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MUSIC IN THE KITCHEN: AN ANALYSIS OF AI-ASSISTED MUSICAL ADVERTISING WITH REFERENCE TO TERRA SEASONING CUBES AND SONIA TOMATOES

Citation: Nnanyelogo, E.C; *Music in the Kitchen: An Analysis of Ai-Assisted Musical Advertising with Reference to Terra Seasoning Cubes and Sonia Tomatoes.*

Abstract

This study examines the role of artificial intelligence (AI) in musical advertising for two Nigerian food products: Terra Seasoning Cubes and Sonia Tomatoes. Despite growing adoption of AI-assisted content generation in marketing, limited research exists on its effects in socio-economically constrained environments where media access is uneven. This study employs ex post facto and survey methods to assess advertisement efficacy, product acceptability, and consumer feedback in Nsukka, Enugu State, Nigeria. Data were collected through distributor sales reports (n=2 major distributors), structured questionnaires with 100 consumers in Lagos and Enugu States, and content analysis of advertisements. Findings indicate that 86% of respondents recalled the Terra Cubes jingle, 79% reported emotional connection to the Sonia Tomatoes advertisement, and 68% attributed the production quality to celebrity involvement. Sales data from distributors showed increased distribution volumes following campaign launches, though price sensitivity remained a significant consumer concern. AI-assisted musical advertising enhances brand recall and emotional engagement, but equitable reach requires attention to regional media access disparities. Limitations include inability to verify specific AI tools used in production and sampling concentrated in urban centers.

Introduction

Music has long served as a persuasive tool in advertising. With the advancement of artificial intelligence (AI), musical advertising has evolved from creative intuition to data-driven precision, raising questions about efficacy in contexts with uneven technological penetration. This study examines whether AI-assisted musical advertising influences consumer awareness, product acceptability, and kitchen practices for two Nigerian food brands: Terra Seasoning Cubes and Sonia Tomatoes. Both brands have launched memorable musical advertisements combining culturally resonant music with marketing strategies, but the extent of AI involvement in their production remains unverified by primary documentation. This study therefore treats AI

involvement as an inferred industry practice, supported by secondary literature on AI capabilities in advertising (Broussard, 2021; Kumar & Gupta, 2022).

(i) How does AI-assisted musical advertising affect consumer awareness and recall of Terra Seasoning Cubes and Sonia Tomatoes? (ii) What is the relationship between advertisement exposure and product sales/acceptability? (iii) What are consumer perceptions regarding the advertisements' production quality and authenticity? The aforementioned questions guided the study.

Scholars such as Kellaris et al. (1993) and Hung (2000) argue that music enhances brand recall, emotional appeal, and consumer preference. Music tailored to cultural and linguistic contexts often leads to stronger resonance among target audiences. AI enables advertisers to analyze consumer data, generate tailored content, and optimize distribution. Tools such as OpenAI's Jukebox and Google's MusicLM demonstrate capabilities for composing brand-specific jingles, aligning rhythm, language, and emotion with marketing objectives (Broussard, 2021). The aforementioned examples illustrate global AI capabilities rather than confirmed tools used in the Nigerian campaigns under study.

Nigerian food brands frequently employ musical advertisements rooted in indigenous languages and high-energy beats. Some advertisements prioritize musical entertainment over product messaging, while others demonstrably enhance sales and acceptability (Okoye & Adebayo, 2022). The inferred use of AI-assisted production in marketing goods and services is emerging as a significant industry practice, though empirical verification in the Nigerian context remains limited.

Sonia Tomatoes Paste and Terra Seasoning Cubes

Sonia Foods Industries Limited established Sonia Tomatoes Paste in June 2006, with production facilities in Sagamu, Ogun State, Nigeria (Sonia Foods Industries, n.d.). The company markets the product as a high-quality tomato concentrate intended for culinary use. Terra Seasoning Cubes (marketed as Terra Gold Cubes) were introduced to the Nigerian market in 2024 by Terra Gold Industry (TGI Distri Limited), a company affiliated with Chi Limited, producer of Chivita and Hollandia products (Punch Newspapers, 2024). Both brands have deployed musical advertisements that appear to incorporate AI-assisted production techniques, though specific technical documentation has not been publicly disclosed.

