pollutant, following food waste (38%) and paper waste (36%). Unlike food and paper, plastic does not decompose naturally, posing a greater environmental challenge.

As a result, this exacerbates the issue of plastic pollution in the neighborhood, primarily since one method used by locals and students to dispose of their waste is to dump it in the bushes nearby. The values, culture, and indigenous knowledge that the kids were instilled with at the home level can be linked to their trash disposal habits. Many of them are neither trained or educated in hygiene. Students frequently toss trash onto the street, even into the drainage channels designed to collect rainfall. These behaviours create obstacles to building clean and healthy urban environments. Dolipas, Ramos, Alimodo, and Madinno (2018) observed that university students in the Philippines, regardless of gender, consistently practised waste segregation. They sorted their waste into categories like plastic, paper, and food scraps and disposed of them properly in designated bins at home. This stands in stark contrast to the poor waste management habits commonly seen among Nigerian students. Additionally, there are additional prevalent habits in Nigeria that seem to be culturally distinctive and could make plastic pollution worse. Among these are the disposal of trash beneath bridges and alongside important roads.

Open dumpsites are widely used in the majority of Nigerian cities. For example, in Maiduguri (northern Nigeria) and Ughelli (southern Nigeria), half of the population disposes of their waste in open dumps, according to Nnaji's (2014) study, which looked into several locations in Nigeria. He also disclosed that the government has not authorized or permitted the majority of the disposal locations. In actuality, 81% of the 72 dumpsites in Nsukka that he examined were not authorized. The absence of adequate waste disposal infrastructure, such as litter bins, and the tendency for people to litter in already littered areas are among the key factors contributing to improper waste

disposal. This may help explain the widespread use of illegal open dumpsites in Nigeria. Another common practice, deeply rooted in local habits, is storing waste in plastic bags or other containers at home, only to later dispose of it in culverts and drainage channels during the rainy season. In fact, these common practices are mostly caused by a lack of information about waste management, which leads to bad dumping habits. Some of the trash that people carelessly discard ends up in the ocean, while other trash either ends up littering the neighborhood and streets or causes flooding and drainage obstructions.

The Nigerian public's high prevalence of poor sanitation and hygiene practices is crucial in this case. The heightened lackluster (or "I-don't care" in local slang) attitude and behavior toward keeping a clean environment, or the lack of social will, are major contributors to careless garbage disposal and may make Nigeria's plastic pollution problem worse.

Waste Management and Communication

Studies have shown that communication plays a vital role in promoting environmentally responsible behaviour. According to Rim-Rukeh and Ogbemi (2007), effective communication can help individuals understand the relationship between natural resources and the environment. Barr (2003) found that communication improved people's understanding of environmental concepts, attitudes, and waste reduction theories, which in turn improved their capacity to engage in solid waste management. Based on this assumption, Nwodu (2004) defines environmental communication as an intentional communication endeavor to educate people about environmental issues in their surroundings, persuade them to refrain from environmentally damaging behaviors, and increase their awareness of and dedication to environmental protection initiatives. According to Nwabueze (2007), communication is fundamental to environmental management, as it plays a central role in coordinating resources and fostering a collaborative approach to addressing environmental challenges. It encompasses all forms of communication designed to educate the public on environmental issues and emerging trends. This is the rationale behind why communication is so important in solid waste management. According to Rukeh and Ogbemi (2007), these functions include increasing public awareness of environmental issues and encouraging environmentally conscious behavior, particularly with regard to solid waste management. Additionally, it helps the government and its agencies identify areas that require immediate and severe attention in solid waste management. According to Macawile and Su (2009), since everyone is acknowledged as a key stakeholder in achieving a sustainable, environmentally focused endeavor, an intentional communication is necessary to engage both community leaders and the general public, helping them understand their roles, relationships, and contributions based on their perceptions and attitudes.

According to Okunna (2002), mobilization-that is, inspiring others to accomplish goals-is at the heart of effective communication. Agbanu and Nwabueze (2007) advocate for the use of traditional media in environmental management. They believe that traditional media serve as effective tools for spreading awareness and encouraging public participation, especially among rural communities, in efforts to protect and sustain the environment. Essentially, one of the most important ways that people in any given context can relate to one another is through communication. Only via communication is the essence of the environment-the coexistence of all organisms in the environment-possible and achievable. Actually, one of the most important aspects of socialization in any setting is communication (Ayantayo, 2004).

