Role of Communication Strategies in Promoting Awareness and Adoption of Plastic Waste Management Practices in Anambra State, Nigeria

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Abstract
Plastic waste proliferation has emerged as a persistent environmental challenge in Nigeria, and in particular Anambra State, despite government communication campaign efforts to control the menace. This situation raises concerns about the effectiveness of communication interventions aimed at promoting sustainable waste management behaviours among residents. This study examined government communication strategies in creating awareness and influencing the adoption of plastic waste control practices among residents of Anambra State, Nigeria. Anchored on Persuasive Communication Theory, the study adopted a quantitative survey design, with residents across the state constituting the target population. Data were collected from a sample of 389 respondents using a structured questionnaire and analysed through descriptive statistical techniques. The findings indicate that residents' exposure to government communication messages on plastic waste control is largely intermittent, with mass and digital media particularly social media, radio, and billboards emerging as the dominant channels of message dissemination. Although the communication strategies were generally perceived as moderately effective in raising awareness, this awareness did not translate into widespread adoption of positive plastic waste control practices, as non-compliance remained prevalent across most behavioural indicators. The results suggest a disconnect between message exposure and behavioural outcomes, pointing to limitations in the persuasive strength, contextual relevance, and integration of existing communication channels. The study therefore underscores the need for more strategically coordinated, audience-centred, and context-sensitive communication approaches that integrate credible interpersonal channels with mass media to enhance plastic waste control practices and environmental sustainability in Anambra State.

Keywords: Communication strategies; awareness; plastic waste control; Anambra State; Nigeria

Introduction

Plastic waste pollution has emerged as one of the most pressing environmental challenges of the 21st century, threatening ecosystems, human health, and sustainable development across the globe. From the widespread use of single-use plastics to their persistent presence in marine and terrestrial environments, the scale of the crisis is staggering. According to the Organisation for Economic Co-operation and Development (2024), without decisive action, global plastic production is projected to triple by 2040, potentially exacerbating ecological pressures and waste burdens. The World Economic Forum (2022) cautions that, at the current rate, plastic waste could outweigh fish in the oceans within the next few decades, underscoring the urgency of the situation.

In Nigeria, the problem is equally alarming. With increasing urbanisation and consumerism, plastic waste has overwhelmed waste management infrastructure in major cities and semi-urban centres (Kehinde et al., 2020). Nigeria is estimated to generate approximately 2.5 million tonnes of plastic waste annually, ranking among the highest contributors to plastic pollution globally (Yalwaji et al., 2022). Despite various government initiatives and interventions by non-governmental organisations including public sensitisation campaigns, clean-up drives, and recycling programmes the challenge of plastic waste control in Nigeria persists. Over the years, media platforms have been employed to raise awareness about the dangers of plastic pollution; however, widespread and sustained behavioural change remains elusive.

This national reality is reflected in Anambra State, where the proliferation of plastic waste is visible along rivers, drainage systems, markets, and rural roads. Despite being rich in human and natural resources, the state grapples with mounting plastic waste that endangers biodiversity, public health, and aesthetics (Agu, 2021; Chidiebere & Nwachukwu, 2021). While awareness efforts have been made through environmental campaigns and community outreach, the impact has been limited suggesting a critical gap in the effectiveness of communication approaches. This highlights the need for a re-evaluation of how communication strategies are designed and deployed. A communication strategy can be understood as a deliberate plan that utilises appropriate channels, messages, and methods to influence target audiences towards desired behavioural outcomes. More than just disseminating information, effective communication strategies integrate audience analysis, cultural sensitivity, stakeholder engagement, and message framing to provoke attitudinal and behavioural shifts (Uche & Njoku, 2019). In the case of plastic waste management, communication strategies have the potential to educate, persuade, and mobilise individuals and communities to reduce plastic use, adopt sustainable alternatives, and support policy reforms.

Research has shown that well-crafted, context-specific narratives are essential for stimulating public engagement and action. For instance, messages that reflect local customs, identities, and languages are more likely to resonate with audiences and foster a sense of ownership (Obiakor, 2020; Nnanna, 2021). Furthermore, participatory approaches that involve community leaders, educators, and grassroots influencers have been shown to enhance the credibility and relevance of environmental messages (Eze, 2022). Despite these insights, there remains a paucity of empirical understanding regarding how communication strategies applied in Anambra State has contributed to plastic waste management. Against this backdrop the current study was conducted.