Music in Advertising and AI Capacities

The incorporation of music into advertising has been recognized as a strategy to capture consumer attention and stimulate purchasing behavior. AI enables brands to generate personalized, data-driven, and culturally resonant musical content. AI tools can compose jingles, analyze audience preferences, and optimize content delivery (Kumar & Gupta, 2022). This study

examines these capabilities as theoretical frameworks for understanding the Terra and Sonia campaigns, rather than confirmed production methods.

Nigeria's Socio-Economic Context

In Nigeria, media access varies significantly by region and economic status. Urban populations increasingly consume content via social media and television, while rural populations depend on radio and interpersonal communication. Economic instability exacerbates this divide, with many households unable to afford digital devices or maintain consistent internet access (Okoye & Adebayo, 2022). This study defines "limited access" as the absence of regular television or social media exposure, measured through self-reported media consumption in the consumer survey. These constraints influenced sampling by requiring inclusion of radio recall measures and distributor-based data collection in areas with low digital penetration.

Study focus

This study assesses three primary outcomes: (1) resonance, measured through jingle recall and emotional response; (2) kitchen behaviors, measured through reported purchase frequency and substitution patterns; and (3) product acceptability, measured through distributor sales data and consumer satisfaction ratings. Behavioral measures include frequency of use (times per week), substitution effects (replacement of competing products), and recipe integration (dishes prepared using the products). These measures were collected through questionnaire items and distributor sales metrics.

Objectives

The objectives of this study are to:

- (i) assess the efficacy of AI-assisted musical advertising in creating awareness of Sonia Tomatoes and Terra Seasoning Cubes in Nsukka, Enugu State, Nigeria. Efficacy is operationalized as aided and unaided recall, measured through structured questionnaire items.
- (ii) investigate the acceptability of these products through analysis of sales data from major distributors. Acceptability is operationalized as distributor order volume and consumer purchase frequency, measured through distributor report booklets and self-reported consumption patterns.
- (iii) analyze consumer feedback regarding the advertisements' production quality and perceived authenticity. General notion is operationalized as sentiment categories (positive, neutral, negative) and perceived production quality (professional, amateur, unclear), measured through Likert-scale items and open-ended questionnaire responses.

Research Questions

1. How effective is AI-assisted musical advertising in creating awareness and recall of Sonia Tomatoes and Terra Seasoning Cubes?
2. What is the relationship between advertisement exposure and product sales volume, controlling for price and regional distribution?
3. What are consumer perceptions regarding the advertisements' production quality, and how do these perceptions correlate with purchase intention?

Methodology

Research Design

This study employed a mixed-methods approach combining ex post facto analysis and survey research. The ex post facto component examined the relationship between advertisement deployment (independent variable) and sales/acceptability outcomes (dependent variables) using historical distributor data. The survey component collected primary data on consumer recall, emotional response, and perceptions.

Sampling Procedures

Distributor data were obtained from two authorized major distributors in Nsukka, Enugu State, selected through purposive sampling based on volume of trade and accessibility of records. Consumer respondents (n=100) were recruited through quota sampling in Lagos (n=50) and Enugu (n=50) States, with sub-quotas for age (18-35, 36-55, 55+), gender, and primary language (Igbo, Yoruba, English). Inclusion criteria required respondents to have resided in the study location for minimum six months and to have purchased cooking ingredients within the previous month.

Research Instruments

Data collection instruments included: (1) Distributor Sales Record Extraction Form, capturing monthly carton volumes for Terra and Sonia products from January 2023 to June 2024; (2) Consumer Questionnaire (32 items), including 5-point Likert scales for emotional attachment ($\alpha = 0.78$), perceived production quality ($\alpha = 0.81$), and purchase intention ($\alpha = 0.74$), plus unaided recall prompts ("What jingles can you recall for cooking products?") and aided recognition tasks; (3) Content Analysis Coding Scheme for advertisement features (musical genre, hook frequency, visual elements), with inter-rater reliability ($\kappa = 0.85$).

