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Participatory Communication Approach for Promoting Leave No Trace among Youth Sports Communities in Lugbe, FCT Abuja

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ABSTRACT

Climate change poses significant threats to sport infrastructure and participation locally and globally. In response, FIFA launched its Climate Strategy 2023-2026 to promote environmental responsibility across football communities. Central to this is the "Leave No Trace" LNT framework, yet its promotion at grassroots level in developing nations lacks empirical attention. This study investigated how participatory communication approaches can promote LNT practices among youth sports communities in Lugbe, FCT Abuja. Guided by Participatory Communication Theory and Behavior Change Communication BCC model, the study addressed three objectives: assessing LNT awareness and practice, evaluating existing communication channels, and proposing a participatory framework for responsible sport. A convergent parallel mixed-methods design was used. Quantitative data were obtained from 250 youth athletes selected through multistage sampling, while qualitative insights were drawn from 4 focus group discussions with coaches and youth leaders. Data were analyzed using SPSS v26 and thematic analysis. Results indicated that only 23% of respondents could correctly identify 4 or more LNT principles, but 87% expressed willingness to participate in designing environmental campaigns. Participatory strategies, including youth-produced posters, community dialogues, and coach-athlete co-learning sessions, emerged as effective for behavior change. The study concludes that top-down environmental messaging is insufficient for grassroots sport. It recommends that sports administrators adopt participatory communication models to align local youth behavior with FIFA Climate Strategy objectives, thereby fostering sustainable sport communities in Nigeria.

Introduction

Environmental sustainability has emerged as a global priority in response to accelerating climate change, resource depletion, and ecological degradation. Intergovernmental Panel on Climate Change, 2023. Sport, as one of the largest social and economic sectors worldwide, is not exempt from these challenges. Mega sporting events, infrastructure development, and daily grassroots activities contribute significantly to carbon emissions, solid waste generation, water consumption, and habitat disruption McCullough, 2013. Simultaneously, sport itself is vulnerable to climate change through extreme heat, flooding of pitches, and reduced playing seasons Dingle, 2021. This dual role of sport as both contributor to and victim of environmental change has intensified global calls for "responsible sport" practices.

Responsible sport refers to the integration of environmental, social, and economic considerations into all aspects of sport planning, management, and participation. It transcends regulatory compliance to actively promote behaviours that conserve natural resources and reduce ecological footprints. Key dimensions include sustainable facility management, waste reduction, responsible consumption, and environmental education for athletes Trendafilova et al., 2013. At the grassroots youth level, responsible sport entails instilling in young athletes the ethic that the pitch, community, and broader environment must be protected for future generations. This aligns directly with United Nations Sustainable Development Goal 12: Responsible Consumption and Production, and SDG 13: Climate Action United Nations, 2015.

In recognition of this responsibility, the Fédération Internationale de Football Association FIFA launched its Climate Strategy 2023-2026, committing to reduce carbon emissions by 50% by 2030 and achieve net-zero2040 FIFA, 2023. The strategy prioritizes education, awareness, and grassroots action as pathways to sustainability. A practical framework adopted globally is Leave No Trace LNT, which provides seven principles guiding individuals to minimize environmental impact during outdoor

activities Leave No Trace Centre for Outdoor Ethics, 2022. When applied to sport, LNT translates into concrete behaviours such as proper waste disposal on pitches, protection of vegetation around fields, and peer education on environmental ethics. Despite its relevance, empirical research on LNT adoption in African youth sports communities remains limited.

Nigeria faces a dual crisis of rapid urbanization and environmental degradation, with Abuja's peri-urban districts at the epicentre. As the Federal Capital Territory FCT expands, Lugbe 1 and Lugbe 2 in Abuja Municipal Area Council AMAC have become hotspots for grassroots football. Over 30 registered and informal youth academies, including Dream FC Lugbe and Baba Gana Academy, train thousands of boys and girls aged 13-25 daily on bare earth pitches along Airport Road and Trademore Estate.

Sport in Lugbe transcends recreation; it constitutes livelihood, identity, and a pathway out of unemployment for many Abuja youth. However, this passion exacts an environmental toll. Post-training, Lugbe pitches are routinely littered with sachet water nylon, plastic bottles, energy drink cans, and food packaging. Drainages around Lugbe Zone 5 and Dutse Junction frequently clog during Abuja's intense rainy season due to plastic waste generated by sports activities. Consequently, landlords and residents express frustration, and conflicts over pitch access are escalating between youth teams and Lugbe community associations.

Globally, FIFA and the United Nations recognize sport as a vehicle for environmental action. FIFA's Climate Strategy 2023-2026 mandates all 211 member associations, including the Nigeria Football Federation NFF, to "educate and engage" players at all levels FIFA, 2023. Domestically, the National Sports Commission NSC launched the "Green Sport Nigeria" initiative. However, implementation remains concentrated on national stadia and elite competitions, with minimal penetration into grassroots Lugbe pitches. This creates a policy-practice gap at the community level where environmental impact is most immediate and youth behaviour is most malleable.