Statement of the Problem

The rapid proliferation of plastic waste in Anambra State persists despite the deployment of various communication-based interventions aimed at mitigating the problem. Existing literature recognises communication as a critical tool for raising environmental awareness, shaping pro-environmental attitudes, and encouraging responsible waste-management behaviours (Okoro, 2022; Nwankwo, 2023). However, the sustained accumulation of plastic waste across the state suggests a disconnect between communication efforts and actual behavioural outcomes. This persistence is particularly concerning given the well-documented environmental and public health consequences of plastic pollution, including ecosystem degradation and increased exposure to health risks (Agu, 2021; Chidiebere & Nwachukwu, 2021).

Although prior studies have extensively examined the environmental and health impacts of plastic waste in Nigeria, there remains a notable gap in empirical research focusing on the effectiveness of communication strategies as instruments for behavioural change in Anambra State (Emeka, 2023; Nnamdi, 2022). In particular, limited attention has been paid to how

communication approaches are designed, the extent to which they resonate with local contexts, and their capacity to translate awareness into sustained behavioural change. This gap constrains evidence-based policy formulation and the development of targeted communication interventions. Addressing this limitation, the present study investigates the role of communication strategies in creating awareness and promoting behavioural change towards plastic waste control among residents of Anambra State, with the aim of identifying existing gaps, challenges, and opportunities for improving communication-driven environmental governance.

Objectives of the Study

This study aims to investigate the role of communication strategies in creating awareness of plastic waste control among residents of Anambra State. Specifically, the objectives of the study are to:

1. identify the communication strategies employed in creating awareness of plastic waste control in Anambra State;
2. ascertain the effectiveness of government communication strategies in promoting awareness of plastic waste control among residents of Anambra State;
3. evaluate the effectiveness of government communication strategies in promoting the adoption of positive plastic waste control practices among residents of Anambra State; and

Review of Concepts

Communication Strategies

Communication serves as the bedrock of human interaction, underpinning societal structures and shaping cultural narratives. Wood (2020) defines communication as "the process through which individuals assign meaning to experiences, using verbal and non-verbal symbols to convey thoughts, expressions, and emotions." Similarly, McQuail and Windahl (2019) describe communication as "the transmission of information and meanings from one individual or group to another," encompassing various forms and modalities, including spoken words, written symbols, gestures, and facial expressions. The concept of a communication strategy forms a foundational principle in achieving effective interpersonal and organisational interactions. A communication strategy may be understood as a deliberate plan that outlines how information is to be conveyed and received between parties. This plan involves selecting appropriate channels, crafting messages, and adopting formats suited to specific audiences or objectives, thereby facilitating meaningful and effective exchanges (Smith, 2020). Communication strategies incorporate a blend of verbal and non-verbal components to shape understanding, enhance engagement, and achieve intended outcomes (Jones & Taylor, 2022). Moreover, strategically executed communication can influence perceptions, build relationships, and inspire action in both personal and professional settings.

According to Shadrach, Eimoga, and Gaya (2024), a communication strategy entails the intentional planning and structured methods employed by individuals or organisations to convey messages effectively to targeted audiences. These strategies provide a guiding framework for crafting, delivering, and interpreting messages with the goal of ensuring clarity, relevance, and impact. Developing an effective communication strategy requires a multifaceted approach that considers audience characteristics, contextual factors, and the appropriate medium of transmission. The interplay of these factors determines not only the content but also the delivery style, thereby capturing the audience's attention and reinforcing the intended purpose. Most scholars emphasise the need to tailor messages to the demographic and psychological attributes of the audience, as this significantly affects how messages are received and interpreted.