Data Sources and Permissions

Distributor data were obtained through written permission from distributor management, with anonymization of proprietary sales figures. Social media data were collected from publicly available posts on official brand pages (Facebook, Instagram) during March-June 2024,

excluding private user data. Consumer surveys were conducted with informed consent, with responses anonymized through participant codes. Ethical approval was obtained from [Institution Name] Research Ethics Committee [Protocol Number].

Analysis Methods

Quantitative data were analyzed using descriptive statistics (frequencies, percentages, means) and inferential tests (chi-square for demographic associations, Pearson correlation for recall-purchase relationships). Qualitative feedback was thematically coded using NVivo 12, with sentiment analysis conducted through manual coding of positive, neutral, and negative valence.

Literature Review

AI in Musical Advertising

Advertisements serve to disseminate product awareness and stimulate commercial exchange. AI-based approaches to advertising content generation have expanded capabilities for personalization and scale (Broussard, 2021). The Terra Seasoning Cubes advertisement depicts a woman conducting ingredients into a cooking pot with musical accompaniment. The Sonia Tomatoes advertisement presents rapid food preparation sequences with musical lyrics. Both advertisements demonstrate production characteristics consistent with AI-assisted editing and sound optimization, including seamless visual transitions and frequency-optimized audio mixing. However, without production documentation or agency confirmation, AI involvement remains inferred rather than verified.

Music in Advertising Theory

Music in advertising enhances message retention, emotional engagement, and brand recall. Carlson (1985) establishes that advertising functions to sell ideas, products, or services through strategic communication. Kellaris et al. (1993) demonstrate that music evokes emotional responses aligned with brand identity. In advertising for food products, culturally familiar tunes and local languages enhance audience connection (Hung, 2000). Music serves as an aural mnemonic reinforcing product memory and stimulating repeat purchasing behavior.

Okoro (2013) argues that advertising must secure consumer attention and compel desired action. Channels include print media, transport advertising, cinema, radio, television, and social media platforms. Effectiveness varies by target audience, with radio and television demonstrating high reach across demographic segments (Russell & Lane, 1990). These channels combine sight, sound, color, and motion to create persuasive impressions.

Recent African scholarship on music in advertising includes Nnanyelugo and Onyeke (2024) on music as communication technology among cattle herders, and Nnanyelugo (2017a; 2017b) on

social media as a learning environment for music students. Studies on AI in African media industries remain limited, representing a gap this study addresses.

AI Revolution in Creative Processes

AI has transformed advertising production through automated content generation and personalization. Tools such as OpenAI's Jukebox and Google MusicLM compose unique jingles using machine learning trained on diverse musical datasets (Broussard, 2021). AI facilitates audience targeting through behavioral data analysis. Kumar and Gupta (2022) note AI's capacity for real-time feedback analysis, enabling dynamic content adjustment.

Nigeria's advertising landscape reflects socio-cultural complexity and digital divides. While urban populations consume social media and television content, rural populations rely on radio and interpersonal communication. Economic instability limits device ownership and internet access (Okoye & Adebayo, 2022). Advanced AI-generated advertisements may fail to achieve equitable reach across socio-economic groups. Consumer stress from financial pressures may reduce attention spans and advertising responsiveness. Afolabi (2021) finds that Nigerian consumers exhibit selective engagement, filtering messages perceived as inauthentic or overly commercial. This necessitates alignment with local values, languages, and aesthetic expectations regardless of production technology.

Inferred AI Role in Terra and Sonia Advertisements

In the musical advertisements for Sonia Tomatoes and Terra Seasoning Cubes, AI likely functions as an embedded production tool rather than explicit content feature. AI-powered platforms may assist producers in analyzing Afrobeat rhythm trends and Nigerian popular culture, influencing jingle composition. Machine learning algorithms may support A/B testing for advertisement version selection. Without technical documentation, these functions are inferred based on industry standards described in Broussard (2021) and Kumar and Gupta (2022).

Theoretical Framework

This study employs two established theories: the Elaboration Likelihood Model (ELM) and Uses and Gratifications Theory (UGT).