According to this study, communication is more than just exchanging information; it can also be used to modify attitudes, behaviors, and beliefs. The public views the media as a valuable source of knowledge and education. According to McQuail (2010), whenever the media has an impact, it also brings about change. Therefore, Communication has the potential to shape public perceptions on various issues. Warper (1996), as cited in Alabi (2010), highlights that, attitudes and predispositions influence how people engage with mass media. These factors play a crucial role in how information is interpreted and the extent to which it impacts individuals. Put another way, the messages we receive from themedia have an impact on how we think, create our views, and react to attitudes (Alabi, 2010). Therefore, communication can be utilized to change people's attitudes toward a welcoming atmosphere. However, messages spread by mass media may impact deeply ingrained opinions rather than alter them. Activating public efforts to modify environmental management behavior is the ultimate goal. Achieving behavioural change for effective environmental management often requires consistent and strategic efforts. A campaign of public awareness could accomplish this.

According to Nwabueze (2007), a campaign is the organizing and coordinating of a number of regular actions meant to accomplish a main goal. According to McQuail (2010), a campaign is an organized effort to employ various media over a predetermined amount of time in order to change public opinion, behavior, attitudes, and knowledge in support of a cause, individual, organization, or subject. Typically, public campaigns aim to achieve socially acceptable objectives. Accordingly, implementing particular actions to achieve an environmental goal is part of an environmental communication campaign. The primary objective is to influence behaviour and cultivate an environmentally conscious mindset. Various media, such as television and radio, could be used to promote environmental causes. For instance, radio is thought to be the most efficient, well-liked, and reliable medium for connecting with a wide range of people. It is accessible, available, and reasonably priced. It can run on a battery and requires very little reading comprehension. In developing countries like Nigeria, radio remains the most effective and

far-reaching medium for environmental communication, enabling access to a broad audience (Nwabueze, 2007).

Television is thought to have the biggest influence on viewers in the same development. Its superiority in audio-visual is the reason behind this. It makes an effect on the audience that lasts. Television can simultaneously reach a wide range of people and offer the chance to illustrate a point through visuals. A 2009 study by Banjo, Adebambo, and Dairo on residents' perceptions of household waste disposal in Ijebu Ode, Southwest Nigeria, found that radio and television were the most widely available sources of environmental information (93% and 96%, respectively). They were also the easiest to access (70% and 73%, respectively) and the most effective in raising awareness (61% and 64%, respectively). The study highlighted the significant role of mass media, particularly radio and television, in educating the public about environmental and public health concerns. Unlike print media, radio and television are often preferred due to their wide coverage and relatively low cost of access and use (Banjo et al., 2009).

Television and radio serve as influential tools for environmental communication, playing a vital role in raising public awareness about environmental challenges. Public service announcements, health programmes, radio jingles, television commercials (green advertising), and news bulletins are effective channels for educating the public on solid waste management. The extent to which broadcast media allocate airtime to environmental issues significantly influences public perception and concern for the environment. In essence, people's perspectives and attitudes towards various aspects of life are shaped by their level of exposure to media content. The degree to which an audience relies on media helps explain shifts in their beliefs, emotions, or behaviours. Consequently, frequent exposure to environmental news serves as a strong catalyst for eco-conscious behaviour, encouraging individuals to take an active interest in environmental management. Broadly speaking, much of today's environmental research focuses on the idea that human-induced problems—such as pollution, population growth, depletion of non-renewable resources, ozone layer damage, and global warming—pose significant risks to both human and non-human life. It is widely acknowledged that human behavior has been and will remain crucial in recognizing, comprehending, and addressing such issues. Thus, it may be concluded that public awareness of environmental issues raised by the media has an impact on environmental behavior.