Plastic Waste

The term “plastic” is derived from the word “pliable”, meaning "easily shaped." Plastics are synthetic materials that can be moulded into various forms to suit a wide range of functions. The global production of plastic waste has increased significantly due to rapid industrialisation and population growth (Evode et al., 2021). Owing to their unique physical and chemical properties, plastics have become an essential commodity globally, with applications spanning various industrial and commercial sectors (Frienkel, 2020). While plastics serve vital roles in everyday life across communities, their post-use management poses serious environmental concerns if not properly handled. Improper disposal of plastic waste contributes to a variety of environmental hazards, including the blockage of drainage systems in urban areas and the degradation of natural habitats (Gu, 2021). Additionally, plastic waste can release toxic substances into the soil as it breaks down chemically over time. It therefore implies that the dangers of plastic waste is multifaceted, as demonstrated in the chart below.

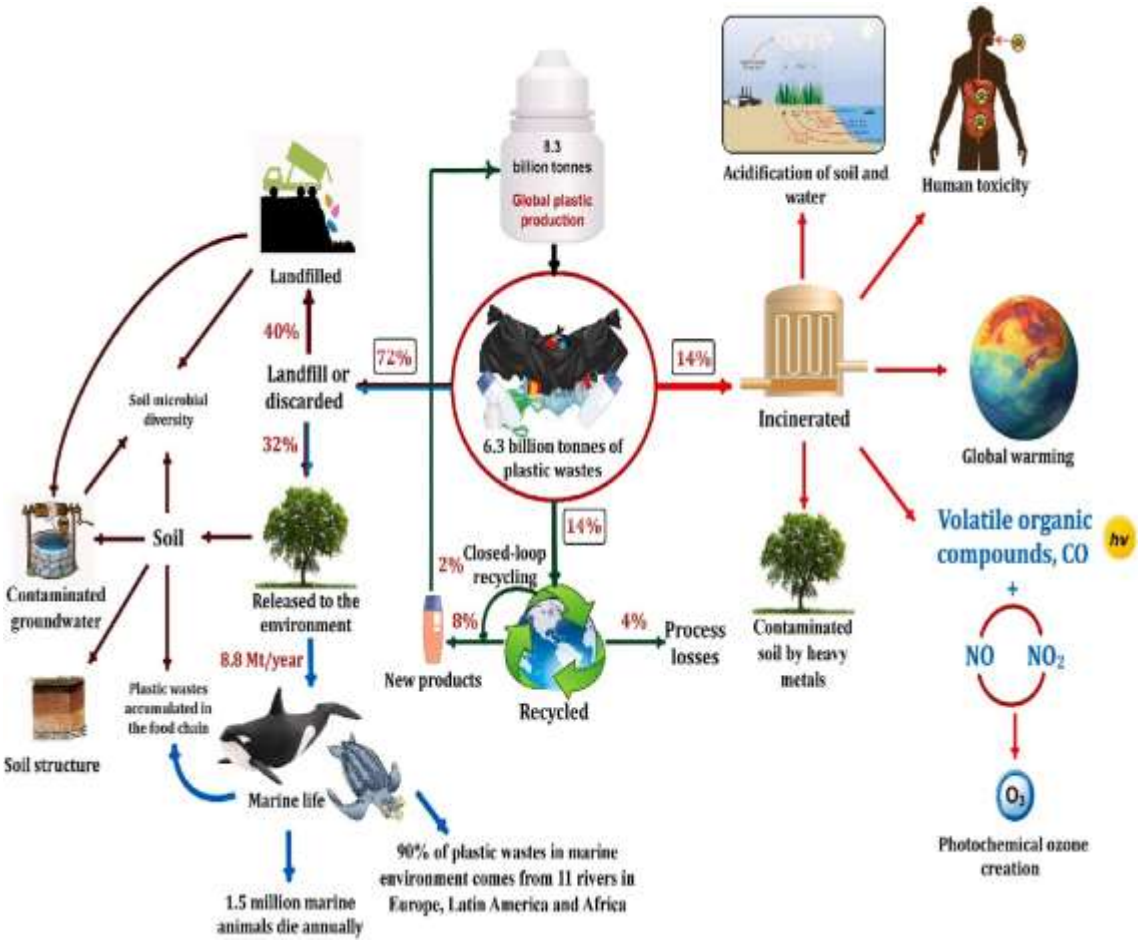

Fig. 1. Illustration of the fate of plastic materials with harmful impacts on the eco-system
Source: Ali et al., 2021

Plastic waste control

To address the challenges posed by plastic waste, several environmental safety regulations and waste management strategies have been established to guide the proper disposal of plastic waste. Among the key strategies are recycling, incineration, bioremediation, and landfill use.