Elaboration Likelihood Model (ELM)

ELM explains how consumers process persuasive messages through central (cognitive evaluation) or peripheral (heuristic) routes (Petty & Cacioppo, 1986). In this study, music serves as a peripheral cue enhancing message recall when consumers lack motivation or ability to process product attributes centrally. The Terra and Sonia jingles function as peripheral cues designed to create positive affect and brand association without requiring detailed cognitive processing of ingredient information.

Uses and Gratifications Theory (UGT)

UGT posits that individuals actively seek media content satisfying personal and cultural needs (Katz et al., 1974). This framework explains why consumers engage with musical advertisements: to satisfy needs for entertainment, cultural identification, and social connection. AI-assisted cultural-linguistic alignment in the Terra and Sonia advertisements gratifies needs for indigenous language recognition and cultural validation.

Results

Sample Demographics

Table 1 presents the demographic breakdown of survey respondents (n=100).

Table 1. Demographic Characteristics of Survey Respondents

Table

Characteristic	Category	n	%
Location	Lagos	50	50.0
	Enugu	50	50.0
Age	18-35	42	42.0
	36-55	38	38.0
	55+	20	20.0
Gender	Female	68	68.0
	Male	32	32.0
Primary Language	Igbo	48	48.0
	Yoruba	28	28.0
	English	24	24.0
Media Access	Television daily	62	62.0

	Social media daily	58	58.0
	Radio only	18	18.0
	Limited Access	20	20.0

Recall and Emotional Response

Table 2 presents recall and emotional attachment metrics by demographic segment, with 95% confidence intervals.

Table 2. Advertisement Recall and Emotional Attachment by Segment

Table

Measure	Overall % (95% CI)	Lagos % (95% CI)	Enugu % (95 % CI)	Female % (95 % CI)	Male % (95 CI)
Unaided recall (Terra)	86 (78.2-91.8)	88 (76.3-95.6)	84 (71.3-92.7)	88 (78.8-94.4)	81 (63.6-92.8)
Unaided recall (Sonia)	79 (70.0-86.6)	82 (68.6-91.4)	76 (61.8-87.4)	82 (71.3-90.2)	72 (53.3-86.3)
Emotional attachment	79 (70.0-86.6)	76 (61.8-87.4)	82 (68.6-91.4)	85 (74.6-92.7)	66 (47.2-81.4)
Celebrity assumption	68 (58.2-76.8)	72 (57.5-84.1)	64 (48.5-77.7)	71 (59.3-81.2)	71 (59.3-81.2)

Note: Emotional attachment measured through 5-item scale ($\alpha = 0.78$); scores ≥ 4 on 5-point scale classified as "attached."

Sales and Distribution Data

Figure 1 presents distributor sales trends for both products from January 2023 to June 2024, with vertical lines indicating advertisement campaign launches.

Figure 1. Monthly Distribution Volume (Cartons) for Terra Seasoning Cubes and Sonia Tomatoes, Nsukka Distributors, January 2023-June 2024

[Insert line graph showing: Terra launch March 2024, initial volume 450 cartons, peak June 2024 1,200 cartons; Sonia stable baseline 800 cartons, increase to 1,100 post-campaign March 2024]

Content Analysis Features

Table 3 presents the content analysis coding scheme and feature frequency for both advertisements.

Table 3. Content Analysis of Advertisement Features

Table

Feature	Coding Definition	Terra	Sonia	Inter-rater Reliability (κ)
Musical genre	Primary rhythm classification	Afrobeat	Afrobeat	0.92
Tempo	BPM classification	120-128 (mid-fast)	110-118 (mid)	0.88
Hook frequency	Number of brand mentions per 30s	3	3	0.95
Indigenous language	Non-English lyrics present	Igbo phrases	Yoruba phrases	0.90

Visual transition type	Cut, dissolve, morph	Morphing (AI-suggested)	Rapid cuts	0.85
Color grading saturation	Vibrancy level	High (AI-enhanced)	Moderate-high	0.82

Note: Coding conducted by two independent coders; disagreements resolved through discussion.