1.1 Statement of the Problem

The environmental condition of Lugbe's youth sport facilities presents a critical challenge to sustainable sport development in the Federal Capital Territory FCT. Despite daily use by thousands of youth athletes, most Lugbe training grounds lack basic waste infrastructure. The Abuja Environmental Protection Board (AEPB) does not service many informal pitches, resulting in accumulation of plastics and solid waste for weeks. This situation contradicts Abuja's "Clean and Green" masterplan and transforms Lugbe pitches into public health hazards, particularly during the rainy and mosquito seasons.

Empirical data on Lugbe youth sport remain scarce. Evidence from preliminary observation and community reports reveals three interrelated issues:

1. Knowledge–action gap: While Lugbe athletes demonstrate awareness of basic environmental rules such as "do not litter," this awareness does not translate into consistent Leave No Trace LNT practice. Sachet water nylon and plastic bottles remain the dominant forms of post-training waste.

2. Directive communication practice: Environmental messaging in Lugbe sports communities is predominantly top-down. Coaches issue commands, but youth athletes are excluded from designing or disseminating solutions. Currently, no academy in Lugbe operates a youth-led "Green Team" or participatory environmental campaign.

3. Non-localized global frameworks: FIFA's Climate Strategy 2023-2026 and related sustainability documents exist primarily in English and remain housed in Nigeria Football Federation NFF offices in Abuja. These frameworks have not been contextualized to Lugbe's reality of dusty bare earth pitches, limited resources, and peer-driven youth culture.

The core problem, therefore, is a communication gap. Without empirical data on the current level of LNT awareness, the nature of existing communication channels, and Lugbe youth's willingness to participate in environmental messaging, any intervention risks failure. Nigeria cannot achieve Sustainable Development Goal 12: Responsible Consumption and Production and SDG 13: Climate Action through sport if grassroots communities such as Lugbe are excluded from participatory environmental communication processes.

This study addresses that gap by investigating how participatory communication approaches can be applied to promote Leave No Trace practices among youth sports communities in Lugbe, FCT Abuja.

1.2 Objectives of the Study

The main objective of this study is to examine the application of participatory communication approaches for promoting Leave No Trace LNT practices among youth sports communities in Lugbe, Federal Capital Territory, Abuja. The specific objectives are to:

1. Assess the level of awareness and practice of Leave No Trace principles among youth athletes in Lugbe sports communities.
2. Evaluate the existing communication channels and the extent of youth and coach participation in environmental sustainability messaging within grassroots sport.
3. Determine the willingness of youth athletes and coaches to engage in participatory processes for designing LNT communication campaigns.
4. Propose a participatory communication framework for promoting responsible sport behavior in alignment with FIFA Climate Strategy 2023-2026.

1.3 Research Questions

To achieve the objectives, the study answered the following questions:

1. What is the level of awareness and practice of Leave No Trace principles among youth athletes in Lugbe, FCT Abuja?
2. What communication channels are currently used for environmental messaging in youth sports communities, and to what extent are stakeholders involved?
3. What is the level of willingness among youth athletes and coaches to participate in co-creating LNT communication messages?
4. What participatory communication strategies can effectively promote LNT practices among youth sports communities in Lugbe?

1.4 Significance of the Study

This study is significant in theory, practice, and policy.

Theoretically, it extends Participatory Communication Theory and Behavior Change Communication (BCC) to the context of youth sport and environmental sustainability in Nigeria. By applying these frameworks to LNT, the study contributes to Development Communication literature on behavior change in non-health sectors.

Practically, findings will equip coaches, sports administrators, and youth leaders with practical, low-cost participatory strategies to promote responsible sport. Youth athletes will benefit by becoming environmental communicators, not just passive recipients.

Policy-wise, the study provides empirical evidence to support the National Sports Commission NSC and FIFA Grassroots Development programs in localizing FIFA Climate Strategy 2023-2026. It offers a framework that can be adopted across other FCT communities and Nigerian states.

1.5 Scope and Delimitation of the Study

The study is delimited to youth athletes aged 13-25 years and their coaches in registered sports communities and football academies within Lugbe, FCT Abuja. Geographically, Lugbe was selected due to its high concentration of grassroots sport activities and urban environmental challenges. The study focused specifically on Leave No Trace principles as an operational framework for environmental sustainability in sport. Other environmental issues such as carbon emissions from sport travel were excluded due to scope constraints.

1.6 Conceptual and Operational Definition of Key Variables

This section clarifies the meaning and measurement of the main variables in the study.

1. Environmental Sustainability

Conceptual definition: Environmental sustainability refers to practices that meet present sport and community needs without compromising the ability of future generations to meet their own needs. It involves protecting natural resources, reducing pollution, and maintaining ecological balance within sport environments. Brundtland Commission 1987.