Recycling involves collecting used plastics and converting them into raw materials for new products. This process, often referred to as "renewing" or "reusing," helps minimise environmental pollution, conserves natural resources, requires less energy, and reduces the demand for fossil fuels. Furthermore, recycling contributes to sustainable living and supports economic development. Despite these benefits, only about 9% of global plastic waste is recycled, while approximately 80% ends up in landfills or the natural environment (Gourmelon, 2015). Incineration is another method of plastic waste disposal, which involves burning plastic materials in the presence of oxygen a process known as complete combustion. This process releases carbon dioxide and water vapour into the atmosphere (Shome, 2021). However, the by-products of incineration may include volatile chemicals, ash, and small quantities of hydrochloric acid. Not all types of plastic are suitable for incineration, as some resist combustion or pose explosion risks. Therefore, incineration is not universally applicable for all categories of household plastic waste.

Land filling, a more conventional method, involves the manual disposal of plastic waste in designated areas to prevent contamination of the surrounding environment, including soil and water bodies. While landfills serve the purpose of isolating waste, they must be properly managed to prevent secondary issues such as groundwater pollution and soil degradation (Zheng, Yanful, & Bassi, 2005). Another emerging method is pyrolysis, which involves the thermal decomposition of plastic waste in the absence of oxygen to recover petrochemicals and generate hydrocarbons. This method is particularly effective for converting plastic into renewable energy sources (Sharuddin et al., 2016). Although these plastic waste management techniques have been developed to promote a cleaner environment, their success largely depends on public awareness and understanding. Effective communication plays a crucial role in educating the population about proper waste disposal practices and encouraging behavioural change necessary for sustainable environmental management.

Review of Empirical Studies

Extant literature consistently affirms the centrality of communication in shaping environmental awareness and pro-environmental behaviour, particularly within the context of waste management. However, much of the existing literature reveals conceptual, methodological, and contextual limitations that constrain the generalisability and practical utility of findings, especially in sub-national settings in Nigeria. Ogbu and Ezeah (2025) examined the effectiveness of radio campaigns in addressing plastic waste pollution in Abia, Ebonyi, and Enugu States, employing Value Change Theory and the Theory of Planned Behaviour. Their survey-based findings demonstrate that radio campaigns improved public awareness and attitudes towards plastic waste management. While theoretically grounded, the study largely equates attitudinal change with behavioural outcomes, offering limited empirical evidence of sustained behavioural transformation. Moreover, its mono-media focus on radio overlooks the growing relevance of integrated and digital communication strategies in contemporary environmental campaigns.

Similarly, Okeke et al. (2024) analysed communication strategies within Public–Private Partnership (PPP) arrangements for waste management across selected Nigerian cities, drawing on Social Marketing Theory. The study identifies targeted outreach and community engagement as critical drivers of behavioural change. However, its reliance on secondary data and qualitative synthesis limits causal inference. In addition, the study conceptualises waste management broadly, without isolating plastic waste as a distinct environmental challenge requiring tailored communication interventions. Olukanwi et al. (2025) investigated media advocacy and waste management attitudes in Port Harcourt, guided by Diffusion of Innovations and Agenda-Setting theories. Their findings reveal a disconnect between media advocacy and sustained waste

management behaviour, with respondents perceiving environmental reportage as largely ineffective. While this study provides critical insights into media limitations, it does not sufficiently examine message framing, campaign coherence, or plastic-specific advocacy strategies.

Furthermore. Nwafor (2025) offers a more context-specific analysis by examining audience perceptions of ABS Facebook messages on solid waste management in Anambra State. The study reports positive audience perceptions and behavioural compliance following exposure to the messages. However, its focus on a single platform and on solid waste generally limits deeper understanding of cross-platform synergy, message consistency, and plastic-focused communication outcomes. Similarly, Chinwe and Nze (2022) explored digital media messaging on plastic waste pollution in Enugu State and found low levels of environmental information literacy among residents. While the study rightly highlights infrastructural and policy deficits as key contributors to indiscriminate plastic disposal, it under-theorises the strategic role of government communication in mitigating these barriers through sustained and coordinated messaging.