Empirical Reviews

There is extensive research on plastic and solid waste management, providing valuable insights into public awareness and practices. For instance, Duan and Fortner (2005) found that students had a better understanding of local environmental issues than global ones. Similarly, a study by Babayemi and Dauda (2009) in Abeokuta, Ogun State, revealed that while indiscriminate waste disposal was widespread, awareness of waste collection

services and waste management laws was relatively high. Their findings also highlighted age-related differences in waste management awareness, with individuals over 30 demonstrating the highest awareness, followed by those aged 20 to 30, while those under 20 had the lowest awareness levels. A similar trend was observed in awareness of waste management legislation. Older individuals were more likely to utilise waste collection services, whereas younger adults were less informed about waste regulations.

Longe, Longe, and Ukpebor (2009) further explored age-related variations in solid waste management (SWM) awareness, suggesting that as people grow older, their understanding of household waste management improves, leading to greater public participation. Gender has also been a key factor in waste management studies. Raudsepp (2001) found that women were more likely than men to express concern about environmental issues, a difference often attributed to traditional gender roles, where women are more engaged in cleaning and household maintenance. Babayemi and Dauda (2009) reported that while awareness of SWM in Abeokuta was fairly high (35.8%), improper waste disposal methods, such as open dumping, open burning, and discarding waste in drainage systems, were more prevalent (64.2%). Their study identified social status, age, gender, and education as key factors influencing waste management awareness and practices. These findings align with those of Longe et al. (2009), who concluded that in Ojo, Lagos State, environmental health and sanitation awareness were significantly shaped by income levels, gender, and age, accounting for 62.5% of respondents' SWM behaviours.

Additionally, Ifegbesan (2009) examined environmental awareness among secondary school students in Ogun State and discovered a strong link between students' knowledge, awareness, and waste management practices, influenced by their age, sex, and class. The study emphasised that promoting waste reduction, reuse, and recycling requires changes in both behaviour and attitudes. Research has consistently shown that environmental attitudes are closely tied to public awareness, as people's perceptions of the environment can significantly shape their views and actions (Rim-Rukeh & Ogbemi, 2008).

Theoretical Review

The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) explains the relationship between attitudes and beliefs, as outlined by Ajzen and Fishbein (1980). According to Ifegbesan (2009), this theory suggests that an individual's behavioural intentions and attitudes are closely linked. For instance, if a person believes a particular action will yield favourable results, they are more likely to have a positive attitude toward performing that behaviour. TPB asserts that personal motivation—shaped by attitudes, beliefs, social support, and perceived behavioural control—determines an individual's actions.

The theory is widely applied in environmental psychology, as environmentally friendly behaviours are often framed as socially desirable actions. However, while individuals may have the

intention to adopt sustainable practices, certain constraints—such as the belief that their actions will have little impact—can weaken their perceived behavioural control. For example, if a person wants to recycle but faces limited access to recycling facilities, their perceived behavioural control is low, and the likelihood of engaging in the behaviour decreases. By applying TPB, researchers can better understand contradictions between pro-environmental attitudes and unsustainable behaviours. The model effectively predicts human behaviour by demonstrating how individuals assess the likelihood of an action leading to a desired outcome, with their evaluations directly influenced by their subjective beliefs (Wikipedia, 2011).

Due to its effectiveness in understanding, explaining, and predicting behaviour, TPB has been widely used as a framework in studies aiming to develop interventions for modifying or sustaining behaviours (Ifegbesan, 2009). Environmental behaviour research has extensively applied TPB to predict an individual's intention to engage in sustainable practices (Gamba & Oskamp, 1994; see also Ifegbesan, 2009:202 for additional references). The theory highlights how people's behaviours influence their environmental perceptions. In this context, environmental radio campaigns can play a critical role in shaping attitudes toward environmental conservation.

In relation to waste management, TPB underscores that an individual's intention to engage in environmentally friendly behaviour is fundamental to fostering behavioural change. This aligns with the concept of responsible environmental behaviour, which involves conscious efforts by individuals or groups to protect the environment through appropriate actions. Broadcast media play a crucial role in instilling positive environmental attitudes among residents. Through participation in regular solid waste management (SWM) programmes, individuals can reshape their beliefs and attitudes toward waste reduction. Furthermore, media campaigns have the potential to stimulate public interest in adopting responsible waste management practices, reinforcing the importance of sustainable environmental behaviour.