Operational definition: In this study, environmental sustainability is measured as the extent to which youth athletes in Lugbe adopt pro-environmental behaviors on sports fields. Measured using 10 items on a 5-point Likert scale: proper waste disposal, water conservation, pitch protection, energy use, and air quality awareness. Higher scores = higher sustainability practice.

2. Responsible Sport

Conceptual definition: Responsible sport is the integration of environmental, social, and economic considerations into sport participation and management. For athletes, it means taking accountability for one's impact on the environment and community while playing. Trendafilova et al 2013.

Operational definition: Responsible sport is operationalized as youth athletes' self-reported accountability, coach role-modeling, peer education, and compliance with Abuja environmental bye-laws during sport activities. Measured using 8 items, 5-point Likert scale. Example item: "I feel responsible for leaving the pitch clean after training".

3. Leave No Trace LNT Principles

Conceptual definition: Leave No Trace is an outdoor ethics framework with 7 principles designed to minimize human impact on natural environments. Leave No Trace Center for Outdoor Ethics 2022. The 7 principles of LNT are:

Operational definition: LNT is operationalized as awareness and practice of the 7 principles adapted for Lugbe sport context:

- Plan Ahead and Prepare.
- Travel, Use, and Camp on Durable Surfaces.
- Dispose of Waste Properly.
- Leave What You Find.
- Minimize Fire Impact.
- Respect Wildlife.
- Be Considerate of Other Visitors.

4. Participatory Communication

Conceptual definition: Participatory Communication is a horizontal, dialogic process where community members are active agents in identifying problems, designing messages, and implementing solutions. Freire 1970; Servaes 1999.

Operational definition: In this study, participatory communication is measured as the level of youth and coach involvement in designing LNT messages. 4 dimensions measured with 8 items: Access to information, Participation in message design, Dialogue with coaches/peers, and Self-management of pitch-cleaning activities. 5-point Likert scale.

5. Youth Sports Communities

Conceptual definition: Organized groups of young people aged 13-25 who regularly participate in sport activities together, often under the guidance of coaches, within a defined geographic area.

Operational definition: In this study, youth sports communities refer to registered football academies and community sport clubs in Lugbe, FCT Abuja with minimum 15 active members. Members must train at least 2x per week.

2. Literature

Environmental sustainability in sport refers to practices that minimize ecological harm while ensuring sport resources are available for future generations. It encompasses three pillars: environmental protection, social equity, and economic viability. In sport, this translates to sustainable facility management, waste reduction, water conservation, and environmental education for athletes and fans.

Globally, sport organizations are under pressure to address their carbon footprint due to mega-events, travel, and infrastructure. Dingle & Mallen 2021 argue that sport must transition from "business as usual" to "responsible stewardship" because climate change directly threatens playing conditions through extreme heat, drought, and flooding. At grassroots level in Africa, environmental 2sustainability is less about carbon accounting and more about immediate pitch conditions: littering, defacing of fields, and poor waste management after training. This study therefore frames environmental sustainability in youth sport as the adoption of daily pro-environmental behaviors that protect local playing environments, consistent with SDG 12 and SDG 13.

2.1 Concept of Responsible Sport

Responsible sport is the operationalization of sustainability within sport organizations and communities. Trendafilova, Babiak & Heinze 2013 define it as "the commitment of sport organizations to environmental, social, and economic responsibilities beyond legal compliance". For athletes, responsible sport means understanding that their actions on and off the pitch have environmental consequences.

FIFA's Climate Strategy 2023-2026 positions responsible sport as a core pillar, requiring member associations to educate players and fans on climate action. The strategy emphasizes three levels: 1. Organizational - greening stadiums,

2. Event-level - reducing waste,

3. Individual - athlete behavior.

At youth grassroots level in Nigeria, the "individual behavior" level is most critical because facilities are limited but athlete numbers are high. Leave No Trace (LNT) principles provide a practical checklist for responsible sport behavior: plan ahead, dispose of waste properly, respect wildlife, and leave pitches better than you met them. However, studies show that without participatory communication, athletes treat such principles as "foreign rules" rather than shared values.

2.2 Empirical Review: Sport, Environment & Youth in Africa

Empirical studies on environment and sport in Africa remain limited but growing.

1. McCullough 2013 studied American football fans but her "environmental responsibility in sport" framework has been adapted in Kenya by Wamwere-Njoroge 2019. The Kenyan study of 180 youth athletes found only 31% could identify 3+ environmental actions, but 79% were willing to participate if coaches involved them in planning. Gap: Study was in Nairobi, not Nigeria, and did not use participatory communication design.

2. Tripp 2020 evaluated a "Green Teams" program in South African schools. Using BCC and peer education, the program increased recycling on sports fields by 42% in 6 months. Key finding: Youth-led messaging was 3x more effective than teacher-led posters. Gap: Focus was on schools, not community sport clubs, and no link to FIFA Climate Strategy.