Additionally, Onyike (2025) examined behavioural shifts resulting from environmental campaigns in Cross River and Anambra States, identifying improvements in sanitation and waste disposal practices. However, the study adopts a broad sustainability framework that dilutes its analytical focus on plastic pollution communication, thereby limiting its contribution to plastic-specific environmental discourse. Corroborating, Okon and Emanuel-Okogbule (2025) assessed communication strategies employed by waste management agencies across six Nigerian states using a mixed-methods approach. Although the study establishes the existence of multi-channel communication strategies, it reveals weak strategic alignment and poor adherence to communication best practices. Its national-level scope, however, masks state-specific variations and does not empirically link communication strategies to behavioural outcomes related to plastic waste.

Beyond the Nigerian context, Sedek's (2021) experimental study provides compelling evidence on the effectiveness of audience-segmented social media campaigns in enhancing awareness and reducing unsustainable plastic use. The study's methodological strength lies in its pre- and post-exposure design and segmentation approach. Nonetheless, the findings are situated within a non-African media ecosystem characterised by higher digital literacy and institutional capacity, thereby raising concerns about contextual transferability to Nigerian states with uneven media access and infrastructural constraints. In the same vein, Borg et al. (2021) further advance the discourse by adopting a behaviour-based segmentation framework informed by the Theory of Normative Social Behaviour. Their identification of "Plastic Avoiders" and "Plastic Users" underscores the differentiated impact of environmental media messages across audience segments. While theoretically insightful, the study's developed-country focus limits its applicability to contexts where environmental behaviour is shaped not only by norms and self-efficacy but also by systemic governance and communication deficits. At a macro level, Vu et al. (2023) utilised Eurobarometer data from 27 European countries to demonstrate that diversity in environmental news consumption positively influences policy support and green behaviours related to plastic waste. Although methodologically robust, the study's dependence on secondary data from advanced democracies restricts its relevance to Nigeria, where media pluralism, trust, and environmental governance structures differ markedly.

Prior studies above, demonstrate that while communication is widely recognised as essential to environmental sustainability, existing research is characterised by overgeneralisation

of waste categories, limited focus on plastic-specific communication, insufficient integration of multi-platform strategies, and weak empirical linkage between communication exposure and sustained behavioural change. Moreover, there is a noticeable scarcity of state-level, government-focused studies that critically evaluate communication strategies within the socio-cultural and media realities of southeastern Nigeria. Accordingly, the present study addresses these gaps by examining government communication strategies on plastic waste management in Anambra State.

Theoretical Framework

The study is anchored on the Persuasive Communication Theory. The theory was developed through the Yale Communication and Attitude Change Programme led by Hovland and colleagues, provides a robust framework for understanding how strategically designed messages influence attitudes and behaviours (Hovland, Janis, & Kelley, 1953). The theory conceptualises communication as a purposive process in which message effectiveness depends on the interaction between four key elements: the source, the message, the channel, and the audience. Rather than merely transmitting information, persuasive communication seeks to shape perceptions, modify beliefs, and motivate behavioural change.

Central to Persuasive Communication Theory is the assumption that attitudes are malleable and can be influenced through messages that engage cognitive, emotional, and social dimensions of decision-making. The effectiveness of persuasion is contingent upon factors such as the credibility and relatability of the communicator, the framing and emotional appeal of the message, and the audience's level of involvement and motivation (Perloff, 2020). The theory further distinguishes between central and peripheral routes to persuasion, suggesting that audiences who are highly motivated are more likely to respond to logical, evidence-based arguments, while less-engaged audiences may be influenced through emotional cues or symbolic representations. This dual-process perspective is particularly useful in contexts characterised by varying levels of environmental awareness and literacy, such as Anambra State.