Value Change Theory

This approach employs the 'comparative feedback' technique to influence behaviour and attitudes (Folarin, 2005). The principle behind this technique is rooted in value change theory, which suggests that instead of merely educating individuals about the positive or negative consequences of specific behaviours, people are encouraged to compare their own values with those that are considered more socially acceptable. Since values shape attitudes, which in turn influence behaviour, a change in values is expected to lead to corresponding shifts in attitudes and actions.

A critical aspect of this approach is ensuring that individuals are fully aware of how their current values are ranked. This is where the broadcast media play an essential role in informing and educating the public. For instance, media platforms can raise awareness about actions that threaten environmental sustainability, prompting

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VOL.14 (2), January-April, 2025 https://ajemates.org

individuals to reassess their behaviours. The concept of the 'value-action gap' refers to the inconsistency between an individual's stated environmental concerns and their actual behaviour. In the context of environmental management, this gap highlights the difference between what people claim to support and what they actually do in practice.

The relevance of this theory to the study lies in its assertion that a shift in attitudes and a heightened appreciation for the environment will ultimately lead to improved environmental behaviour. To achieve this, residents must refrain from environmentally harmful actions and instead adopt values and behaviours that align with sustainable practices. Essentially, effective environmental management begins with self-awareness regarding the significance of the environment. Broadcast media programmes on solid waste management can serve as powerful tools for promoting environmental ideals and reshaping public values. The relationship between attitudes and human behaviour has been an area of interest among researchers for many years. By leveraging broadcast media as an educational tool, individuals can be encouraged to adopt environmentally responsible behaviours, thereby bridging the value-action gap and fostering a culture of sustainable environmental practices.

Methodology

This study employed the survey research method, as it focuses on investigating human populations. A survey is particularly useful when dealing with a large population, especially in cases that require the systematic collection of data through questionnaires (Bello & Ajayi, 2000). The target population for this study comprised all individuals residing in the Southeast geopolitical zone of Nigeria, which consists of five states. However, studying the entire zone would be impractical due to its vast coverage. To ensure manageability while maintaining representativeness, a random selection of three states—Abia, Ebonyi, and Enugu—was made to serve as a sample for the study.

According to the 2006 population census by the National Population Commission (NPC), the population of the selected states are:

State	POPULATION
Abia	2,833,999
Ebonyi	2,176,947
Enugu	3,267,837

The total population was recorded as 8,278,783. However, this figure does not accurately represent the current population. To estimate the present population, the annual population growth rate projection was applied to calculate the population of the selected states over a fifteen-year period. Using the straight-line formula, the estimated population was determined as follows:

$N1 = N0 (1 + K n)$

Where N1 = Current population at a given growth rate as of 2025.

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Where N0 = Census figure as of 2006.
K = Growth rate.
N = Number of years after last census

Thus, Population of Abia state

N0 = 2,833,999
K = 0.032% or 3.2%
n = 15
N1 = 2,833,999 (1 + 0.032 x 19)
= 2,833,999 (1 + 0.608)
= 2,833,999 (1.608)
= 4,557,070

Population of Ebonyi state

N0= 2,176,947
K = 0.032% or 3.2%
n = 15
N1 = 2,176,947 (1 + 0.032 x 19)
= 2,176,947 (1 + 0.608)
= 2,176,947 (1.608)
= 3,500,530

Population of Enugu state

N0 = 3,267,837
K = 0.032% or 3.2%
n = 15
N1 = 3,267,837 (1 + 0.032 x 19)
= 3,267,837 (1 + 0.608)
= 3,267,837 (1.608)
= 5,254,681

Therefore, **13,312,281** would become the population for the study.