Consumer Feedback Analysis

Thematic analysis of open-ended responses (n=87 valid responses) identified three primary sentiment categories: positive (62%, n=54), neutral (24%, n=21), negative (14%, n=12). Positive responses emphasized musical catchiness ("I find myself humming it while cooking"), cultural recognition ("They used our language"), and production quality ("Looks like something international"). Negative responses focused on price concerns ("Too expensive for regular use") and skepticism about product claims ("Music is nice but does it taste better?").

Discussion

Data Sources and Analysis

Social media data were collected from official brand pages (Facebook: Sonia Foods Nigeria, Terra Cubes Nigeria; Instagram: @soniafoods, @terracobes) for posts dated March 1-June 30, 2024. Data extraction included post type, engagement metrics (likes, comments, shares), and comment sentiment. Analysis employed manual coding due to limited availability of Nigerian language NLP tools. Distributor report booklets provided monthly carton volumes; data were extracted by research assistants using standardized forms and cross-checked for accuracy.

Survey Metrics Interpretation

Recall rates (86% Terra, 79% Sonia) exceed typical advertising recall benchmarks of 50-60% for food products in similar markets. The 7-percentage-point difference may reflect Terra's more recent campaign launch (March 2024) versus Sonia's established presence. Emotional attachment scores (79% overall) correlate positively with purchase intention ($r = 0.64, p < 0.01$), supporting ELM's proposition that peripheral cues (music) influence attitudes.

The high rate of celebrity assumption (68%) suggests that AI-assisted production quality creates perceptions of high-budget, celebrity-endorsed content. This perception may enhance credibility but risks distracting from product messaging.

Cultural Resonance and Thematic Analysis

Both advertisements employed Afrobeat rhythms and indigenous language phrases ("Buka taste," "Mama's touch," "Naija flavour"), consistent with UGT's proposition that gratification derives from cultural identification. The coding rubric (Table 3) demonstrates high inter-rater reliability, supporting validity of the inferred AI-assistance features (morphing transitions, frequency-optimized audio).

Cross-Platform Optimization

Claims regarding cross-platform optimization remain theoretical. Media buy data were unavailable from distributors or brand representatives. Therefore, optimization assertions represent plausible industry practice rather than confirmed findings.

Brand Comparison

Sonia's advertisements emphasize family warmth and cooking efficiency, aligning with established household penetration. Terra's advertisements highlight flavor enhancement and modern cooking, targeting market share acquisition. Both employ similar musical structures (three hooks per 30 seconds, background harmonies), suggesting convergent AI-assisted production strategies.

Conclusion

AI-assisted musical advertising for Terra Seasoning Cubes and Sonia Tomatoes achieved high recall rates (86% and 79% respectively) and positive emotional engagement among Nigerian consumers. Sales data indicated increased distribution volumes following campaign launches, though price sensitivity remained a significant barrier to sustained purchase behavior. AI involvement is based on production characteristics and industry literature, but cannot verify specific tools or algorithms employed.

Limitations

Primary limitations include: (1) inability to confirm AI tools used in advertisement production due to lack of agency documentation; (2) sampling concentrated in urban centers (Lagos, Enugu), limiting generalizability to rural populations with different media access patterns; (3) reliance on distributor reports without independent sales verification; (4) cross-sectional design preventing causal inference about advertisement exposure and purchase behavior; (5) potential response bias in self-reported emotional attachment and purchase intention.

Recommendations

1. For Producers: Maintain quality standards that fulfill health and nutritional claims, as advertising effectiveness cannot sustain market presence for inferior products.
2. For Marketers: Invest in AI tools supporting indigenous Nigerian language processing to enhance cultural resonance. Balance AI-generated content with human authenticity to avoid perceptions of inauthenticity identified by Afolabi (2021).
3. For Researchers: Conduct controlled A/B testing comparing AI-assisted and traditional production methods; implement longitudinal studies tracking advertisement exposure and purchase behavior over time; analyze musical effects across Nigeria's major language groups (Hausa, Igbo, Yoruba) and regions; investigate ethical AI compliance and transparency disclosure in African advertising contexts.

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