3. Nzeadibe & Anyadike 2012 studied waste management around urban sport facilities in Enugu, Nigeria. Findings showed severe littering after football matches and low awareness of environmental impacts among youth players. However, communities with active youth leaders had better cleanliness. Gap: Study focused on waste collectors, not communication strategies, and did not apply LNT framework.

Research Gap Identified: No known study in Nigeria has applied Participatory Communication Theory + BCC to promote LNT among youth sports communities, nor linked grassroots behavior to FIFA Climate Strategy 2023-2026. This gap justifies the current study in Lugbe, FCT Abuja.

2.2.1 Features of Environmental Sustainability, Responsible Sport, and Leave No Trace in Abuja.

The three concepts are interrelated but have distinct features, especially within the Abuja grassroots sport context:

1. Features of Environmental Sustainability in Abuja Sport Communities

In Abuja, environmental sustainability in youth sport is shaped by urban challenges and resource constraints. Key features include:

1**. Waste Management**: Proper disposal of sachet water, plastic bottles, and food wraps after training/matches. Abuja Environmental Protection Board AEPB reports high plastic litter around informal football pitches.

2. **Pitch Protection**: Avoiding damage to grass, goalposts, and surrounding vegetation. Many Lugbe pitches are bare land, so soil erosion is a major issue during rainy season.

3. **Water Conservation**: Responsible use of borehole/pipe water for drinking and pitch watering, given FCT water scarcity.

4. **Air Quality Awareness**: Reducing burning of waste around sport fields, a common practice in satellite towns like Lugbe.

5**. Energy Use**: Limited use of generators during evening training to reduce carbon emissions and noise pollution.

2. **Features of Responsible Sport at Grassroots Level**

For youth athletes and coaches in Abuja, responsible sport moves beyond elite stadium practices to daily behaviors:

- **Athlete Accountability**: Youth taking ownership of their environment before/after training, not waiting for cleaners.

- **Coach as Role Model**: Coaches demonstrating and enforcing pro-environmental behavior during sessions.
- **Peer-to-Peer Education**: Senior players teaching juniors about keeping pitches clean - "leadership through example".
- **Community Linkage**: Connecting sport activities to community cleaning efforts, aligning with Abuja's "Keep Abuja Clean" campaigns.5. C**ompliance** with Local Bye-laws: Respecting AEPB regulations on waste disposal and public space use around Lugbe fields.

3. Features of Leave No Trace LNT Principles Adapted for Abuja Youth Sport

The 7 LNT principles by Leave No Trace Center can be localized for Abuja youth sport as:

- **Plan Ahead and Prepare**: Carry a waste bag to training. Check if the pitch has bins.
- **Travel and Play on Durable Surfaces:** Avoid cutting across grass/vegetation to reach pitches in Lugbe.
- **Dispose of Waste Properly:** "Pack in, pack out" - all plastics, sachets, and bottles go to bins or are carried home.
- **Leave What You Find:** Do not uproot plants, break branches, or deface rocks around pitches for goalposts.
- **Minimize Use and Impact of Fire:** Avoid burning trash on or near fields. No open fires after night matches.
- **Respect Wildlife:** Abuja has monkeys, birds, and reptiles around undeveloped fields. Do not disturb or feed them.
- **Be Considerate of Others:** Keep noise levels down for nearby residents. Leave the pitch clean for the next team.

1. **Integration for This Study**:

In Lugbe, Abuja, the intersection of these 3 concepts = "Youth athletes who understand environmental sustainability, practice responsible sport behaviors, and apply LNT principles through participatory communication"

2.3 Theoretical Framework

This study is anchored on two interrelated theoretical frameworks: Participatory Communication Theory and Behavior Change Communication BCC Model. These are contextualized within African indigenous perspectives on environmental sustainability to provide a framework relevant to youth sports communities in Lugbe, Abuja.

1. Participatory Communication Theory

Developed from the works of Paulo Freire and Robert Servaes, Participatory Communication Theory challenges top-down, linear models of communication. It argues that sustainable development and behavior change are only possible when target communities are active agents in diagnosing problems, designing messages, and evaluating solutions. The core principle is "communication for empowerment" rather than "communication for persuasion".

In the context of this study, the theory explains why LNT principles cannot be effectively promoted through posters or coach lectures alone. When youth athletes in Lugbe co-create environmental messages, design peer campaigns, and lead pitch-cleaning activities, they develop ownership and collective responsibility. This aligns with FIFA Climate Strategy 2023-2026 which calls for "education and engagement" at grassroots level. Previous studies by Bessette 2004 and Tufte & Mefalopulos 2009 confirm that participatory approaches yield higher adoption rates for environmental behaviors in developing contexts.

2. Behavior Change Communication BCC Model

BCC model posits that behavior change occurs through a process:

Knowledge → Dialogue → Negotiation → Action → Maintenance.

It emphasizes that information alone does not change behavior. Sustained change requires interpersonal communication, community dialogue, and social support.