Owing to its extensive application in health communication, political messaging, advertising, and environmental advocacy, the theory offers a relevant analytical lens for examining communication strategies aimed at addressing plastic waste proliferation in Anambra State. Applied to plastic waste control in Anambra State, Persuasive Communication Theory underscores the importance of context-sensitive communication strategies that resonate with local realities. This include the use of credible sources, including community leaders and trusted local figures, accessible channels, language of communication among others These strategies can enhance message acceptance and be extension influence positive attitude toward plastic waste control in the state.

Research Methodology

This study adopted a quantitative research design, employing a survey method to examine the role of communication strategies in raising awareness about plastic waste control among residents of Anambra State. The target population comprised 5,953,500 residents of the state. A multistage sampling technique was employed to ensure representativeness, resulting in a sample of 389 residents selected from different local government areas. Data were collected using a structured questionnaire organised into five sections, designed to measure residents' exposure to communication strategies, levels of awareness, and adoption of plastic waste control practices.

The validity of the research instrument was established through expert review, pilot testing, and alignment with relevant constructs identified in the literature. Reliability was assessed using the test–retest method, yielding a Spearman's rank correlation coefficient of 0.7. Questionnaire administration was used for data collection, and the data were analysed using the Statistical

Package for the Social Sciences (SPSS) to generate descriptive statistics for addressing the study objectives.

Data Presentation and Analysis

Table 1. Demographic Variables

Variables	Items	Frequency	Percentage
Age bracket	18 – 25	73	19
	26 – 35	137	35
	36 – 45	91	23
	46 – 55	65	17
	56 and above	23	6
	Total	389	100
Gender	Male	225	58
	Female	164	42
	Others	0	0
	Total	389	100
Education	No formal education	3	1
	Primary education	61	16
	Secondary education	165	42
	Tertiary education	117	30
	Postgraduate	43	11
	Total	389	100
Occupation	Student	95	24
	Employed (Public Sector)	52	13
	Employed (Private Sector)	62	16
	Self-Employed	38	10
	Unemployed	142	37
	Total	389	100
Religion	Christian	363	93
	Islam	2	1
	African Traditional Religion	24	6
	Atheist	0	0
	Total	389	100
Marital status	Single	182	47
	Married	176	45
	Divorced	10	3
	Widowed	21	5
	Total	389	100

Source: Field Survey, 2025

Table 1 presents the demographic profile of respondents, revealing a predominantly young and educated population. The largest age group (35%) was between 26–35 years, with 54% under 36, indicating a youthful sample. Males constituted 58% of respondents, while females made up 42%, showing a moderate gender imbalance. Educationally, 42% had secondary education, 30% had tertiary education, and only 1% had no formal education, reflecting a generally literate group. Unemployment was notably high at 37%, compared to 24% who were students, suggesting economic pressures among the youth. Christians made up 93% of the sample, showing religious homogeneity, while marital status was nearly evenly split 47% single and 45% married. These demographics highlight a young, male-dominated, and mostly educated population facing employment challenges, typical of the community under study.

Table 2. Residents' reported levels of exposure to government communication messages on plastic waste control

Responses	Frequency	Percentages
Very often	47	12.1%
Often	49	12.6%
Occasionally	148	38.0%
Rarely	57	14.6%
Never	88	22.6%
Total	389	100

Source: Field Survey, 2025

The respondents were asked to indicate the their frequency of exposure to government campaign messages communication Table 2 shows the levels of residents' exposure to government communication messages regarding plastic waste control in Anambra State. Table 2 above show the results which indicate that the largest proportion of respondents (38%) reported occasional exposure**,** suggesting moderate engagement with the campaigns. About 12.6% of residents reported being exposed often**,** while 12.1% indicated very often reflecting a segment that is highly attentive to the messages, and another 14.6% reported rare exposure, highlighting variability in message reach across the population. a significant fraction (22.6%) stated they never encountered the messages, indicating that most residents have at least some exposure but there remains a number of residents that have not heard about plastic control messages. The result implies that government communication strategies have reached a substantial portion of the population but occasionally.