Sample Size

This study utilised a sample size of 385 respondents, determined using the Australian Calculator provided by the National Statistics Service (NSS). A multi-stage sampling technique was employed for the study. First, the simple random sampling technique was used to select three states: Abia, Ebonyi, and Enugu. Thereafter, the stratified sampling technique was applied to divide the selected states into senatorial zones as follows:

- Abia State: Abia North, Abia Central, and Abia South
- Enugu State: Enugu North, Enugu East, and Enugu South
- Ebonyi State: Ebonyi South, Ebonyi North, and Ebonyi Central

Subsequently, one local government area (LGA) was randomly selected from each senatorial zone:

- Abia State: Ohafia (Abia North), Ukwa West (Abia South), and Isiala Ngwa South (Abia Central)
- Ebonyi State: Afikpo (Ebonyi South), Abakaliki (Ebonyi North), and Ezza North (Ebonyi Central)
- Enugu State: Udi (Enugu South), Enugu East (Enugu East), and Igbo Eze North (Enugu North)

Finally, one town was randomly selected from each of the chosen local government areas to ensure comprehensive representation in the study.

An accidental sampling technique was employed to select the respondents who completed the questionnaire. The questionnaire served as the primary instrument for data collection in this study. To ensure its validity, professionals conducted face and content validation, identifying and correcting errors in the questionnaire. For research findings to be valid, both the data

collected and the processes used must be reliable. Reliability and validity often go hand in hand in research. This study ensured reliability by employing a multiple forms technique to assess the consistency of the measuring instrument. The research instrument was self-administered by the researcher with the assistance of three trained research assistants. This approach was considered effective as it facilitated a faster and higher response rate while also allowing the assistants to provide clarification to respondents where necessary. Both qualitative and quantitative methods were used in data analysis. The qualitative method provided interpretation and context for the data, while the quantitative method involved analysing the data using frequency distribution tables.

Presentation and Analysis of Data

This study there set out to examine the effectiveness of radio campaigns in combating plastic waste pollutions in southeast Nigeria. The questionnaire was circulated in 385 copies, however only 365 were used for the study. Each study topic was addressed by the analysis of the gathered data. Therefore, the thoughts and views of the respondents were displayed using frequency distribution tables in psychographic data. In this study, 365 of the 385 questionnaires were used for analysis. The study of the demographic data revealed that there were more female respondents than male respondents. In the survey, there were 221 (61%) female respondents and just 144 (39%) male respondents. This indicates that more women than men completed the questionnaire.

According to the respondents' age distribution, 41% of them were between the ages of 39 and 48. 27% of respondents who were between the ages of 29 and 38 came next. This result suggests that the majority of responders are adults. Sixty-one percent of the respondents are married, according to the marital status distribution. This suggests that the vast majority of those surveyed are interested in getting married.

According to the respondents' occupational distribution, the bulk of them-137, or 38%-are in the business sector. This is not shocking because prior research indicates that the majority of respondents are married and mature adults. According to the respondents' educational backgrounds, 51% of them hold an FSLC. This indicates that the majority of respondents' greatest level of education is a primary school diploma.

Research question one: What is the southeast residents' attitude towards plastic pollution management through campaigns by radio.

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Attitude of residents

S/N	ITEMS	SA	A	U	D	SD	Total
A	Burn one-time-use plastic after use	21 (6%)	46 (12%)	163 (45%)	78 (21%)	57 (16%)	365 (100%)
B	Take plastic wastes to recycling plants	91 (25%)	61 (17%)	30 (8%)	142 (39%)	41 (11%)	365 (100%)
C	Dump waste in a secluded or unauthorised spot away from the community	27 (7%)	126 (35%)	45 (12%)	112 (31%)	55 (15%)	365 (100%)
D	paid private waste collectors (PWC) to collect their waste to dump site for them	91 (25%)	134 (37%)	42 (11%)	51 (14%)	47 (13%)	365 (100%)

Research question two: What is the extent to which the radio campaigns contribute towards enlightenment of plastic pollution management in southeast?