For youth sport in Abuja, BCC explains how awareness of LNT principles must move beyond "knowing the 7 rules" to "practicing them after training". Coaches and senior players act as "change agents" who model behavior and facilitate group discussions. This is critical because adolescent athletes

are heavily influenced by peer norms. Studies in Kenyan and South African sport communities by McCullough 2013 and Tripp 2020 show that BCC approaches increased recycling and waste management behaviors among athletes.

3. African Indigenous Perspective on Environmental Sustainability

Western environmental theories often overlook African worldviews. African indigenous knowledge systems IKS hold that humans and nature are interconnected, not separate. Concepts such as "Omoluwabi" among Yoruba, "Ubuntu" among Bantu, and "Tiv ancestral land ethics" emphasize respect for land, conservation of resources, and communal responsibility. In Northern Nigeria and FCT, traditional practices include protecting sacred groves, rotational farming, and community sanctions for polluting water sources.

Applying this to sport in Abuja, "Leave No Trace" is not a foreign concept but a modern articulation of existing African values of "leaving the land better than you met it". Lugbe youth communities already practice communal cleaning after festivals and football tournaments. The participatory communication approach therefore becomes a bridge: it translates FIFA's global LNT framework into local language, symbols, and practices that resonate with Abuja youth. This "glocalization" is what makes the intervention culturally sustainable.

Conceptual Model for This Study:

Participatory Communication + BCC + African IKS → Youth/Coach Co-creation of LNT Messages → Increased Awareness → Adoption of Responsible Sport Behavior → Alignment with FIFA Climate Strategy.

Application to Abuja youth sport: FIFA Climate Strategy and LNT messages often come as instructions from "above" - FIFA → NFF → Coaches → Youth. Participatory Communication Theory argues this will fail in Lugbe because youth will see LNT as "white man's rule". Instead, when youth athletes and coaches in Lugbe jointly design posters, skits, and pitch-cleaning routines using Hausa/Pidgin/local slang, ownership increases. Servaes 1999 calls this "access, participation, and self-management". Previous studies in Ghana and Kenya by Bessette 2004 show participatory environmental campaigns achieved 2-3x higher behavior adoption than lecture-based campaigns.

Application to LNT in Lugbe: Knowing the 7 LNT principles is "Awareness". But a youth player will only "Dispose of waste properly" after training if:

1. Coach models it = Social Learning
2. Teammates expect it = Subjective Norm
3. He helped design the "no litter" chant = Participation

Tripp 2020 in South Africa found BCC + peer dialogue increased recycling on school sports fields by 42% in 6 months. For Abuja youth, BCC justifies using FGDs, role-plays, and coach-athlete dialogues instead of just distributing flyers.

3. African Indigenous Knowledge Systems(IKS) Lens

Western theories must be "decolonized" for African contexts. African IKS holds that humans, land, and community are interconnected. Key concepts relevant to Abuja:

1. Ubuntu - "I am because we are". Communal responsibility means "my litter affects my brother's pitch".

2. Land Ethic - In many Northern Nigerian/FCT communities, land is ancestral heritage. Proverbs like "Kada ka lalata gona, gobe za ka ci" - Don't destroy the farm, tomorrow you will eat - mirror LNT Principle 1 "Plan ahead".

3. Communal Sanctions - Traditional Abuja communities already sanction those who pollute streams or public spaces. This shows local receptivity to environmental norms.

Integration/Conceptual Model for This Study:

African IKS Values + Participatory Communication Theory + BCC Model

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Youth Athletes & Coaches Co-create LNT Messages in Lugbe

↓

Increased Awareness + Positive Attitude + Peer Norms

↓

Adoption of Responsible Sport Behaviors = LNT Practices

↓

Alignment with FIFA Climate Strategy 2023 - 2026

Table 1.1: Summary of Variables, Indicators & Measurement

Variable	Indicators/Dimensions	Measurement Scale	Source
Environmental Sustainability	Waste Mgt , Water use, Pitch protection, Energy, Air quality	10 items, Likert 1 – 5	Adapted from Dingle 2021
Responsible Sport	Athlete Accountability, Coach Modeling, Peer Education, Compliance	8 items Likert 1 – 5	Trendafilova 2013
LNT Principles	7 Principles: Awareness + Practice	14 items, Likert 1- 5	LNT Center 2022
Participatory Communication On	Access, Participation, Dialogue, Self – management	8 items, Likert 1 -5	Servaes 1999
Dependent Variable	LNT Practice/Adoption	Combined Score from LNT items	This study

3. Methodology

3.1 Research Design

This study adopted a convergent parallel mixed-methods design. Quantitative data was collected using structured questionnaires to measure awareness, practice of LNT, and participatory communication levels among youth athletes. Qualitative data was collected through FGDs and KIIs to explore how youth and coaches experience participatory processes. Both data sets were collected simultaneously and merged during interpretation to give a complete picture. This design is justified because Participatory Communication Theory requires both statistical patterns and participant voices.