Table 3. Residents' reported communication strategies for accessing plastic waste control messages

Responses	Frequency (n=301)	Percentage (%)
Social media	152	50.5
Radio	121	40.2
Television	78	25.9
Newspaper/magazines	32	10.6
Workshops/seminars	26	8.6
School	21	7.0
Flyers/Posters	31	10.3
Town criers	20	6.6
Billboard	101	33.6
Family members and Peers	17	5.6
Government Environmental officers	45	15.0
Religious gathering or leaders	2	0.7
Health officials	16	5.3
Traditional/community leaders	21	7.0

Source: Field Survey, 2025

The respondents were further asked to identify the sources of information they accessed plastic waste control campaign messages of Anambra State government. Based on the result in Table 3 above, there is significant variations in the channels through which residents access plastic waste control messages, highlighting the dominance of digital and broadcast media in shaping public awareness. The high reliance on social media (50.5%) and radio (40.2%) suggests that these platforms are more effective in reaching a broad audience, likely due to their accessibility, frequency, and immediacy, compared to traditional print media or interpersonal channels. Specifically, billboards (33.6%) and television (25.9%) also play substantial roles, indicating that visual media complement digital and audio platforms in reinforcing message exposure. In contrast, interpersonal and community-based channels including family and peers**,** schools**,** health officials,

and traditional leaders recorded minimal engagement (7.6–0.7%), while religious gatherings and town criers were scarcely utilised, pointing to underexploited avenues for behaviourally targeted communication. This pattern suggests that, although government messaging has achieved broad reach through mass and digital media, the limited use of context-specific, trust-based channels may constrain deeper engagement and adoption of positive plastic waste management behaviours.

Table 4. Residents' perceptions of the effectiveness of communication strategies in promoting plastic waste control awareness

Responses	Frequency	Percentages
Very effective	23	7.6
Effective	61	20.3
Moderately effective	192	63.8
Ineffective	20	6.6
Very ineffective	5	1.7
Total	301	100

Source: Field Survey, 2025

The respondents were further asked to rate the effectiveness of the Anambra State governments of communication strategies in promoting plastic waste control awareness. The result in Table 4 indicate that the majority of respondents (63.8%) perceived the strategies as moderately effective**,** suggesting that while the communication efforts have had some impact, they may not be sufficiently strong or consistent to drive high levels of awareness. Approximately 20.3% and 7.6% of residents rated the strategies as effective and very effective, respectively, highlighting a segment of the population that recognises the positive contribution of these messages. However, a minority of respondents considered the strategies ineffective (6.6%) or very ineffective (1.7%). These results suggest that government communication initiatives in creating awareness about plastic wast control in Anambra state have achieved partial success.

Table 5. Response of residents according to adoption of plastic waste control practices

Plastic Waste Control Practices	Yes	No
Avoiding indiscriminate disposal of plastic waste	101 (33.6%)	200 (66.4%)
Sending plastic waste to recycling centres or reusing plastics	45 (15.0%)	246 (81.7%)
Using designated waste bins instead of littering	23 (7.6%)	278 (92.4%)
Avoiding plastic bags, bottles, and straws whenever possible	37 (12.3%)	264 (87.7%)
Reusing bottles, containers, or packaging instead of discarding	109 (36.2%)	192 (63.8%)
Engaging in local plastic waste collection or recycling initiatives	89 (29.6%)	212 (70.4%)

Table 5 reveals a generally low adoption of plastic waste control practices among residents of Anambra State, as evidenced by the consistently higher proportions of respondents reporting non-compliance. For instance, while 36.2% of residents reported reusing bottles, containers, or packaging and 33.6% reported avoiding indiscriminate disposal**,** the majority 63.8% and 66.4%, respectively indicated that they do not engage in these practices. Adoption is even lower for practices requiring external support or infrastructure, with only 15.0% sending plastic waste to recycling centres, 7.6% using designated waste bins, and 12.3% avoiding single-use plastics, leaving 81.7%, 92.4%, and 87.7% of respondents, respectively, not practising these behaviours. Participation in local plastic waste collection or recycling initiatives was reported by 29.6% of residents, yet 70.4% remain disengaged. The findings demonstrate that the communication campaign strategies regarding plastic control in Anambra state is not significantly influencing the majority of residents toward the adoption of community-based plastic waste control measures.