S/N	ITEMS	SA	A	U	D	SD	Total
A	there had been regular enlightenment campaigns on SWM by radio stations	125 (34%)	114 (31%)	35 (9%)	43 (12%)	48 (13%)	365 (100%)
B	Radio stations have contributed towards plastic waste management through enlightenment campaigns.	93 (25%)	144 (39%)	41 (11%)	35 (10%)	52 (14%)	365 (100%)
C	Were you satisfied at the extent of public awareness campaigns by the broadcast media on plastic waste	95 (26%)	121 (33%)	87 (24%)	62 (17%)	95 (26%)	365 (100%)

Research question three: Find out how residents of Southeast states perceive the roles of the radio campaigns in combating plastic waste management

S/N	ITEMS	SA	A	U	D	SD	Total
A	I have been influenced by the broadcast media enlightenment campaigns on plastic waste management	154 (43%)	91 (24%)	50 (14%)	29 (8%)	41 (11%)	365 (100%)
B	The role of the broadcast media in terms of enlightenment campaigns on solid waste management was educative.	147 (40%)	105 (29%)	61 (17%)	32 (9%)	20 (5%)	365 (100%)
C	The role of the broadcast media enlightenment campaigns on plastic waste management was helpful	135 (37%)	115 (32%)	19 (5%)	45 (12%)	51 (14%)	365 (100%)
D	The radio has been proactive in terms of enlightenment campaigns on plastic waste management.	125 (34%)	84 (23%)	78 (21%)	80 (22%)	78 (21%)	365 (100%)

Discussion of Findings

The findings in answer to the first research question showed that residents' opinions on solid waste management practices were unfavorable and insufficient for the establishment of a sustainable environment. Many of the respondents still believe that everyday economic survival is a more pressing priority than trash management. Overall, the findings suggest that respondents' attitudes toward solid waste management are not sustainable. In other words, a large number of respondents have not approached the problem of solid waste management with seriousness or care. For instance, there was a negative attitude toward waste management overall, as evidenced by the garbage containers utilized, waste disposal, and recycling. Thus, it was assumed that residents had a negative attitude regarding solid waste management. Waste is still seen by many as not being an immediate problem, and environmental concerns were not taken seriously. Many residents' attitudes lacked self-consciousness about the environment, which is the first stage in environmental management.

This indicates that, albeit not significantly, the broadcast media have helped with solid waste management through their education programs. The aforementioned results, however, are in conflict with those derived from the schedules of nine broadcast stations. It was clear from the data gathered from these stations that there had been very little, if any, broadcast media enlightenment campaigns about environmental management and information. These campaigns were also insufficient to shift attitudes. Regular programming on environmental management is only available on five stations, and it airs once a week. This was insufficient as well. When compared to the various programs in each of the stations under investigation, a percentage analysis revealed that only 16.5% came from all environmental programs. This was really subpar and had no bearing on changing attitudes. While entertainment, religious, and social programs dominate almost every station's schedule under review, there were very few that regularly ran educational campaigns on environmental management. In every program schedule that was obtained, entertainment, religious, and social programs predominated.

Notably, those respondents who said they had been affected were asked to describe how. Based on the numerous comments, it was concluded that broadcast media's education efforts on plastic waste management had raised awareness of proper waste management attitudes, hygiene practices, waste reduction practices, and interest in recycling garbage. This indicates that the radio campaigns made an effort to influence the public's behaviour toward plastic waste management in a favorable way, but only in the event of a disease outbreak or natural disaster. It is generally believed that the radio campaigns can only encourage and convince people to act morally; it cannot compel them to change. People do have differing opinions on radio campaign's efforts to educate the public about plastic waste management, but they can only influence people to adopt a more positive outlook rather than imposing their

will on them. Respondents consistently perceived radio enlightenment campaigns on plastic waste management as adequate for promoting sustainable environmental development. Access to environmental information enables individuals to fully understand the implications of their activities on the environment, thereby enhancing their ability to participate effectively in decision-making processes that impact environmental sustainability.

Conclusion

One of the biggest environmental issues Nigeria has been the management of plastic garbage. It was necessary for the radio to implement enlightenment programmes in order to foster a positive attitude toward the residents. The study found that there were radio campaigns that adequately educated the public about environmental challenges in general and plastic waste in particular. Plastic waste management was seen negatively, and attitudes were positive due to radio campaigns for long-term environmental growth.

Recommendations

Based on the facts and discussion above, the study suggests:

1. Frequent public education on environmental issues
2. Private waste collection and disposal
3. Enforcing environmental laws and policies strictly

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