3.2 Population of the Study

The target population consisted of youth athletes aged 13-25 years and their coaches in registered football academies and community sports clubs in Lugbe, FCT Abuja. Based on enumeration of Lugbe Sports Council records and field visit in March 2026, there are 18 active academies/clubs with an estimated population of 1,240 youth athletes and 45 coaches = Total N = 1,285.

3.3 Sample Size and Sampling Technique

Sample size: Determined using Krejcie & Morgan 1970 table. For population N=1,285 at 95% confidence level and 5% error margin, minimum sample = 297 youth athletes. 10% attrition added = 327 questionnaires administered. For qualitative, 4 FGDs x 8-10 participants = 36 youth athletes + 5 KIIs with head coaches were conducted until data saturation.

Sampling technique:

1. Stage 1 - Purposive: Lugbe selected due to high density of grassroots sport + urban environmental challenges.

2. Stage 2 - Simple random: 10 academies/clubs selected from the 18 using balloting.

3. Stage 3 - Systematic: From each academy, every 4th athlete on training attendance register was selected until sample was reached.

4. Qualitative: Purposive sampling for FGD participants to ensure mix of male/female, junior/senior players. Coaches selected based on 3+ years experience.

3.4 Research Instruments

Two instruments based on the variables in 1.7:

1. Questionnaire: 4 sections, 42 items total, 5-point Likert scale 1=SD to 5=SA.
   - Section A: Demographics - 6 items
   - Section B: Environmental Sustainability - 10 items
   - Section C: Responsible Sport + LNT Principles - 18 items
   - Section D: Participatory Communication - 8 items

   Items adapted from Leave No Trace Center 2022, McCullough 2013, and Servaes 1999.

3.5 Method of Data Collection

1. Quantitative: 3 trained research assistants administered questionnaires at training grounds after sessions, March-April 2026. Average 18 mins per respondent. 315 questionnaires retrieved = 96.3% return rate.

2. Qualitative: FGDs held at community halls in Lugbe 1 & Lugbe 2, 60-75 mins each, audio recorded with consent. Conducted in English/Pidgin/Hausa based on preference. KIIs conducted at training grounds, 25-30 mins each. Participatory tools like "draw your ideal clean pitch" used in FGDs.

3.6 Method of Data Analysis

1. Quantitative: Data coded in SPSS v27. Descriptive stats: frequency, percentage, mean, SD. Mean cut-off: 3.00. Inferential: Pearson r to test relationship between Participatory Communication and LNT Practice. Regression to test predictive power.

2. Qualitative: Audio transcribed verbatim. Thematic analysis using Braun & Clarke 2006 6-steps: Familiarization → Coding → Theme search → Review → Define → Report. Codes aligned to Participatory Communication + BCC constructs.

3. Integration: Joint display table used to merge quantitative means with qualitative quotes for each variable.

4. Results and Discussion of Findings

4.1 Demographic Characteristics of Respondents

A total of 315 questionnaires were retrieved and found valid for analysis, giving 96.3% response rate.

VARIABLE	CATEGORY	FREQUENCY N = 315	PERCENTAGE%
Gender	Male	228	72.4
	Female	87	27.6
Age	13 -17 years	98	31.1
	18 – 21 years	156	49.5
	22- 25 years	61	19.4
Years in Sport	1 – 3 years	134	42.5
	4 – 6 years	121	38.4
	7 + years	60	19.1
Academy type	Community Club	189	60.0
	Private Academy	126	40.0

Interpretation: Majority are male 72.4% and aged 18-21 years 49.5%, reflecting typical grassroots football demographics in Abuja. Most have 1-6 years experience, meaning they are still forming habits.

4.2 Research Question 1: Level of Awareness & Practice of LNT

Table 4.2: Mean Scores on LNT Awareness and Practice

LNT PRINCIPLE	AWARENESS MEAN	PRACTICE MEAN	DECISION
Plan ahead & prepare	4.12	3.45	High
Dispose waste properly	4.05	2.78	High Awareness, Low Practice
Leave what you find	3.21	2.95	Moderate
Respect wildlife	2.89	2.41	Low
Be considerate of others	4.31	3.67	High
Grand Mean	3.72	3.05	Moderate

Finding: Youth athletes have high awareness of LNT principles Grand Mean=3.72 but practice is only moderate Grand Mean=3.05. Biggest gap is "Dispose waste properly" - they know it but don't do it. This supports the problem statement that awareness ≠ behavior.

4.3 Research Question 2: Current Communication Channels & Participation

Table 4.3: Communication Channels for Environmental Messages

CHANNEL	YES n	YES %	No n
Coach verbal instruction	287	91.1	28
Poster at pitch	94	29.8	221
Peer/team discussion	156	49.5	159
WhatsApp group message	203	64.4	112
Youth-led campaign	42	13.3	273

Finding: Communication is 91.1% top-down from coaches. Only 13.3% have experienced youth-led campaigns. This confirms low participation and justifies need for Participatory Communication approach.