Discussion of findings

The first major finding indicates that residents' exposure to government communication messages on plastic waste control was largely occasional rather than regular. This outcome partially aligns with Ogbu and Ezeah (2025), who found that radio campaigns in southeastern

Nigeria improved public awareness and attitudes towards plastic waste management. However, the present finding diverges from their implied assumption that exposure naturally leads to behavioural commitment. In Anambra State, the sporadic nature of message exposure appears insufficient to reinforce cognitive engagement and value internalisation necessary for sustained behaviour change. This supports Olukanwi et al.'s (2025) observation that environmental communication in Nigeria often lacks the consistency required to influence long-term behavioural outcomes. From the standpoint of Persuasive Communication Theory, occasional exposure weakens both central-route processing where individuals critically evaluate message arguments and peripheral-route influence, which relies on repetition, emotional appeal, and source cues. Consequently, the persuasive capacity of government campaigns is diluted, limiting their potential to translate awareness into action.

With respect to communication channels, the study found a dominance of digital and broadcast media, particularly social media and radio, with minimal use of interpersonal and community-based platforms. This pattern resonates with Okon and Emanuel-Okogbule's (2025) finding that Nigerian waste management agencies deploy multi-channel strategies but often fail to strategically integrate them. While mass-mediated channels enable broad reach, their overreliance in Anambra State reflects a strategic imbalance that undermines message credibility and social reinforcement. Nwafor (2025) similarly reported positive audience perceptions of ABS Facebook messages but noted that platform-specific exposure alone may not sustain behavioural change. Persuasive Communication Theory underscores the importance of credible sources and socially embedded communication; the limited engagement of community leaders, local associations, and face-to-face forums in Anambra represents a missed opportunity to strengthen normative influence and collective accountability. This finding also echoes Chinwe and Nze's (2022) argument that low environmental information literacy cannot be addressed through digital messaging alone without supportive, context-sensitive communication structures.

The third key finding reveals generally low adoption of plastic waste control practices despite moderate awareness of government campaigns. This result reinforces Onyike's (2025) conclusion that exposure to environmental campaigns does not automatically produce comprehensive behavioural change, especially when messages are broad and not plastic-specific. In Anambra State, residents were more likely to adopt low-effort practices, such as avoiding indiscriminate disposal, than behaviours requiring infrastructural support or collective coordination, such as recycling. This aligns with Okeke et al.'s (2024) assertion that communication must be embedded within supportive institutional and infrastructural frameworks to drive meaningful change. From a persuasive communication perspective, the observed behaviour–awareness gap suggests that neither rational appeals (central route) nor affective and normative cues (peripheral route) were sufficiently mobilised to overcome practical constraints. The findings thus support Olukanwi et al.'s (2025) critique of Nigerian environmental messaging as largely symbolic rather than transformational.

Conclusion

The findings of this study underscore that Anambra state government communication strategies toward plastic waste control are insufficiently persuasive to drive widespread behavioural change, highlighting critical gaps in both the design and delivery of environmental messages. The reliance on mass and digital media, while effective for broad reach, appears inadequate for fostering sustained engagement and adoption of plastic waste control practices, suggesting that integrating trusted community figures, culturally resonant messaging, and more interactive platforms could significantly enhance message credibility and impact. From a policy

and practice perspective, the results imply that achieving meaningful environmental behaviour change requires not only increased exposure but also strategic alignment of communication channels, message framing, and audience engagement to overcome structural and motivational barriers.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Government agencies in Anambra State should redesign plastic waste control campaigns to move beyond information dissemination towards persuasive, behaviour-oriented communication, with messages that clearly link plastic waste practices to everyday environmental and health consequences.
2. Communication efforts should adopt a multi-channel and complementary strategy that combines mass and digital media with interpersonal and community-based platforms, such as traditional leaders, religious institutions, schools, and local associations, to enhance message credibility and trust.
3. Greater emphasis should be placed on audience segmentation and message tailoring**,** ensuring that communication content is culturally relevant, linguistically accessible, and aligned with the lived realities of different population groups within the state.
4. Environmental communication initiatives should be supported by visible and enabling infrastructures**,** including accessible waste bins, functional recycling centres, and organised community clean-up programmes, to reduce the gap between awareness and practice.

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