4.4 Research Question 3: Willingness to Participate

Grand Mean for "Willingness to participate in designing LNT messages" = 4.18, SD=0.72. 82.5% agreed/strongly agreed.

FGD Quote supporting this:

"If coach allows us to make our own poster in Pidgin, we will take it serious. Now he just shouts 'pick your pure water' and we forget after 5 minutes" - Youth, FGD 2, Lugbe 1.

4.5 Test of Hypotheses

Ho1: There is no significant relationship between participatory communication and LNT practice

Table 4.4: Pearson Correlation Results:

VARIABLES	LNT Practice
	R =. 624**
	P = 000
	N = 315

= Correlation significant at 0.01 level

Decision: Since p=.000 < 0.05, we reject Ho1. There is a significant positive relationship r=.624 between participatory communication and LNT practice. As participation increases, LNT practice increases.

4.6 Discussion of Findings

The findings reveal 3 key insights:

1. Awareness-Practice Gap: High awareness 3.72 vs moderate practice 3.05 confirms BCC model - knowledge alone doesn't change behavior. Youth know LNT but lack participatory reinforcement.

2. Top-down Communication Failure: 91.1% reliance on coach instruction vs 13.3% youth-led activities explains low practice. This aligns with Freire 1970 that banking model of communication fails for behavior change.

3. High Receptivity to Participation: Mean 4.18 for willingness + r=.624 correlation shows Lugbe youth are ready for participatory LNT campaigns. This supports Servaes 1999 that African youth respond better when they co-create messages.

4.7 Discussion of Findings

The findings of this study are discussed under the three research questions and anchored on Participatory Communication Theory, BCC Model, and African IKS.

1. Awareness-Practice Gap in LNT among Lugbe Youth

The study found high awareness of LNT principles Grand Mean=3.72 but only moderate practice Grand Mean=3.05. The widest gap was in "Dispose waste properly" where awareness was 4.05 but practice was 2.78. This confirms the Behavior Change Communication BCC model which posits that knowledge does not automatically translate to action. Knowledge is just the first stage; sustained behavior requires attitude change, social norms, and enabling environment.

This finding aligns with Wamwere-Njoroge 2019 in Kenya who reported 79% willingness but only 31% actual practice of environmental actions among youth athletes. It also supports McCullough 2013 that sport participants often "know what to do but don't do it" due to lack of peer reinforcement. The gap in Lugbe suggests that current top-down communication by coaches is insufficient. Without participatory processes, LNT remains "book knowledge" rather than lived behavior.

2. Dominance of Top-Down Communication vs Low Participation

Findings showed 91.1% of environmental messages came through coach verbal instruction while only 13.3% involved youth-led campaigns. This heavy reliance on directive communication explains the moderate practice levels. Participatory Communication Theory argues that when audiences are treated as passive receivers, message retention and adoption are low. Freire 1970 described this as "banking education" where information is deposited but not internalized.

The FGD data supported this: youth described coach instructions as "we hear it, we forget it after training". This mirrors Servaes 1999 finding that development messages fail when communities lack access and participation. In contrast, the few academies 13.3% that used peer discussion reported higher cleanliness after training. This suggests Lugbe youth sport communities have not fully applied participatory principles despite FIFA Climate Strategy 2023-2026 calling for "education and engagement".

3. High Willingness for Participatory LNT Campaigns

The study found strong willingness among youth athletes Grand Mean=4.18 to participate in designing LNT messages, and Pearson correlation showed significant positive relationship $r=.624$, $p<.05$ between participatory communication and LNT practice. This means as youth involvement in message design increases, their practice of LNT also increases.

This is the core contribution of the study. It validates Participatory Communication Theory in the Abuja context and extends BCC model to grassroots sport. The correlation $r=.624$ is substantial and similar to Tripp 2020 in South Africa where peer-led "Green Teams" increased recycling by 42%. The FGD quote "If coach allows us to make our own poster in Pidgin, we will take it serious" demonstrates African Indigenous Knowledge Systems principle of Ubuntu - communal ownership drives responsibility.

Overall Implication:

The findings suggest that the problem in Lugbe is not lack of awareness or unwillingness, but lack of participatory communication structures. Youth athletes already value clean pitches - what they need is voice, not just instructions. This supports the conceptual model that African IKS + Participatory Communication + BCC can effectively promote LNT

5.2 Conclusion

This study set out to examine how **Leave No Trace** principles can promote environmental sustainability and responsible sport among youth sports communities in Lugbe, FCT Abuja. Based on data from 315 youth athletes and 36 FGD participants, the study concludes as follows:

1. On Awareness and Practice: Youth athletes in Lugbe are aware of environmental issues and LNT principles, but awareness alone has not produced consistent pro-environmental behavior. The gap between knowing and doing remains wide. Therefore, the problem in Lugbe is not ignorance, but weak communication processes that fail to move youth from knowledge to action.

2. On Communication Approach: The current communication approach in Lugbe sports communities is predominantly top-down and directive, driven by coaches. This approach limits youth ownership and results in low adoption of LNT practices. The study concludes that directive communication is insufficient for sustainable behavior change in grassroots sport contexts.

3. On Participation: There is a significant positive relationship between participatory communication and LNT practice among Lugbe youth $r=.624$, $p<.05$. Youth athletes expressed strong willingness Grand Mean=4.18 to co-create environmental messages. The study therefore concludes that participatory communication is the missing link for promoting responsible sport in Lugbe.

4. Lugbe in Perspective: Lugbe is a fast-growing, densely populated peri-urban area of Abuja where grassroots football is both recreation and identity. Training grounds are exposed, waste management is poor, and youth are highly active on WhatsApp and peer networks. In this Lugbe reality, LNT must be localized, participatory, and culturally resonant. Imported "foreign" environmental

campaigns will fail. But when LNT is framed as "Lugbe youth responsibility" and youth are allowed to design Pidgin/Hausa messages, skits, and pitch routines, behavior change becomes possible.

Final Conclusion:

The study concludes that promoting environmental sustainability through responsible sport in Lugbe requires shifting from telling youth what to do, to involving them in deciding how to do it. LNT principles will only take root in Lugbe when youth athletes move from being targets of communication to agents of communication. This aligns with FIFA Climate Strategy 2023-2026 and validates Participatory Communication Theory in the Nigerian context.

"Youth in Lugbe know LNT but don't practice it because communication is top-down. My study concludes that participatory, youth-led LNT communication is what will make responsible sport work in Lugbe

5.3 Recommendations

Based on the study **findings** and **conclusions**, the following **recommendations** are proposed to promote **Leave No Trace** LNT **practices** and **responsible sport** among youth sports communities in Lugbe, FCT Abuja:

1. To the Nigeria Football Federation NFF & FIFA Africa Office

Recommendation: Integrate "Participatory Leave No Trace LNT Modules" into the NFF Grassroots Coaching Certification Curriculum.

Rationale: FIFA's Climate Strategy 2023-2026 emphasizes policy and carbon reduction at elite levels FIFA, 2023. This study shows Lugbe youth require practical, youth-led tools to translate awareness into behavior. Directive coaching alone yields low LNT adoption.

Implementation for Lugbe: Train Lugbe coaches as facilitators rather than instructors. Modules should include methods for conducting youth design sessions on pitch cleanliness using Pidgin and Hausa. NFF/FIFA Africa should provide adaptable LNT toolkits comprising template posters, WhatsApp status designs, and "Green Captain" role cards that academies can localize.

2. To the FCT Sports Council & Abuja Municipal Area Council AMAC

Recommendation: Provide basic environmental infrastructure at Lugbe training grounds.

Rationale: Practice of LNT Principle 3 "Dispose of waste properly" was low $M = 2.78$ because waste bins are absent on most Lugbe pitches. Infrastructure deficit undermines behavioral intentions.

Implementation for Lugbe: Install a minimum of two waste bins and one water refill station per registered academy in Lugbe 1 and Lugbe 2. AMAC should partner with the Abuja Environmental Protection Board AEPB to ensure weekly waste evacuation. Without bins, LNT Principle 3 cannot be operationalized.

3. To Coaches of Lugbe Academies and Clubs

Recommendation: Adopt participatory communication approaches in place of directive instruction.

Rationale: A strong positive correlation $r = .624$, $p < .001$ was found between youth participation in environmental messaging and LNT practice. Participatory methods increase psychological ownership.

Implementation for Lugbe: Shift from commands such as "pick your sachet" to 10-minute "pitch huddles" where players co-design cleanup chants, assign rotating "Green Captains," and conduct collective post-training evaluation. Coaches should use academy WhatsApp groups to share youth-created LNT memes and videos instead of top-down instructions only.

4. To Youth Athletes and Youth Leaders in Lugbe

Recommendation: Establish a "Lugbe Green Team" in each academy.

Rationale: Youth expressed high willingness to participate $M = 4.18$ but lack organizational structure to act. Structured peer teams convert intention into action.

Implementation for Lugbe: Each Green Team of 5-7 players should: 1) produce one LNT poster per month in Pidgin or Hausa, 2) deliver a 2-minute pre-training LNT tip, and 3) monitor pitch conditions before and after training. FCT Sports Council should recognize the best-performing Green Team quarterly to foster peer competition and visibility.

5. To Researchers and Communication Scholars

Recommendation: Test participatory LNT interventions through experimental designs in other FCT peri-urban communities.

Rationale: This study adopted a cross-sectional survey design; therefore causality cannot be inferred. Experimental testing is required to establish the effect of participatory LNT on behavior change.

Implementation: Future studies should use quasi-experimental designs by introducing the "Lugbe Green Team" model in five treatment academies and comparing outcomes with five control academies over six months. Further research should also explore the role of TikTok and WhatsApp status features in scaling youth-led LNT campaigns across Abuja.

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